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ALAMITOS ENERGY CENTER

FINAL COMMISSION DECISION



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

APRIL 2017
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DOCKET NUMBER 13-AFC-01

**CALIFORNIA
ENERGY COMMISSION**

1516 Ninth Street
Sacramento, CA 95814

<http://www.energy.ca.gov/sitingcases/alamitos/index.html>

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KENNETH CELLI
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**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:

ALAMITOS ENERGY CENTER

Order No. 17-0412-3

Docket No. 13-AFC-01

COMMISSION ADOPTION ORDER

This Commission Order adopts the Commission Decision for the application for Certification for the Alamos Energy Center. The Commission Decision consists of the Alamos Energy Center PMPD docketed on February 13, 2017¹ and the Errata filed on April 11, 2017.² The Commission Decision is based upon the evidentiary record of these proceedings and considers the comments received prior to and at the April 12, 2017 Business Meeting. The Commission Decision contains a summary of the proceedings, the evidence presented, and the rationale for the findings reached and conditions imposed.

This Order incorporates by reference the text and evidence referred to in the PMPD and the Errata to the PMPD. The requirements contained in the Commission Decision ensure that the proposed facility will be designed, sited, constructed, and operated in a manner to protect environmental quality, to assure public health and safety, and to operate in a safe and reliable manner.

FINDINGS

The Commission hereby adopts the following findings, pursuant to the California Environmental Quality Act (California Public Resources Code, section 21000 et seq.), the Warren-Alquist Act (California Public Resources Code, section 25500 et seq.) and the Energy Commission Regulations (California Code of Regulations, Title 20), in addition to those contained in the Commission Decision:

1. Imposition and implementation of the conditions of certification contained in the Commission Decision ensure that the Alamos Energy Center project will be designed, constructed, sited, and operated in conformity with applicable local, regional, state, and federal laws, ordinances, regulations, and standards,

¹ TN 215975

² TN 216938

including applicable public health and safety standards, and air and water quality standards.

2. Imposition and implementation of the conditions of certification contained in the Commission Decision will ensure protection of environmental quality and assure reasonably safe and reliable operation of the Alamitos Energy Center project. The conditions of certification also assure that the Alamitos Energy Center project will neither result in, nor contribute substantially to, any significant direct, indirect, or cumulative environmental impacts.
3. Changes or alterations have been incorporated into the Alamitos Energy Center project that mitigate or lessen the impacts of the project and will be beneficial to the public.
4. Existing governmental land use restrictions are sufficient to adequately control population density in the area surrounding the Alamitos Energy Center project and may be reasonably expected to ensure public health and safety.
5. While located near Alamitos Bay and the San Gabriel River, the Alamitos Energy Center project has been set back from the shoreline to permit reasonable public use and to protect scenic and aesthetic values.
6. The Alamitos Energy Center will not be sited, constructed, or operated on land designated for use as a state, regional, county or city park; wilderness, scenic or natural reserve; area for wildlife protection, recreation, historic preservation; or natural preservation or on an estuary in an essentially natural and undeveloped state.
7. There is an environmental justice population, based on either the presence of minority or low-income populations, within six miles of the project; however, the Alamitos Energy Center project will not have any significant environmental impacts and therefore will not have a disproportionate impact on low-income or minority populations.
8. The Commission Decision contains a discussion of the public benefits of the project as required by Public Resources Code section 25523(h).
9. The Alamitos Energy Center project would benefit the local and regional study areas in terms of an increase in local expenditures and payrolls during construction and operation of the facility, as well as a possible benefit to public finance and local economies through taxation. These activities will provide a degree of economic benefits to the local area. In addition, the Alamitos Energy Center reduces water usage and eliminates the use of ocean water for cooling and includes more efficient equipment for the generation of electricity.

10. The evidence does not establish the existence of any environmentally superior alternative site.
11. The Commission Decision contains measures to ensure that the planned, temporary, or unexpected closure of the project will conform with applicable laws, ordinances, regulations, and standards.
12. The proceedings leading to the Commission Decision have been conducted in conformity with the regulations governing the consideration of an Application for Certification and thereby meet the requirements of Public Resources Code sections 21000 et seq. and 25500 et seq.

ORDER

Therefore, the Commission Orders the following:

1. The Alamitos Energy Center PMPD filed on February 13, 2017,³ and the Errata filed on April 11, 2017,⁴ are hereby adopted as the Commission Decision and incorporated by reference into this Order.
2. The Application for Certification for the Alamitos Energy Center as described in the Commission Decision and a certificate to construct and operate the project are hereby granted.
3. The approval of the Application for Certification for the Alamitos Energy Center is subject to the timely performance of the conditions of certification and compliance verifications. The conditions of certification and compliance verifications are integrated with this Order and are not severable therefrom. While the project owner may delegate the performance of a condition or verification, the duty to ensure adequate performance of a condition or verification may not be delegated.
4. This Order is adopted, issued, effective, and final on April 12, 2017.
5. Reconsideration of this Order is governed by Public Resources Code section 25530.
6. Judicial review of this Order is governed by Public Resources Code section 25531.

³ TN 215975.

⁴ TN 216938.

7. The Commission hereby adopts the Conditions of Certification, Compliance Verifications, and associated dispute resolution procedures set forth in the Commission Decision as its mitigation monitoring program required by Public Resources Code section 25532. All Conditions take effect immediately upon adoption and apply to all construction and site preparation activities including, but not limited to, ground disturbance, site preparation, and permanent structure construction.
8. This Order licenses the project owner to commence construction on the Alamitos Energy Center project. Subject to the provisions of California Code of Regulations, title 20, section 1720.3, this license expires by operation of law when the Alamitos Energy Center project's start-of-construction deadline passes with no construction.
9. The Executive Director of the Commission shall transmit a Notice of Decision and appropriate accompanying documents, as provided by Public Resources Code section 25537, and California Code of Regulations, title 20, section 1768.
10. The Hearing and Policy Unit shall incorporate the Alamitos Energy Center PMPD and Errata into a single document. Publication of that compilation shall not affect the adoption, effective, issuance, or final dates of this Order established in paragraph 4, above.

IT IS SO ORDERED.

CERTIFICATION

The undersigned Secretariat to the Commission does hereby certify that the foregoing is a full, true, and correct copy of an Order duly and regularly adopted at a meeting of the California Energy Commission held on April 12, 2017.

AYE: Weisenmiller, Douglas, McAllister, Hochschild, Scott

NAY:

ABSENT:

ABSTAIN:

Original Signed by:

Cody Goldthrite
Secretariat

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APPENDIX B: EXHIBIT LIST

APPENDIX C: PROOF OF SERVICE LIST

I. INTRODUCTION

SUMMARY OF THE DECISION

This Decision contains the California Energy Commission's (Energy Commission) rationale in determining that the proposed Alamitos Energy Center project (AEC or Project) will, as mitigated, 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 evidentiary record established during this certification proceeding and summarized in this document. The Committee has independently evaluated the evidence, cited to references in the record¹ supporting our findings and conclusions, and specified the measures required to ensure that the AEC is designed, constructed, and operated in the manner necessary to protect public health and safety, promote the general welfare, and preserve environmental quality.

The Energy Commission has exclusive jurisdiction to license this project and is considering the AFC under a review process established by Public Resources Code, sections 25500 and California Code of Regulations, title 20, section 1200. A license issued by the Energy Commission is in lieu of other state and local permits.

BACKGROUND

On December 27, 2013, AES Southland Development, LLC (Applicant) submitted an application for certification (AFC) to modernize the existing Alamitos Generating Station (AGS) located at 690 North Studebaker Drive, Long Beach, California. The AEC project was originally proposed to be a natural-gas-fired, air-cooled, combined-cycle electrical generating facility with a net generating capacity of 1,936 megawatts (MW).

On October 26, 2015, the Applicant filed a Supplemental Application for Certification (SAFC) that changed the design of the initially proposed AEC project. The currently proposed AEC would be a nominal 1,040 MW, natural-gas-fired, combined-cycle and simple-cycle, air-cooled electrical generating facility consisting of two power blocks. Power Block 1 consists of two natural-gas-fired combustion turbine generators in a combined-cycle configuration, two unfired heat recovery steam generators, one steam turbine generator, an air-cooled

¹ The Reporter's Transcripts of the evidentiary hearings are cited as "date of hearing, RT page __: line __." For example: 10/1/16 RT 77:16. 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.

condenser, an auxiliary boiler, and related ancillary equipment capable of producing a nominal 640 MW. Power Block 2 consists of four 100 MW simple-cycle combustion turbine generators with fin-fan coolers and ancillary facilities.

The AEC would be located on 21 acres within the larger 71.1-acre AGS site.

The project site is bounded on the north by State Route 22, on the east by the San Gabriel River, on the south by 2nd Street, and on the west by N. Studebaker Road in the City of Long Beach, Los Angeles County, California.

For more details about the proposed project, please see the **PROJECT DESCRIPTION** section of this Decision.

PROJECT CERTIFICATION PROCESS

The AEC and its related facilities are subject to Energy Commission licensing jurisdiction.² During certification proceedings, the Energy Commission acts as the lead state agency under the California Environmental Quality Act (CEQA).³ The Energy Commission's regulatory process, including the evidentiary record and associated analyses, are functionally equivalent to the preparation of an Environmental Impact Report pursuant to CEQA.⁴ The process is designed to be completed within a specified time period when the required information is submitted in a timely manner.

The Energy 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.

The Energy 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. The Energy Commission also has a Public Adviser who is available to assist the public in participating in all aspects of the certification proceeding.

The process begins when an Applicant submits an AFC. Energy Commission staff (Staff) reviews the data submitted as part of the AFC and makes a

² Pub. Res. Code, § 25500 et seq.

³ Pub. Res. Code, §§ 25519(c), 21000 et seq.

⁴ Pub. Res. Code, § 21080.5.

recommendation to the Energy Commission⁵ on whether the AFC contains adequate information to begin the certification process. After the Energy Commission determines an AFC contains sufficient analytical information and deems it “data adequate,” it appoints a Committee of two Commissioners⁶ to conduct the formal certification process. This process includes public conferences and Evidentiary Hearings, through which 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 (LORS) and provides recommendations to the Energy Commission.

The initial portion of the certification process is weighted heavily towards assuring public awareness of the proposed project and obtaining necessary technical information. Typically, during this informational and discovery phase, the following events occur:

- The Committee will hold an informational hearing, a site visit, and conferences.
- Staff publishes an issues identification report.
- Individuals or groups may petition the Committee to be intervenors.
- Staff and intervenors issue data requests.
- 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.
- Staff publishes its initial technical evaluation of the AFC in its Preliminary Staff Assessment (PSA) and makes it available for a 30-day comment period.
- Staff publishes its Final Staff Assessment (FSA) which contains Staff’s conclusions about potential environmental impacts and conformity with

⁵ The “Energy Commission” consists of the five commissioners appointed and confirmed to review, oversee, and vote on items of business for the Commission. Energy Commission Staff is the professional staff, consultants, or experts of the Energy Commission’s Siting, Transportation and Environmental Protection Division who review and perform the environmental, social, engineering, and safety review.

⁶ On March 12, 2014, designated Commissioner Karen Douglas, Presiding Member, and Commissioner Janea Scott, Associate Member, as the Committee to manage the certification process.

LORS; proposed conditions of certification (COCs) or mitigation that apply to the design, construction, operation, and closure of the facility; comments made on the PSA; and Staff's responses to those comments, The FSA serves as Staff formal testimony.

Following the discovery phase, 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 the Prehearing Conference, the Committee issues a Hearing Order to schedule a formal Evidentiary Hearing(s). 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 Evidentiary Hearing(s) provides the basis for the Committee's PMPD, which is available for a 30-day public comment period. The PMPD contains the Committee's analysis and recommendations. Depending on 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 requires an additional public comment period. Finally, the full Energy 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 Energy Commission, serve as fact-finders and decision-makers. Other parties, including the Applicant, Staff, and 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 staff, or the assigned hearing officer, unless these communications are made on the public record.

PROCEDURAL HISTORY

As stated above, the Energy Commission has exclusive jurisdiction to license this project. Public Resources Code, sections 25500 et seq. and Energy Commission regulations⁷ 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 AEC proceeding are summarized below.

On December 27, 2013, the Applicant submitted an AFC seeking approval from the Energy Commission to develop the AEC.⁸ On March 12, 2014, the Energy

⁷ Cal. Code Regs., tit. 20, §§ 1200, et seq.; 1701, et seq.

⁸ Ex. 1401 – 1472.

Commission accepted the AFC as complete, assigned a Committee to conduct proceedings, thus starting the Energy Commission's formal review of the proposed project.⁹

On April 11, 2014, the Committee issued a "Notice of Public Site Visit, Environmental Scoping Meeting and Informational Hearing, and Committee Order."¹⁰ 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 AEC. The Energy Commission's 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.¹¹

On April 29, 2014, the Committee conducted a site visit of the proposed AEC site followed by a public Informational Hearing at the Recreation Park 18 Golf Course in Long Beach, California. At that event, the Committee, the parties, interested governmental agencies, and other public participants discussed issues related to development of the proposed project, described the Energy Commission's review process, and explained opportunities for public participation.

On May 6, 2014, the Committee issued its initial Scheduling Order.¹² 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 12 months.

On October 1, 2014, the Los Cerritos Wetlands Land Trust submitted a petition to intervene in the proceeding.¹³ The Committee granted the petition on November 14, 2014.¹⁴ No other petition to intervene has been submitted for this proceeding.

On November 4, 2014, the Committee issued a Notice of Committee Status Conferences¹⁵ to take place on November 18, 2014 and December 16, 2014. At the December 16, 2014 status conference, the Applicant notified the Committee that they would be proposing substantial changes to the originally proposed AEC

⁹ http://www.energy.ca.gov/business_meetings/2014_minutes/2014-03-12_minutes.pdf.

¹⁰ TN 202006.

¹¹ 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.

¹² TN 202312.

¹³ TN 203145.

¹⁴ TN 203336.

¹⁵ TN 203310.

project that would reduce the proposed nominal generating capacity from 1,995 MW to 1,040 MW. The Applicant indicated that it would file a supplemental AFC (SAFC) in the third quarter of 2015.¹⁶

On October 26, 2015, the Applicant filed a SAFC¹⁷ that changed the design of the originally proposed AEC project (described further in the Project Description section).

On November 6, 2015 the Committee issued a Notice of Committee Status Conference¹⁸ to take place on December 17, 2015. On December 3, 2015 Staff issued a Notice of Data Response and Issues Resolution Workshop¹⁹ to immediately follow the December 17, 2015 status conference. Subjects discussed at the Staff workshop included air quality, cultural resources, hazardous materials management, noise and vibration, traffic and transportation, transmission systems engineering, worker safety and fire protection. On January 14, 2016, the Committee issued a new Committee Scheduling Order that aimed for a final Decision in October 2016.

On March 10, 2016, the Committee issued a Notice of Committee Status Conference to take place on March 24, 2016. On March 17, 2016, the Applicant filed a Supplemental Application for Certification Revisions with the South Coast Air Quality Management District (SCAQMD) proposing to increase the number of cold start-ups for the combined-cycle turbines on a monthly and annual basis.²⁰ The SCAQMD issued its Preliminary Determination of Compliance on June 30, 2016.²¹

On July 13, 2016 Staff published the Preliminary Staff Assessment (PSA), which is their technical evaluation of the AEC project. The public was provided a 30-day comment period which ended on August 12, 2016. Staff held a public workshop on the PSA on August 9, 2016.

On August 2, 2016, the Committee issued a Notice of Committee Status Conference to take place on August 24, 2016.²²

¹⁶ TN 203510.

¹⁷ Exs. 1500 – 1508.

¹⁸ TN 206527.

¹⁹ TN 206827.

²⁰ TN 210805.

²¹ TN 212045.

²² TN 212557.

Staff filed a Motion for Summary Adjudication²³ on August 31, 2016 which sought a ruling on whether the demolition of the AGS Units 1-6 needed to be analyzed in the Final Staff Assessment (FSA) as direct and indirect impacts or, simply as cumulative impacts. On September 9, 2016, the Committee issued a Notice of Committee Status Conference to take place on October 6, 2016²⁴ and an Order setting deadlines for responses to Staff's motion.²⁵ The October 6, 2016 Status Conference was moved to October 10, 2016.²⁶ On September 19, 2016 both Applicant and Intervenor filed their responses to Staff's Motion.²⁷ The Committee filed a tentative ruling granting Staff's motion on September 28, 2016 and heard argument on the motion at the October 10, 2016 Status Conference.²⁸ The final Committee ruling granting the motion was filed on October 14, 2016. The Committee found that the demolition of AGS Units 1-6 was not a reasonably foreseeable consequence of the AEC and, therefore, not a part of the whole of the AEC project. Nevertheless, since the demolition of the AGS units was reasonably foreseeable, the Committee ordered Staff to analyze it as a future project as part of its cumulative analyses.²⁹

The Final Staff Assessment (FSA) Part 1 was published on September 23, 2016.³⁰ FSA Part 1 contained Staff's testimony on all subject areas except Air Quality, Greenhouse Gasses and Public Health.

On October 14, 2016, the Committee filed a Notice of Prehearing Conference and Evidentiary Hearing, Part 1, setting Prehearing Conference for November 9, 2016 and the Evidentiary Hearing, Part 1, for November 15, 2016.³¹ The Notice contained a new schedule that superseded all prior schedules.

The Committee conducted the Prehearing Conference on November 9, 2016, in Sacramento at the Energy Commission. The Committee conducted the Evidentiary Hearing (Part 1) on all subject areas except Air Quality, Greenhouse

²³ TN 213217.

²⁴ TN 213589.

²⁵ TN 213588.

²⁶ TN 213854.

²⁷ TN 213733 and 213732-1, (respectively).

²⁸ TN 213827.

²⁹ TN 214007. Note: the lead agency for the demolition of AGS Units 1-6 would be the City of Long Beach.

³⁰ TN 213768.

³¹ TN 214014.

Gases, and Public Health on November 15, 2016 at the Grand Event Center in Long Beach, California.³²

On November 23, 2016, the Committee filed a Notice of Evidentiary Hearing, Part 2, setting the Evidentiary Hearing, Part 2, for December 20, 2016 at the Grand Event Center in Long Beach, California.³³ The Notice contained a new schedule that superseded all prior schedules. The Committee conducted the Evidentiary Hearing (Part 2) on Air Quality, Greenhouse Gases, and Public Health and closed the record on December 20, 2016 at the Grand Event Center in Long Beach, California.

The Committee published the PMPD on February 13, 2017, subject to a 30-day comment period. The Committee conducted a Committee Conference in Long Beach, California on March 1, 2017. The comment period closed on March 15, 2017. The Committee filed Errata containing recommended edits to the PMPD on April 11, 2017.

The Energy Commission considered the PMPD and Errata at its April 12, 2017 business meeting, and adopted the PMPD and Errata.

ENERGY 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, language support, and 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 which gives an immediate notification of documents posted in that proceeding. 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.

PUBLIC COMMENT

Throughout these proceedings, as reflected in the transcribed record, the Committee provided an opportunity for public comment at each Committee-

³² TN 214529.

³³ *Id.*

sponsored conference and hearing. Oral and written public comments were received during the Evidentiary Hearings and to a lesser extent during the PMPD Committee hearings and comment periods. The significant comments are addressed throughout the remainder of this Decision, either directly or in the narratives.

Some comments which are not specific to a particular topic area are addressed here.

California Assemblyman **Patrick O'Donnell**,³⁴ Long Beach City Council member, **Suzie Price**,³⁵ **Tonya Martin**,³⁶ representative for state Senator **Ricardo Lara**, 33rd District, **Bill Thomas**,³⁷ a local resident and **Lara Laramendi**,³⁸ Advocacy Director for Los Angeles County Business Federation, all spoke in favor of the AEC in terms of its benefits to the community, the environment, and to the electric grid.

³⁴ 11/15/16 RT 10:5 – 11:20; TN 216401.

³⁵ 11/15/16 RT 11:25 – 14:8; 3/1/17 RT 56:8 – 58:3.

³⁶ 11/15/16 RT 18:6 – 18:22.

³⁷ 11/15/16 RT 133:23 – 134:16.

³⁸ 11/15/16 RT 135:13 – 138:1

II. PROJECT DESCRIPTION

INTRODUCTION

On October 26, 2015, AES Alamos Energy, LLC (Applicant) submitted a Supplemental Application for Certification (SAFC) to the California Energy Commission (Energy Commission) for the Alamos Energy Center (AEC) project. The SAFC replaced the original Application for Certification (AFC) filed on December 27, 2013. The AEC would be constructed on the site of the Alamos Generating Station (AGS), an existing and operating power plant located at 690 North Studebaker Road in the city of Long Beach, Los Angeles County, California. The Applicant will own and operate the project.¹

This topic was uncontested. Evidence on the topic of project description is contained in Exhibits 1011, 1013, 1014, 1031, 1032, 1041, 1056, 1059, 1066, 1068, 1073, 1407, 1431, 1432, 1433, 1501-1508, 2000, 2002, 2002, 3001-3003, 3009, 3012, 3014, 3016, 3018-3024, 3027-3030, 3032 -3034, and 3043-3046.²

SETTING

The project site is bounded to the north by the Southern California Edison (SCE) switchyard and State Route 22 (East 7th Street); to the east by the San Gabriel River and, beyond that, the Los Angeles Department of Water and Power Haynes Generating Station; to the south by the Plains West Coast Terminals petroleum storage facility and undeveloped property; and to the west by the Los Cerritos channel, AGS cooling-water canals, and the residences west of the channel.³

The AGS site currently consists of three parcels totaling approximately 71.1 acres. The site comprises land identified by parcel numbers 7237-018-808 for the northern portion of the site, 7237-019-808 for the southern portion of the site and 7237-019-005 for the former aboveground storage tank farm. The AEC facility will occupy approximately 21 acres of the 71.1-acre, privately-owned brownfield AGS site.⁴

The AEC site is located in the City of Long Beach's Southeast Area Development Improvement Plan (SEADIP or Planned Development district 1 (PD-1), which is

¹ Ex. 2000, p. 3-1.

² 11/15/16 RT 26:10 – 32:15.

³ Ex. 2000, p. 3-1.

⁴ Ex. 2000, p. 4.5-3.

designated for industrial use and must conform to the design and development standards of the City of Long Beach's General Industrial zone. Primary access to the AEC is located at the existing entrance at 690 North Studebaker Drive, just south of the State Route 22 and north of the intersection of Westminster Avenue.⁵ **Project Description - Figure 1** shows the regional location project site map. **Project Description - Figure 2** shows the project boundary, sewer line, project laydown and parking areas. **Project Description - Figure 3** shows the arrangement and layout of the existing AGS facility. **Project Description Figure - 4** shows the proposed arrangement and layout of the AEC, including laydown area and parking. These figures can be found at the end of this section.⁶

The AGS facility was built between 1955 and 1969. The facility included natural gas/oil, steam-turbine power generating units and was originally owned and operated by SCE. During the late 1990's, the electric industry was restructured, and SCE sold most of its generating facilities. In 1998, AES Southland purchased AGS from SCE. Currently, AGS Units 1-6 are in operation with a net generating capacity of 1,950 megawatts (MW). Unit 7 was decommissioned in 2003.⁷

Demolition of Units 1 through 6 is not part of the AEC project,⁸ but is addressed in a Memorandum of Understanding between the Applicant and the City of Long Beach.⁹ Demolition of Units 1-6 is expected to commence after the AEC begins commercial operation which Applicant estimates to be in 2021. Concurrent construction of AEC with the demolition of AGS Units 1-6 is not expected to occur.¹⁰ Demolition of the decommissioned AGS Unit 7's remaining components is part of the AEC project. Construction activities at the project site are anticipated to last 56 months, from 2017 to 2021. Regardless of whether the AEC facility is licensed or constructed, AGS Units 1-6 are scheduled to be shut down by 2020 under the State Water Resources Control Board's phase-out of the use of once-through-cooling.¹¹

The AEC project is proposed as a nominal 1,040 MW, natural-gas-fired, combined-cycle and simple-cycle, air-cooled electrical generating facility

⁵ Ex. 2000, p. 4.5-5.

⁶ Ex. 2000, p. 4.5-5.

⁷ Exs. 2000, pp. 3-1 – 3-2; 1500 p. 5.3-16.

⁸ Ex. 2002.

⁹ Ex. 1031.

¹⁰ Ex. 2000, p. 3-2.

¹¹ Ex. 2000, p. 3-1.

consisting of two power blocks to provide fast starting and stopping, reliable, flexible multistage generating resources.

Power Block 1 would consist of two, natural-gas-fired combustion turbine generators (CTG) in a combined-cycle configuration (collectively “CCGT”) to produce a nominal 640 MW, with two unfired heat recovery steam generators (HRSG), one steam turbine generator (STG), an air cooled condenser, an auxiliary boiler, and related ancillary equipment.

Power Block 2 would consist of four natural gas-fired, simple-cycle CTGs with fin-fan coolers and ancillary facilities (collectively, “SCGT”) for a nominal 400 MW. A station battery system also would be used to provide direct current (DC) voltage as backup power for control systems and other critical uses.

The Final Staff Assessment (FSA) and SAFC describe in detail the process by which the CTG, HRSG and STG generate electricity in the CCGT and SCGT as well as the specific components included in the process. See **Project Description Figures 2 through 4**, below, depicting the location of AEC within the AGS and its surroundings and some of the major equipment for the project.¹²

Construction of the AEC requires the use of approximately 8 acres of onsite laydown areas dispersed throughout the site, and approximately 10 acres of additional laydown area located adjacent to the AGS site, south of existing AGS Units 5 and 6.¹³ See **Project Description Figures 2 through 4**, at the end of this section, depicting the location of AEC within the AGS and its surroundings, the construction laydown areas, and some of the major equipment for the project.¹⁴

The AEC CCGT will be located on the southern-most portion of the AEC site, on the former AGS fuel oil-storage site. The AEC CCGT includes the following principal design elements:

- Two General Electric (GE) 7FA.05 CTGs with a nominal rating of 227 MW each. The CTGs are equipped with inlet air filters, inlet silencers, evaporative coolers, metal enclosure for noise reduction, lubrication oil system, compressor wash system, fire detection and protection system, fuel gas flow meter, strainer, and duplex coalescing filter, static starter, turbine and generator controls, power system stabilizer, automatic voltage regulator (AVR), automatic generation control and dry low oxides of nitrogen (NOx) combustors;

¹² Ex. 2000, pp. 3-1; 3-4 – 3-6.

¹³ Ex. 2000, p. 3-2.

¹⁴ Ex. 2000, pp. 3-1; 3-4 – 3-6.

- Two HRSGs with no supplemental firing, each equipped with a selective catalytic reduction (SCR) unit in the ductwork for the control of NOx emissions, and an oxidation catalyst to control carbon monoxide (CO) and volatile organic compound (VOC) emissions;
- One, single flow, impulse, down-exhaust-condensing STG with a nominal rating of approximately 229 MW;
- One air cooled condenser that would replace the once-through-cooling system using ocean water to cool the AGS, and a closed loop fin-fan cooler;
- A new natural gas compressor and compressor building for the CCGTs;
- One generator step-up transformer for each GE 7FA gas turbine and one for the steam turbine; and
- One 230 kilovolt (kV) interconnection to the existing SCE switchyard, which is adjacent to the site¹⁵
- The AEC SCGT will be located on the northern portion of the AEC site, adjacent to the San Gabriel River. The combustion turbine would drive an air-cooled, 3-phase, 2-pole synchronous generator. The AEC SCGT includes the following principal design elements:
 - Four GE Energy LMS 100 PB natural gas-fired CTGs with a nominal rating of 100 MW each;
 - The CTGs are equipped with inlet air filters, inlet silencers, intercooler, weather proof metal enclosure for noise reduction, lubrication oil system, compressor wash system, fire detection and protection system, fuel gas flow meter, strainer, and duplex coalescing filter, starter system, turbine and generator controls, power system stabilizer, automatic voltage regulator (AVR), automatic generation control and dry low oxides of nitrogen (NOx) combustors;
 - Each CTG is equipped with SCR equipment containing catalysts to further reduce NOx emissions, and an oxidation catalyst to reduce CO emissions;
 - Auxiliary equipment associated with each CTG would include an inlet-air-filter house with evaporative cooler, turbine intercooler and associated intercooler circulating pumps;

¹⁵ Ex. 2000, pp. 3-2 – 3-3.

- Each pair of CTGs would share one fin-fan heat exchanger and one generator step-up transformer;
- A new natural gas compressor and compressor building for the SCGT; and
- One 230-kV interconnection to the existing onsite SCE 230-kV switchyard.¹⁶

The CCGT's heat rejection system would consist of an air cooled condenser, which eliminates the need for ocean water for cooling. It would transfer approximately 1,300 MMBtu/hr to the ambient air as a result of condensing steam at these operating conditions. Balance of plant systems would be cooled by closed-loop fluid coolers using water. CTG, STG, gas compressors, and other balance-of-plant auxiliary equipment requiring cooling would be integrated into the closed cooling water loop.¹⁷

The SCGT's simple-cycle heat rejection system would consist of one air-cooled closed loop fluid cooler per two CTGs to reject waste heat from the intercooler and other gas turbine auxiliaries. Each cooler would reject approximately 222 MMBtu/hr to the ambient air.¹⁸

The two power blocks share the following design elements:

- Direct connection to an existing Southern California Gas Company (SoCalGas) 30-inch diameter natural gas pipeline and metering station;
- Connection to existing onsite municipal and industrial water lines;
- Fire water and suppression systems;
- A new 1,000-linear-foot process/sanitary wastewater pipeline to the first point of interconnection with the existing Long Beach Water Department (LBWD) sewer system at the east end of East Vista Street in Long Beach;
- An existing storm water retention pond; and
- Water treatment and storage systems.¹⁹

The AEC will interconnect to the existing SCE 230 kV switchyard adjacent to the northern side of the property. No new offsite transmission lines will be needed for the AEC.²⁰

¹⁶ Ex. 2000, p. 3-3.

¹⁷ Ex. 2000, p. 3-7.

¹⁸ Ex. 2000, p. 3-7.

¹⁹ Ex. 2000, pp. 3-2 – 3-3.

²⁰ Ex. 2000, pp. 3-2; 4.11-3.

AEC will take delivery of its natural gas through the existing service pipeline for AGS Units 5 and 6 from the offsite 30-inch diameter, high pressure pipeline which SoCalGas owns and operates. AEC will require a new natural gas metering facility and construction of two new natural gas compressor buildings (one for each power block) within the AEC footprint. However, no new offsite natural gas lines are necessary for the project.²¹

The AEC will use water provided by the LBWD for process and potable uses. The maximum annual AEC water consumption would be 130 acre-feet per year. The project will continue to use the existing water main connection on Studebaker Road. Water treatment facilities, including a new 340,000-gallon deionized water tank filled directly from LBWD service connections through metering equipment will be constructed within the site footprint. The AEC will include a new 1,000 linear-foot process/sanitary wastewater pipeline to the first point of interconnection with the existing LBWD sewer system which will eliminate the current practice of treatment and discharge of process/sanitary wastewater to the San Gabriel River. Storm water will be collected in the existing south basin where oil containing sludge collected in the oil/water separation tanks will be removed via vacuum truck and disposed of as hazardous waste. The remaining water will discharge to the San Gabriel River via existing storm water outfalls.²²

The existing fire protection system will be modified for the AEC and the rest of the AGS site to meet all LORS while reusing existing equipment to the maximum extent possible. The primary source of fire protection water will be a connection to the existing water distribution system. A new 8-inch onsite fire water loop and hydrants will encircle the two new power blocks using existing onsite firewater hydrant lines. No new offsite pipelines are needed for fire protection. The secondary source of fire protection water will be the 600,000-gallon service water storage tank, which provides 2 hours of protection.²³

Two existing electric fire pumps connected to two independent power feeds from the SCE distribution system pump water from the onsite storage tank. Fire protection water from the existing water supply connection and service water storage tank will be provided to a dedicated underground fire loop piping system. Fixed fire-suppression systems will be installed at determined fire risk areas. Sprinkler systems will be installed in the administration and maintenance

²¹ Ex. 2000, p. 3-2.

²² Ex. 2000, p. 3-3; 3-8.

²³ Ex. 2000, p. 3-8.

buildings as required by the National Fire Protection Association (NFPA) code and applicable laws, ordinances, regulations and standards (LORS). The CTG units will be protected by a carbon dioxide fire protection system. Handheld fire extinguishers will be located throughout the facility in accordance with the NFPA code. Please refer to the **WORKER SAFETY AND FIRE PROTECTION** and **SOCIOECONOMICS** sections of this Decision for more specifics related to fire response and emergency services for the AEC project.²⁴

There would be a variety of hazardous materials used and stored at the AEC site. The storage, handling and use of all chemicals must be conducted in accordance with applicable LORS. Hazardous materials may include gasoline, diesel fuel, oil, lubricants, solvents and paints. All hazardous materials must be stored on site in storage tanks, vessels and containers specifically designed for the characteristics of the materials. When appropriate, the storage facilities will include secondary containment in case of tank/vessel failure. The **HAZARDOUS MATERIALS MANAGEMENT** section of this Decision provides additional data on AEC hazardous materials, including quantities, associated hazards and permissible exposure limits, storage methods, and special handling precautions.²⁵

Air emissions from the combustion of natural gas in the CTGs and auxiliary boiler will be controlled using state of the art systems. The AEC will continuously monitor stack exhaust flow rate, temperature, oxygen, NOx, and CO, as well as the natural gas heat input, generator output, and ammonia injection rate into the pollution control system as required by the South Coast Air Quality Management District (SCAQMD).²⁶ The **AIR QUALITY** section of this Decision discusses in detail the anticipated emissions resulting from project, the types of equipment proposed to limit emissions, and mitigation measures to ensure emissions are at levels consistent with LORS.

Waste Management is the process whereby all wastes are properly collected, treated (if necessary), and disposed. Wastes include process and sanitary wastewater, nonhazardous waste, and hazardous waste, both liquid and solid. The AEC waste may include oily rags, broken and rusted metal and machine parts, defective or broken electrical materials, empty containers, and other solid wastes, including the typical refuse generated by workers. The **WASTE MANAGEMENT** section of this Decision details the types of waste generated by

²⁴ Ex. 2000, p. 3-8.

²⁵ Ex. 2000, p. 3-9.

²⁶ Ex. 2000, p. 3-9.

the AEC and the process by which both hazardous and nonhazardous wastes will be stored, transferred and disposed.²⁷

Construction of the AEC facility, from site preparation and grading to commercial operation, is expected to take place over an approximate 57-month period, from the second quarter of 2017 to the third quarter of 2021. The peak number of construction workers anticipated for the project is 512. Once operational, the plant will employ approximately 36 operational staff who will come from the existing 66-member AGS staff. Therefore, no new workers are expected to be hired. Capital costs for the project are estimated to exceed \$940 million.²⁸

PROJECT OBJECTIVES

The Applicant's SAFC identifies the AEC's primary objective to design a project that provides local area capacity at the existing AGS site. In addition to the primary objective, these are the basic project objectives:

- Develop a project capable of providing energy, generating capacity, and ancillary electrical services (voltage support, spinning reserve, inertia) to satisfy Los Angeles Basin Local Reliability Area requirements and transmission grid support, particularly in the western subarea of the Los Angeles Basin.
- Provide fast starting and stopping, flexible, controllable generation with the ability to ramp up and down through a wide range of electrical output to allow the efficient integration of renewable energy sources into the electrical grid, and replace older, once-through cooled and less efficient generation.
- Develop on a brownfield power plant site and use existing infrastructure, including the existing switchyard and related facilities, the SCE switchyard and transmission facilities, the SoCalGas natural gas pipeline system, the LBWD water connections, process water supply lines, and existing fire suppression and emergency service facilities.
- Use qualifying technology under the South Coast Air Quality Management District's Rule 1304(a)(2) exemption that allows for the replacement of older, less-efficient electric utility steam boilers with specific new generation technologies on a megawatt-to-megawatt basis (that is, the replacement

²⁷ Ex. 2000, p. 3-9.

²⁸ Ex. 2000, p. 3-9; 4.8-13; 4.8-26.

megawatts are equal or less than the megawatts from the electric utility steam boilers).²⁹

APPROACH TO CUMULATIVE IMPACT ANALYSIS

A project may result in a significant adverse cumulative impact when 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 (1) past projects; (2) other current projects; and (3) probable future projects.³⁰

The record contains evaluations of cumulative impacts within the analysis of each resource area. Each section of this Decision defines its own geographic scope for cumulative impact analysis based upon the potential area within which impacts from the AEC could combine with those of other projects.³¹

We have previously ruled that the demolition of the AGS Units 1-6 was not a reasonably foreseeable consequence of the AEC, and, therefore, not a part of the AEC project.³² However, the demolition of the AGS Units 1-6 is a reasonably foreseeable future project which is included in the cumulative environmental analysis.³³

AES Recharge Battery Building

The AES Battery Energy Storage System (BESS) project would include three 100-MW containment buildings, constructed in sequential phases from east to west located approximately 0.25 miles from the proposed AEC. Each building would be 50 feet tall, 270 feet long and 165 feet wide (44,550 square feet). Construction of the proposed BESS is expected to start the third quarter of 2019, after major mechanical completion of the AEC Power Block 1. Completion of the first 100-MW building is planned for late 2020. The second and third energy storage buildings are expected to be constructed and operational in 2021 and 2022, respectively.³⁴

²⁹ Ex. 2000, p. 1-4.

³⁰ Cal. Code Regs., tit. 14, § 15130.

³¹ Ex. 2000, p. 1-15.

³² Ex. 2002.

³³ *Id.*

³⁴ Ex. 2000, p. 4.6-23.

Intervenor, Los Cerritos Wetlands Land Trust (LCWLT) argues that the BESS project is part of the AEC.³⁵ However, LCWLT has proffered no evidence to support that argument or to show that the BESS is a reasonably foreseeable consequence of the AEC. We acknowledge that the BESS project will be located in close proximity and may have associated ownership. However, the BESS will not be physically or electrically interconnected to the AEC.³⁶ The BESS project is not a part of the AEC project for the same reasons that the demolition of the AGS Units 1-6 is not a part of the AEC project.³⁷ That is, the BESS is not a reasonably foreseeable consequence of the AEC because it is not a crucial functional element, a required element, dependent upon, interdependent or functionally linked to the construction and operation of AEC.³⁸ Therefore it is appropriate to consider only the cumulative impacts of the AEC in combination with the construction and operation of the BESS project.

The analysis evaluates the effects of the AEC in combination with past, present (existing), and foreseeable future projects within the defined area of geographic effect. **Project Description Table 1**, below, contains the AEC Master List of Cumulative Projects.³⁹

Project Description Table 1
AEC Master List of Cumulative Projects

ID #	Project Name	Project Description	Location	Distance to AEC (Miles)	Status
1	Demolition of Alamitos Generating Station (AGS) Units 1-6	AGS Units 1-6 are to remain operational during demolition of AGS Unit 7 and AEC construction. After construction of the AEC, decommissioning of AGS Units 1-6 is expected as the means for the AGS facility to comply with the state's once-through-cooling policy. Based on a Memorandum of Understanding with the City of Long Beach, demolition of the existing AGS Units 1-6 will occur at a currently unknown time in the future.	690 N. Studebaker Rd., Long Beach	0.2	Unknown
2	Los Cerritos Wetlands	Synergy intends to establish a mitigation bank and wetlands habitat restoration area	Between the Pacific Coast	0.2	Environmental Review

³⁵ Ex. 3005, p.1.

³⁶ Ex. 1072, p. 4

³⁷ Ex. 2002.

³⁸ *Id.*, p. 6.

³⁹ Ex. 2000, pp. 1-16 – 1-26.

ID #	Project Name	Project Description	Location	Distance to AEC (Miles)	Status
	Conceptual Restoration Plan and Mitigation Bank	on the Synergy Oil Field. The mitigation bank would cover 76 acres. Restored wetlands would cover 72 acres of the 152-acre Synergy Oil Field. Project includes construction of public access improvements. Synergy would remove approximately 37 oil wells from the restoration area. It would conduct oil production activities, including drilling of 70 new oil wells.	Highway (PCH), Los Cerritos Channel, Studebaker Rd., and 2nd St., Long Beach		
3	AES Battery Energy Storage System (BESS)	BESS project at the AGS to include three 100 MW containment buildings, constructed in sequential phases from east to west. Each would contain two battery storage levels, electrical controls, and HVAC units. Construction proposed to start 3rd quarter 2019, after major mechanical completion of the AEC CCGT power block, with completion of the first 100-MW building planned for late 2020. The second and third 100-MW buildings to then be constructed and operational in 2021/2022.	North side of AEC project site, Long Beach	0.3	Planning Phase
4	Alamitos Barrier Improvement Project	This project has been recognized to produce significant noise and ground disturbance. Project involves construction and operation of up to 20 injection wells, four monitoring wells, and four piezometers along the existing alignment of the Alamitos Barrier. The project will be conducted under Orange County Water District Contract # AB-2014-1.	Multiple locations along the Los Alamitos Channel between San Gabriel River, El dorado Dr. and Canoe Brook Dr., Orange County	0.4	Planning Phase
5	Los Angeles Dept. of Water and Power Haynes Generating Station	Addition of six LMS100 simple cycle gas turbines and two emergency diesel-powered generators. Project is a stationary emission source with active emission permit.	6801 2nd St., Long Beach	0.6	Operational
6	Alamitos Bay Bridge Improvement Project	Improvements to the bridge are needed to enhance the safety of the structure and to maintain the level of service. Project could result in new bridge.	Project crosses the El Cerritos Channel on Pacific Coast Hwy., Long Beach	0.9	Environmental Review

PROJECT DESCRIPTION

ID #	Project Name	Project Description	Location	Distance to AEC (Miles)	Status
7	PCH and 2nd	Demolition of the existing Seaport Marina Hotel and construction of a commercial center totaling approximately 250,000 sq. ft. of retail and restaurant space and a three- level enclosed parking structure. The proposed commercial structures would be one- and two- story buildings with a maximum height of 35 feet. The project is on a 10.93-acre site.	6400 E Pacific Coast Hwy., Long Beach	0.9	Environmental Review
8	CalTrans #12, San Diego Freeway I-405 Improvement Project	The I-405 Improvement Project would add one general purpose lane in each direction on I-405 from Euclid Street to the I-605 interchange, plus add a tolled Express Lane in each direction of I-405 from State Route 73 to State Route 22 East.	I-405 between SR-73 and I-605, Costa Mesa, Seal Beach	1.0	Planning Phase
9	Rehabilitation of Western Regional Sewers, Project No. 3-64	Orange County Sanitation District proposes to rehabilitate and/or replace entire lengths of the Orange Western Sub-Trunk, Los Alamitos Sub-trunk, Westside Relief Interceptor, and the Seal Beach Interceptor regional pipelines. In addition to pipeline and manhole replacement and/or rehabilitation, project includes rehabilitation/replacement of the Westside Pump Station force main, reconstruction of the Westside Pump Station wet well, and construction of a new vent line from the wet well to the downstream manhole or construction of an odor control scrubber.	Follows public rights-of-way (streets and easements) in cities of La Palma, Buena Park, Cypress, Anaheim, Los Alamitos, Seal Beach, and community of Rossmoor.	1.3	Environmental Review
10	Alamitos Bay Marina Rehabilitation Project	Renovate the existing Marina facilities and enhance existing recreational boating facilities in the Marina. The project encourages boating use by providing upgraded Americans with Disabilities Act-compliant facilities, upgraded restrooms, and dredged basins to ensure safe navigation. Project would provide longer average slip lengths. The existing 1,967 slips in Basins 1 through 7 would be replaced by 1,646 slips in these Basins, at a loss of approximately 321 slips.	Alamitos Bay Marina adjacent to and northwest of the mouth of the San Gabriel River, Long Beach	1.3	Under Construction
11	Ocean Place Residential Development	Construct single-family homes and open space park on about 11 acres (6-acre park). Approval of proposed 32 lots merged into a single lot for overnight lodging.	Area south of Marina Dr. between 1st St. and San Gabriel River, Long Beach	1.6	Planning Phase
12	Colorado Lagoon Restoration	The Colorado Lagoon is an approximately 11.7-acre tidal water body that is	Southeast portion of	1.9	Under

PROJECT DESCRIPTION

ID #	Project Name	Project Description	Location	Distance to AEC (Miles)	Status
	Project	connected to Alamitos Bay and the ocean through an underground tidal culvert to Marine Stadium. The project will create habitat that can successfully establish and support native plant and animal communities in the long term, implement long-term water quality control measures, and enhance the Lagoon's value as a recreational resource.	Long Beach, northwest of San Gabriel River mouth, and upstream from Marine Stadium and Alamitos Bay, Long Beach		Construction
13	Leeway Sailing Center Pier and Dock D3	Rebuild Leeway Sailing Center with 5,300 sq. ft. of office and facilities, and 3,200 sq. ft. of boat storage.	5437 E Ocean Blvd., Long Beach	2.0	Planning Phase
14	Sunset Gap Monitoring Well Project	Project involves destroying three wells that have reached the end of their lifespans and constructing six new wells. New wells will be installed on the Naval Weapons Station Seal Beach. Only off-site work is destruction of two wells to the south in Huntington Beach.	Near Case Rd. and Bolsa Ave., Seal Beach	2.5	Under Construction
15	Belmont Pool Revitalization	Demolition of the existing Belmont Pool complex (the indoor and outdoor features) and construction of a replacement indoor/outdoor pool complex. Spectator seating for approximately 3,500 people through a combination of permanent and portable seating.	4000 East Olympic Plaza, Long Beach	2.7	Under Construction
16	Safran Senior Housing Project	Conversion of the Immanuel Community Church into a senior housing project consisting of 24 low- or very-low-income independent senior dwelling units, a manager's unit and associated amenities/common areas in 31,006 sq. ft. of floor area. Project includes demolition of the existing single-family home and detached garage at 304 Obispo Avenue, for construction of a surface parking lot to serve the project.	3215 E. 3rd St., Long Beach	3.1	Under Construction
17	Sunset / Huntington Harbor Maintenance Dredging and Waterline Installation Project	The City of Huntington Beach and the County of Orange are responsible for proposed Maintenance Dredging and Waterline Installation project components.	Edinger Ave. and Sunset Way, Huntington Beach	3.2	Under Construction
18	Los Alamitos Medical Center Specific Plan	Replacing and adding new buildings to the existing facility on an 18-acre site, including constructing two four-story hospital buildings. Planned in three phases	3751 Katella Ave., Los Alamitos	3.2	Under Construction

PROJECT DESCRIPTION

ID #	Project Name	Project Description	Location	Distance to AEC (Miles)	Status
		with anticipated construction period of 25 years.			
19	City of Long Beach East Division Police Substation	City of Long Beach is seeking a transfer of land under the Base Realignment and Closure (BRAC) program (transition of surplus military property to civilian uses). The project is also subject to environmental review under the National Environmental Policy Act (NEPA) and to be reviewed and approved by the U.S. Department of the Army.	3800 East Willow St., Long Beach	3.7	Completed
20	Humboldt Bridge Preventative Maintenance Project	Maintenance activities on the existing Humboldt Drive bridge to restore the integrity of its original design.	Humboldt Dr. bridge, west of Humboldt Dr. and Wimbledon Lane intersection, Huntington Beach	3.8	Planning Phase
21	Barton Place	Project includes two components: a senior residential community and commercial/retail improvements along Katella Ave. It includes the subdivision of the site into nine separate lots.	Northeast corner of Katella Ave. and Enterprise Dr., Cypress	3.8	Planning Phase
22	Tennis Estates Tree Trimming and Management Plan	Analyzes environmental impacts associated with a proposal to permit the establishment of a Tree Trimming and Management Plan for the Tennis Estates Homeowners Association property in the Coastal Zone. Addresses maintenance and management procedures of trees that have provided heronry functions for birds protected under the Migratory Bird Treaty Act.	16380 Wimbledon Lane, Huntington Beach	3.9	Under Construction
23	Rofael Marina and Caretaker Facility	Construction of marina on a 6,179 sq. ft. property.	16926 Park Ave., Huntington Beach	3.9	Under Construction
24	Harmony Cove Marina Development	Amend the city's zoning map on the project site to allow the development of a 23-boat slip marina, an eating and drinking establishment with outdoor dining area and alcoholic beverage sales, and	3901 Warner Ave., Huntington Beach	4.4	Planning Phase

PROJECT DESCRIPTION

ID #	Project Name	Project Description	Location	Distance to AEC (Miles)	Status
		ancillary uses to the marina.			
25	Pacific Pointe East Development Project	Construction of three industrial buildings on an approximately 25-acre site with a paved surface parking lot. Buildings would have an open floor plan and are intended for light industrial, light manufacturing, warehouse, office, and/or research and development land uses.	Southeast corner of Lakewood Blvd. and Conant St., Long Beach	4.6	Planning Phase
26	Airport Circle Residential Project	City of Huntington Beach General Plan amendment and zoning map amendment to change existing designations to Residential Medium High Density on a 2.5 acre site. Development of the site includes 45 condominium subdivision and associated open space. The site layout consists of 8 detached three-story buildings with four to eight attached dwelling units. Units are approximately 1,250-1,940 sq. ft.	16911 Airport Circle, Huntington Beach	4.9	Plan Check
27	925 East Pacific Coast Highway Lease Acquisition Project	Demolition or rehabilitation of the existing project site building for the purposes of blight removal. The project site totals 15,795 sq. ft. (about 0.36 acre).	925-945 E. Pacific Coast Hwy., Long Beach	4.9	Planning Phase
28	Douglas Park Rezone Project	Based on 2009 project description from addendum to the final Environmental Impact Report (EIR): Revised project to include up to approximately 3.75 million sq. ft. of commercial/light industrial uses (research and development uses), 250,000 sq. ft. of retail uses, and a hotel with 400 rooms. 10 acres of open space planned. The site covers 261 acres.	Bound by Carson St. on the north, the Airport south and southwest, Lakewood Blvd. on the east, and Lakewood Country Club Golf Course on the west.	5.0	Under Construction
29	Douglas Park Medical Office	Construction of three new industrial buildings with new parking stalls.	3828 Schaufele Ave., Long Beach	5.0	Under construction

PROJECT DESCRIPTION

ID #	Project Name	Project Description	Location	Distance to AEC (Miles)	Status
30	Brightwater	Construction of 347 single-family units, a community pool and clubhouse, and over 37 acres for habitat restoration and trails. 105.3 acres of the upper bench portion of the Bolsa Chica mesa.	4884 Brightwater Dr., Huntington Beach	5.1	Under construction
31	207 Seaside Way Project	Construction of 113-unit multi-family apartment complex on the 0.67-acre site. Project would include a single structure consisting of eight levels (one subterranean level and seven aboveground levels). Bottom three levels would provide 144 on-site parking spaces. Apartment structure would be 85 feet above the East Seaside Way grade. Apartment units would include a mix of studios, and one- and two-bedroom configurations. Amenities include a cafe, fitness center, retail space, and a lobby.	207 E Seaside Way Long Beach	5.2	Environmental Review
32	Urban Village on Long Beach	Project would improve three abutting parcels with a five-story building containing 129 condominium units and 175 parking stalls located in an integrated five-level parking garage.	1081 Long Beach Blvd., Long Beach	5.3	Planning Phase
33	1235 Long Beach Boulevard Mixed-Use Project	Construct 42,000 sq. ft. of ground floor commercial space, 186 senior rental housing units, and 170 condominium units. Requires demolition of two existing commercial buildings.	1235 Long Beach Blvd., Long Beach	5.3	Complete
34	Parkside Estates	Includes 111 single family residences, 23 acres of preserved, restored and enhanced open space, 1.6-acre neighborhood park, public trails, creation of a water quality treatment system that will treat over 25% of the dry-weather flow from Slater watershed that currently flows untreated to Bolsa Chica and the ocean.	West side of Graham St., south of Warner Ave., along East Garden Grove Wintersburg Flood Channel 17221, Huntington Beach	5.3	Planning Phase

PROJECT DESCRIPTION

ID #	Project Name	Project Description	Location	Distance to AEC (Miles)	Status
35	Oceanaire Apartment	Construction of a 216-unit multi-family/mixed-use apartment complex on the 1.76-acre site.	150 West Ocean Blvd., Long Beach	5.3	Under Construction
36	Pine Square Theater Conversion to Residential	Conversion of movie theater into 69 residential apartment units.	250–270 Pacific Ave., Long Beach	5.4	Under Construction
37	New Long Beach Civic Center Project	Construction of new Long Beach City Hall, new Port Building for Harbor Department administration, new and relocated Main Library, redeveloped Lincoln Park, residential development, and commercial mixed use development. Includes demolition of the former Long Beach Courthouse.	Downtown Long Beach on 15.87 acres. Separated into 2 discontinuous parcels generally bounded by 3rd St. to north, Pacific Ave. to east, Magnolia Ave. to west, and Ocean Blvd. to south., Long Beach	5.5	Under Construction
38	Aquarium of the Pacific "Pacific Visions" Expansion	Construction of a 23,330 sq. ft. addition to an existing 166,447 sq. ft. aquarium. The project will be designed and built to the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) Gold standards with "add-alternate" design plans to bring the project to Platinum status if funding is available.	100 Aquarium Way, Long Beach	5.6	Under Construction
39	442 W. Ocean Boulevard Project	Construction of a 95-unit multi-family apartment complex on the 24,000 sq. ft. site.	442 West Ocean Blvd., Long Beach	5.6	Environmental Review
40	Cypress Village Shopping Center	Remodel and upgrade the shopping center. Project includes demolition of 6,982 sq. ft. of retail area, exterior façade remodel of existing buildings, and improvements to existing parking lot.	9515–9575 Valley View St., Cypress	5.7	Environmental Review

PROJECT DESCRIPTION

ID #	Project Name	Project Description	Location	Distance to AEC (Miles)	Status
41	Golden Shore Master Plan	Project includes three development options, a Residential Option and two Hotel Options, and all would be entitled through the City of Long Beach. The option ultimately constructed would be selected based on market conditions prevailing at the time entitlement is complete.	6-9 Golden Shore, Long Beach	5.9	Planning Phase
42	Edinger Walmart	Proposed to establish a community oriented anchor use within the Beach and Edinger Corridors Specific Plan by occupying existing 100,865-sq. ft. vacant retail building within existing commercial center. Exterior building improvements include new paint and new primary entry doors.	6856 Edinger Ave., Huntington Beach	5.9	Complete
43	Drake Park Soccer Field	Create 64-acre park from Cesar E. Chavez Park to Drake Park and Loma Vista Park in Long Beach. Two new soccer fields are part of the project. Work primarily consists of demolition and grading, installation of drainage system, basketball court, synthetic soccer field, constructing Portland cement concrete infrastructure, installing asphalt paving, park furnishings, lighting and electrical, prefabricated restroom installation, underground water, sewer pipelines, electrical service, and landscape irrigation for approximate 8-acre site.	Along lower Los Angeles River in Long Beach to link Cesar E. Chavez Park to Drake Park and Loma Vista Park, Long Beach.	5.9	Under Construction
44	Shoemaker Bridge Replacement Project	Replace Shoemaker Bridge over the Los Angeles River with a new bridge located south of the existing bridge. Alternative 1 (no build), alternative 2 (re-purpose existing bridge for non-motorized transportation and recreational use, and alternative 3 (removal of existing bridge). Alternatives 2 and 3 include street improvements along West Shoreline Dr., 3rd St., 6 th St., 7 th St., Ocean Blvd., and Broadway Ave. The Notice of Preparation of the EIR was published April of 2016.	Southern end of I-710, bisected by Los Angeles River, Long Beach	5.9	Environmental Review
45	Mackay Place Specific Plan	Construct 47 detached single-family homes around a central street system. Demolish all on-site buildings, parking lots, and grass and landscaped areas.	East of Walker St. and Delong St. intersection, Cypress	6.0	Planning Phase

PROJECT DESCRIPTION

ID #	Project Name	Project Description	Location	Distance to AEC (Miles)	Status
46	Monogram Apartments (formerly Pedigo)	Four-story with lofts apartment building: 510 dwelling units, 25,815 sq. ft. public open space, 55,396 sq. ft. private open space, and approximately 5,097 sq. ft. leasing office wrapped around a six-level 862-space parking structure. (5 parcels located at the SW corner of Edinger Ave and Gothard St.)	7262 Edinger Ave., Huntington Beach	6.2	Plan Check
47	Huntington Beach Lofts	385 luxury residential units in five residential stories, located above approximately 10,000 square feet of street level retail and commercial uses.	7400 Center Ave., Huntington Beach	6.3	Under Construction
48	Mitsubishi Cement Facility Modification Project	Modify existing cement import facility, including construction of four, 10,000-metric-ton storage and truck-loading silos; upgrade existing facilities and ship unloading equipment; and modify operating permit issued by South Coast Air Quality Management District for the facility.	1150 Pier F Ave., Long Beach	6.4	Planning Phase
49	Pacific Crane Maintenance Company Chassis Support Facility Project	Project is a facility for the distribution, storage and maintenance of chassis used to move cargo containers. Facility components include ingress and egress gates, admin and staff trailers, on-site parking spaces and designated areas for chassis storage, chassis maintenance, parts/miscellaneous storage, and tire support.	1402 Pier B St., Long Beach	6.4	Planning Phase
50	The Boardwalk (Murdy Commons)	Construction of 487 dwelling units and 14,500 sq. ft. commercial area. First two phases have opened for occupancy.	7461 Edinger Ave., Huntington Beach	6.4	Under Construction
51	The Village at Bella Terra	Planning Commission approved General Plan Amendment No. 10-001, Zoning Text Amendment No. 10-001, and Site Plan Review No. 10-001 for The Village at Bella Terra-Costco Wholesale, facilitating development of a regional commercial big-box retail with gasoline service station and a mixed-use retail and residential project. Construction of 154,113 sq. ft. Costco Wholesale store with tire sales/installation center, 16-pump gas station, and addition of two elevators on west side of the existing public parking structure. Project	7777 Edinger Ave., Huntington Beach	6.6	Completed

PROJECT DESCRIPTION

ID #	Project Name	Project Description	Location	Distance to AEC (Miles)	Status
		includes 467 multi-family residential units within four-story building along with approximately 13,500 sq. ft. of residential amenities, 17,500 sq. ft. of mixed-use retail and restaurant uses; additional 12,000 sq. ft. of freestanding retail and restaurants and a 1,920 sq. ft. pavilion building within landscaped greenbelt area.			
52	Gerald Desmond Bridge Replacement Project	The Gerald Desmond Bridge Replacement Project will provide three lanes in each direction to improve traffic flow, emergency lanes on both sides to reduce traffic delays and safety hazards, and 205 feet of vertical clearance to accommodate the world's largest, "greener" vessels.	Gerald Desmond Bridge, Port of Long Beach	7.0	Under Construction
53	Riverwalk Residential Development Project	Construction of 131 detached single family homes on lots.	4747 Daisy Ave., Long Beach	7.8	Planning Phase
54	Oregon Park	Develop a 3.3-acre lot with a neighborhood park. Proposed improvements would include a regulation soccer field with lights, a tot lot, group picnic area, walking path and prefabricated restrooms. A total of 42 parking spaces would be added and a portion of the public right of way.	4951 Oregon Ave., Long Beach	8.0	Environmental Review
55	North Village Center Redevelopment Project	Project involves redeveloping an approximately 6.3-acre site in Long Beach. Project is a mixed-use "village center" with the following primary components: up to 61 units of multi-family housing in a mix of row houses, courtyard units, and units built atop ground floor non-residential space; up to 36,000 sq. ft. of commercial retail space, including restaurant space, oriented primarily toward Atlantic Avenue, and; a public library and community center totaling 30,000 sq. ft. fronting Atlantic Avenue on the east block. A General Plan Amendment and Zoning Ordinance Amendment would be required to allow the proposed mix of uses and density. Parking for the project's residential components of the project would be provided as follows: two spaces per residential unit, and; guest parking to be provided through shared parking with the retail and institutional spaces based on the results of a shared parking analysis. The commercial components of the project	Bounded by South St., Linden Ave., 59th St., and Lime Ave, Long Beach	8.1	In Progress

PROJECT DESCRIPTION

ID #	Project Name	Project Description	Location	Distance to AEC (Miles)	Status
		would be parked at the shopping center standard of five spaces per 1,000 sq. ft.			
56	Weber Metals Large Press Expansion	Proposed project includes expansion of the existing facility through installation of a new 60,000 ton forging press on the property. This proposed building would require an 85-foot deep excavation pit to house the press and a 65-foot high main roof to accommodate the height of the press.	16706 Garfield Ave., Paramount	8.9	Planning Phase
57	Huntington Beach Energy Project	The 2014 Energy Commission licensed project is a natural gas fired, combined cycle, air-cooled 939-MW electrical generating facility. Project would require demolition of existing power plant and construction of project. The 2015 Petition to Amend the 2014 licensed project is a natural gas-fired, combined-cycle and simple-cycle, air-cooled 844-MW electrical generating facility.	Huntington Beach Generating Station, Huntington Beach	10.9	Licensed in 2014. Demolition started in the first quarter of 2016 with project completion estimated 10 years later in the fourth quarter of 2025. Petition to Amend submitted to Energy Commission is currently under review.
AQ-1	U.S Government, Veterans Affairs Medical Center	Stationary emission source with active emission permit	5901 E 7th St., Long Beach	1.4	Active
AQ-2	Trend Offset Printing Services, Inc.	Stationary emission source with active emission permit	3722 Catalina St., Los Alamitos	3.3	Active

AGENCY AND PUBLIC COMMENTS

We received no public comment on the **PROJECT DESCRIPTION**.

FINDINGS OF FACT

Based on the evidence, we find as follows:

1. AES Alamitos Energy, LLC, will own and operate the Alamitos Energy Center on private land in the City of Long Beach, Los Angeles County, California.

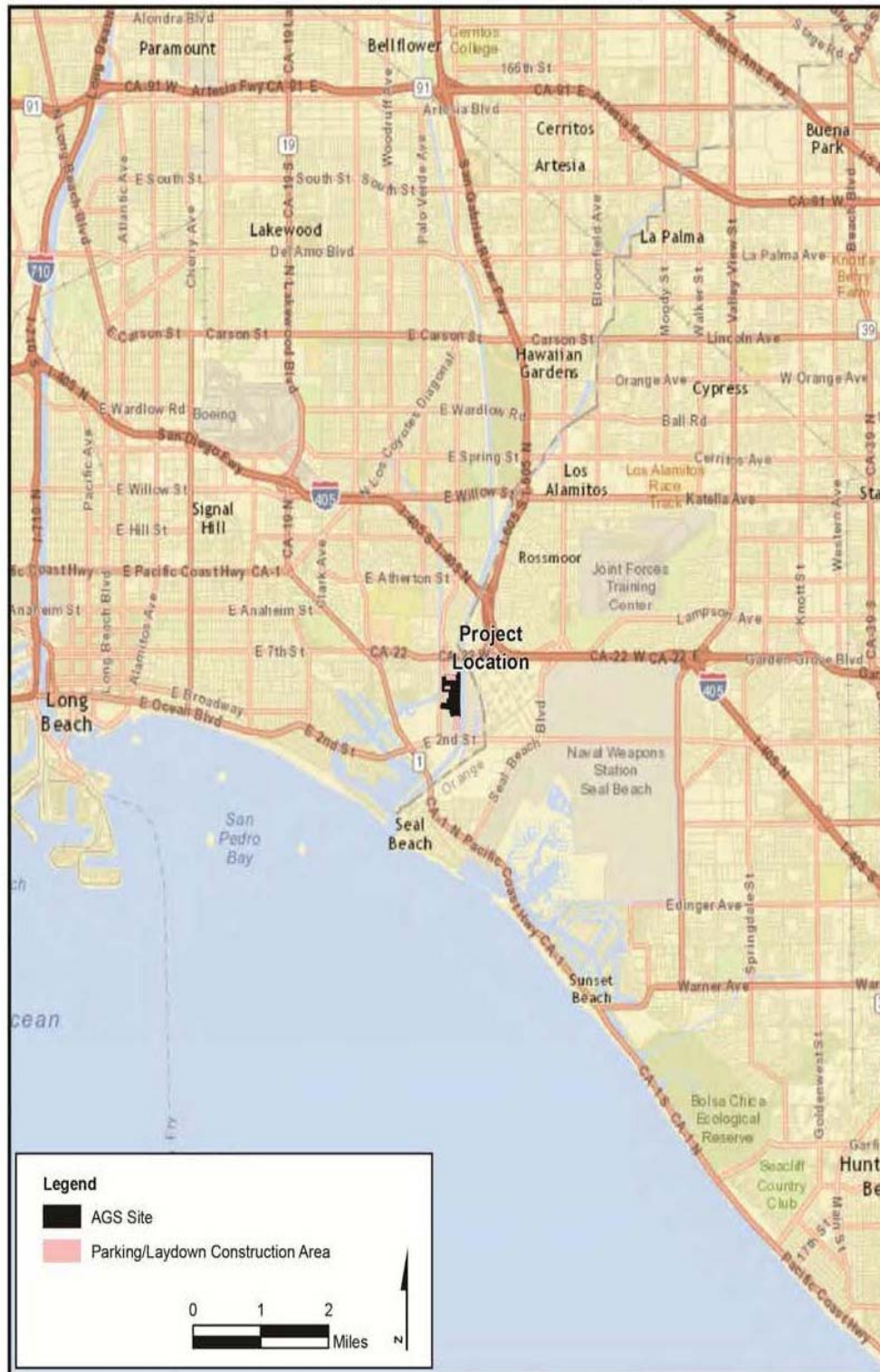
2. Construction of the Alamitos Energy Center facility, from site preparation and grading to commercial operation, is expected to take place over an approximate 57-month period, starting in 2017 to and lasting to 2021.
3. The Alamitos Energy Center will have a combined nominal electrical output of 1,040 Megawatt (MW) from two separate independently-operable combined cycle and simple cycle power blocks.
4. The Alamitos Energy Center will interconnect to the existing Southern California Edison 230 kilovolt (kV) switchyard adjacent to the northern side of the property.
5. No new offsite transmission lines will be needed for the Alamitos Energy Center.
6. No new offsite natural gas lines will be necessary for the Alamitos Energy Center.
7. The Alamitos Energy Center will use potable water provided by the city of Long Beach Water Department through existing onsite potable water lines.
8. The Alamitos Energy Center will construct a new 1,000 linear-foot process/sanitary wastewater pipeline to the first point of interconnection with the existing Long Beach Water Department sewer system which will eliminate the current practice of treatment and discharge of Alamitos Generating Station's process/sanitary wastewater to the San Gabriel River.
9. No new offsite linears will be needed for fire protection at Alamitos Energy Center.
10. During construction, the Alamitos Energy Center will use approximately 8 acres of onsite laydown areas dispersed throughout the existing site, and an additional approximately 10 acres of additional laydown area located adjacent to the Alamitos Generating Station site south of existing Alamitos Generating Station Units 5 and 6.
11. Once operational, the Alamitos Energy Center will employ approximately 36 operational staff who will come from the existing 66-member Alamitos Generating Station staff; therefore, no new workers will be hired.
12. The peak number of construction workers estimated for the project is 512.
13. Capital costs for the project are estimated to exceed \$940 million.

14. The Alamos Energy Center and its objectives are adequately described by the relevant documents contained in the evidentiary record.
15. Demolition of the Alamos Generating Station Units 1-6 is not a reasonably foreseeable consequence of the Alamos Energy Center, and, therefore, not a part of the Alamos Energy Center project.
16. Demolition of the Alamos Generating Station Units 1-6 is a reasonably foreseeable future project and is included in the cumulative environmental analysis.

CONCLUSIONS OF LAW

The Alamos Energy Center 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
Alamitos Energy Center - Regional Location Map



PROJECT DESCRIPTION - FIGURE 2
Alamitos Energy Center - Project Boundry and Sewer Lines



PROJECT DESCRIPTION - FIGURE 3
Alamitos Energy Center - Existing View



PROJECT DESCRIPTION

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION
SOURCE: AFC, Volume 1, Figure 11-4, December 2013, Ch2MHill

PROJECT DESCRIPTION - FIGURE 4
Alamitos Energy Center - Simulated View



PROJECT DESCRIPTION

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION
SOURCE: AFC, Volume 1, Figure 1 1-1, December 2013, Ch2MHill

VIII. PROJECT ALTERNATIVES

INTRODUCTION

The California Environmental Quality Act (CEQA) Guidelines and the Energy Commission's regulations require an evaluation of the comparative merits of a reasonable range of alternatives that achieve most of the basic objectives of the proposed project but would avoid or substantially lessen potentially significant environmental impacts.¹

This topic was contested. Evidence on the topic of project alternatives is contained in Exhibits 1070, 1072, 1073, 1427, 1500-1508, 2000, 2002, 2004, 2005, 2013, 3000-3023, 3026, and 3043-3047.²

SETTING

The AEC project site is located within the 71-acre Alamos Generating Station (AGS) footprint which includes the AGS electric generating station and a former aboveground storage tank farm. The AEC project would consist of two power generation blocks, one combined-cycle power block and one simple-cycle power block.

For detailed information regarding the setting of the AEC project, please refer to the **PROJECT DESCRIPTION** section of this Decision.

PROJECT DESCRIPTION

The proposed AEC would be constructed and operated at the existing Alamos Generating Station (AGS) site. Southern California Edison (SCE) built the AGS between 1955 and 1969. Unit 1 began commercial operation in 1956, Unit 2 in 1957, Unit 3 in 1961, Unit 4 in 1962, Units 5 and 6 in 1966, and Unit 7 in 1969. Unit 7 was decommissioned in 2003 and partially demolished. By the 1980s, the AGS was converted to natural gas only and the fuel oil tanks were removed in 2010, AES Alamos Energy acquired the AGS plant from SCE in 1998.³

AGS Units 1-6 are currently in operation and, if AEC is licensed, would continue to provide electrical service concurrent with the construction of the AEC Power Block 1. AGS Units 1, 2, and 6 would be retired after Power Block 1 begins operations. Units 3, 4, and 5 would likely operate until December 31, 2020, which is the final date for the AGS facility to comply with the California State Water Resources Control Board's

¹ Cal. Code Regs., tit. 14, §§ 15126.6(c) and (e).

² 11/15/16 RT 26:10 – 32:15; 78:18 – 105:19.

³ Ex. 2000, p. 6-20.

(SWRCB) *Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling* (OTC Policy). The City of Long Beach and project owner have entered into a Memorandum of Understanding (MOU) regarding the demolition of the AGS Units 1-6. Pursuant to the MOU, demolition of AGS Units 1-6 would be conducted in accordance with the MOU once all necessary regulatory approvals to retire and decommission the existing AGS units are received.⁴

The AEC project would use the AGS site's existing infrastructure, including the existing fresh water supply, storm water drainage system, wastewater system, natural gas supply line, and access to the adjacent SCE switchyard for connection to the transmission grid. The AEC will construct a new 1,000-foot-long process/sanitary wastewater pipeline to the first point of interconnection with the existing Long Beach Water Department (LBWD) sewer system in place of the current practice of treatment and discharge of process/sanitary wastewater to the San Gabriel River.⁵

The California Independent System Operator (California ISO) has identified a need for new power generation facilities in the Western Los Angeles Basin Local Reliability Area (West LA Basin Reliability Area) to replace the existing generating plants that are expected to retire as a result of the state's OTC Policy.⁶ In response, the California Public Utilities Commission (CPUC) (Decision D.13-02-015) ordered SCE to procure 1,400 to 1,800 MW of new local energy resources in the West LA Basin Reliability Area to meet long-term local capacity requirements by 2021. Of this total, at least 1,000 MW but not more than 1,200 MW must be generated from conventional gas-fired resources. In November 2015, the CPUC approved SCE's contract for 640 MW of natural gas-fired generation at the Alamitos site.⁷

Locating AEC on an existing power plant site avoids the need to construct new linear facilities, including gas and water supply lines, discharge lines, and transmission interconnections. This reduces potential offsite environmental impacts, and the cost of construction.⁸

For additional details on the project description, please see the **PROJECT DESCRIPTION** section of this Decision.

⁴ *Id.* and Ex. 1500, p. 1-3.

⁵ Ex. 2000, p. 6-16.

⁶ Ex. 2000, p. 6-17.

⁷ Ex. 2000, pp. 6-10; 6-18.

⁸ Ex. 1500, p. 1.9.

PROJECT OBJECTIVES

The Applicant's supplemental application for certification (SAFC) identifies the AEC's primary objective to design a project that provides local area capacity at the existing AGS site.⁹ In addition to this primary objective, the Applicant also identifies these basic project objectives:

- Develop a project capable of providing energy, generating capacity, and ancillary electrical services (voltage support, spinning reserve, inertia) to satisfy Los Angeles Basin Local Reliability Area requirements and transmission grid support, particularly in the western subarea of the Los Angeles Basin.
- Provide fast starting and stopping, flexible, controllable generation with the ability to ramp up and down through a wide range of electrical output to allow the efficient integration of renewable energy sources into the electrical grid, and replace older, OTC and less efficient generation.
- Develop on a brownfield power plant site and use existing infrastructure, including the existing switchyard and related facilities, the SCE switchyard and transmission facilities, the Southern California Gas Company natural gas pipeline system, LBWD water connections, process water supply lines, and existing fire suppression and emergency service facilities.
- Use qualifying technology under the South Coast Air Quality Management District's (SCAQMD) Rule 1304(a)(2) exemption that allows for the replacement of older, less-efficient electric utility steam boilers with specific new generation technologies on a megawatt-to-megawatt basis (that is, the replacement megawatts are equal or less than the megawatts from the electric utility steam boilers).¹⁰

ENVIRONMENTAL ANALYSIS

CEQA requires that we consider a reasonable range of alternatives that could feasibly accomplish most of the basic project objectives while avoiding or substantially lessening one or more of the significant effects. The alternative, or range of alternatives, including the "No Project" alternative, is governed by the "rule of reason" and need not include those alternatives whose effects cannot be reasonably ascertained and whose implementation is remote and speculative. Rather, the analysis is necessarily limited to

⁹ Ex. 2000, p. 6.3.

¹⁰ *Id.*

alternatives that the “lead agency determines could feasibly attain most of the basic objectives of the project.”¹¹

Alternative Sites

The Warren-Alquist Act provides additional guidance on the alternatives analyses for those projects that have a strong relationship to an existing industrial site. Specifically, an application for certification may omit discussion of alternative sites “if the commission finds that the project has a strong relationship to the existing industrial site and that it is therefore reasonable not to analyze alternative sites for the project.”¹²

As described in the Project Description setting, the AEC project site has a long history as an industrial site generating electrical power. The infrastructure, including transmission lines, switchyard, natural gas pipeline, and fresh water lines, is in place.¹³ The only new infrastructure element – a new 1,000-foot long process/sanitary wastewater pipeline that would be constructed to eliminate the discharge of wastewater to the San Gabriel River - would be an improvement to the health of the river and the Pacific Ocean.

We find the long-term historical use of the AEC site for electrical power generation and the shared use of linears and infrastructure, as described above and in the **PROJECT DESCRIPTION** section, establish the AEC’s strong relationship to the site. We therefore find that an alternative site evaluation is not required for the AEC pursuant to California Public Resources Code § 25540.6(b).¹⁴ Nevertheless, the record contains an analysis of one alternative site, which we include herein for informational purposes only.

San Onofre Nuclear Generating Station (SONGS) Site

With the permanent closure and decommissioning of SONGS, the SONGS site in Pendleton, California was considered due to its potential to contribute to meeting local capacity requirement in the West LA Basin and its relatively remote location. The area in the vicinity of SONGS is less developed and has a lower population density compared to the more urbanized area near the AEC site. The existing infrastructure at the SONGS site, including its transmission lines, switchyard, substation, water and sewage lines, and a natural gas pipeline, could be used for an AEC equivalent project. As an existing power generation facility equipped with the appropriate infrastructure and

¹¹ Cal. Code Regs., tit. 14, § 15126.6.

¹² Pub. Res. Code § 25540.6(b).

¹³ Ex. 2000, p. 6.15.

¹⁴ Ex. 2000, p. 6-19.

connected to the transmission grid serving southern California, the SONGS site satisfies most of the AEC project objectives as an alternative site location.¹⁵

SONGS was a nuclear-powered thermal power plant principally owned by SCE and situated on two separate areas of federal land leased from the U.S. Marine Corps Base Camp Pendleton in the northwestern corner of San Diego County. The two areas are located on either side of Interstate 5 (I-5). The main or west portion of the facility holds the power generating facilities and is situated on 84 acres of land along the Pacific Ocean, west of I-5 and south of San Onofre State Beach. In this area, SCE operated Units 1, 2, and 3 until Unit 1 was shut down in 1992. The dismantlement of Unit 1 is essentially complete, and Units 2 and 3 unexpectedly shutdown in 2012 and were permanently closed in 2013. SCE submitted a Post-Shutdown Decommissioning Activities Report to the U.S. Nuclear Regulatory Commission in 2014, providing current plans to decommission the plant within 35 years. The second leased area is approximately 130 acres of land east of I-5 and opposite the main portion of the facility. This area, referred to as the Mesa Complex, houses various administrative, maintenance, and support services for the facility, but no power-generating activities occur at the Mesa Complex.¹⁶

According to the San Diego County General Plan Land Use Element, the lands leased for SONGS are owned by Camp Pendleton and fall under the land use jurisdiction of the U.S. Marine Corps and the U.S. Department of Defense. Current real estate grants authorize SONGS to maintain a presence on Camp Pendleton until approximately 2024.¹⁷

In a letter dated April 11, 2014, the U.S. Marine Corps informed San Diego Gas & Electric (SDG&E) that it intends to revert the SONGS Mesa Complex site back to a Marine Corps training site. SDG&E had been working with the Marine Corps to help site a new substation and voltage stabilizing equipment associated with the closure of SONGS. The U.S. Marine Corps advised SDG&E to locate proposed equipment components on the SONGS power plant easement west of I-5.¹⁸

After considering the SONGS site (both the power plant/western and Mesa Complex/eastern areas), Energy Commission staff (Staff) testified that the site would not provide a feasible alternative site location. The power plant portion of SONGS would

¹⁵ Ex. 2000, p. 6-18.

¹⁶ Ex. 2000, p. 6-18.

¹⁷ Ex. 2000, p. 6-19.

¹⁸ Ex. 2000, p. 6-19.

not be available for approximately 35 years due to the lengthy decommissioning process. This presents a significant delay in the project schedule which would render the western portion of the SONGS generating facility infeasible as an alternative site. The Mesa Complex's close proximity to the power facility's infrastructure would be the more feasible of the two areas for development of an AEC equivalent project. However, because the U.S. Marine Corps owns the land and has complete land use jurisdiction over the site, its demonstrated intention to use the Mesa Complex site for training purposes for the foreseeable future prevents the Applicant from acquiring site control and makes the Mesa Complex an infeasible site. Therefore, the SONGS site is not a feasible alternative site location for the AEC and we find that this alternative was properly eliminated from further consideration.¹⁹

Generation Technology Alternatives

In evaluating generating technology alternatives, the Energy Commission must consider both state policy on how to best meet electrical demand and the ability of alternative technologies to achieve project objectives and contribute to maintaining system reliability.

Preferred Resources

The term Preferred Resources is based on the state's Energy Action Plan II, which states that energy efficiency and demand response are the state's preferred means of meeting growing energy needs, followed by renewable sources of power and distributed generation, such as combined heat and power applications. To the extent these resources are unable to satisfy increasing energy and capacity needs, clean and efficient fossil-fired generation are last in the "load order."²⁰

In addition, in response to its energy policies addressing global climate change and reducing greenhouse gas (GHG) emissions, the state is rapidly and fundamentally changing its electricity supply system. For example, the state's Renewables Portfolio Standard (RPS) requires that providers of retail electricity procure an increasing minimum share of energy (measured as a percentage of retail sales) from renewable sources. It is estimated that an amount equal to 25 percent of retail sales was procured by California load-serving entities from renewable sources in 2014.²¹ Similarly, Section

¹⁹ Ex. 2000, p. 6-19.

²⁰ State's Energy Action Plan II, Implementation Roadmap for Energy Policies, (a joint document adopted by the California Energy Commission and the California Public Utilities Commission. September 21, 2005. http://www.energy.ca.gov/energy_action_plan/index.html.

²¹ Ex. 2000, p. 6-9.

454.5(b)(9)(C) of the California Public Utilities Code addresses requirements for an electrical corporation's proposed procurement plan, including the requirement to "first meet its unmet resource needs through all available energy efficiency and demand reduction resources that are cost effective, reliable, and feasible." In recent years, energy storage has achieved preferred resource status due to its ability to a) absorb over-generation that may occur at high levels of solar penetration, and b) obviate the need for natural gas-fired generation and associated capacity to meet ramping needs during evening hours when solar resource output declines to zero.

Reliable Operation of the Electricity System

At the same time, state policies and other factors have dramatically increased the near-term need for new resources with which to reliably meet or reduce the state's demand for reliably delivered electricity. The state's policy objective to phase out the use of once through cooling with ocean water at power plants is forcing the rapid retirement of a substantial amount of dispatchable generation in coastal areas and its replacement with new generation, transmission, and demand-side resources to preserve system reliability. In addition, as stated above, the unexpected closure of the SONGS facility in 2012, which was a critical source of Southern California electricity generation, and further the need for reliably delivered electricity.²²

All of these factors are considered by the state's energy agencies when determining the need for new, natural gas-fired electric generation capacity (NGFG) over the 10-year horizon. The Energy Commission also considers them in developing its 10-year electricity demand forecast and the California ISO considers them as part of its efforts to plan for and maintain electric system reliability. In tandem with California ISO planning, the CPUC conducts its biennial Long Term Procurement Plan (LTPP) proceeding, in which it determines how much new natural gas-fired generation is required and should be financed by the state's investor owned utilities. In estimating the need for new "least-cost best-fit" generation capacity or specifically for new NGFG over the 10-year planning horizon, the CPUC first assumes the timely development of all cost-effective preferred resources.²³

In May 2010, the SWRCB adopted the statewide OTC Policy. The OTC Policy established compliance dates for existing power plant operators to implement measures to greatly reduce impingement mortality and entrainment of marine life resulting from the use of ocean water for power plant cooling. Compliance with the OTC Policy is

²² Ex. 2000, p. 6-9.

²³ *Id.*

expected to lead to the retirement of a large amount of OTC capacity in transmission-constrained areas of Southern California. As a result, the CPUC devoted a share of its 2012 LTPP proceeding to the potential need for new NGFG to meet local reliability requirements in the California ISO-defined Los Angeles Basin (LA Basin), San Diego, and Big Creek/Ventura areas. Such generation, if necessary, would be required to meet reliability standards imposed by the North American Electric Reliability Council and the Western Electricity Coordinating Council.²⁴

In February 2013, as part of its 2012 LTPP proceeding, the CPUC issued a decision authorizing procurement to meet the local capacity requirement (LCR) in the West LA Basin. The authorization for new capacity was done to maintain reliability in the West LA Basin after the expected retirement of generating units at Alamitos, Huntington Beach, and Redondo Beach, totaling 3,818 MW of capacity in 2020.²⁵ SCE was authorized to procure between 1,400 and 1,800 MW of electrical capacity to meet the West LA Basin LCR by 2021. At least 1,000 MW and up to 1,200 MW of total capacity had to be procured from natural gas-fired resources.²⁶ In establishing a level of development for natural gas-fired generation, the CPUC found that such generation is needed to provide reliability services (regulation, spinning reserves, load following, frequency response, and voltage support). The remaining capacity was to come from preferred resources (energy efficiency, demand response, renewable generation, and energy storage).²⁷

In March 2014, the CPUC issued its Track 4 decision in the 2012 LTPP proceeding (CPUC Decision 14-03-004) authorizing SCE and SDG&E to procure generating capacity from a combination of preferred resources and gas-fired resources to meet local capacity needs stemming from the permanent retirement of SONGS. The Track 4 decision increased SCE's maximum allowable NGFG from 1,200 to 1,500 MW, providing SCE greater flexibility to meet reliability needs. Consistent with the loading order, SCE was required to procure at least 550 MW from preferred resources and at least 50 MW from energy storage. Subject to the overall cap of 2,500 MW for SCE, any additional local capacity beyond these amounts could only be procured through preferred resources.²⁸

SCE issued a Request for Offers (RFO) seeking new LCR resources in the West LA Basin, including preferred resources, energy storage, and NGFG. SCE entered into

²⁴ Ex. 2000, p. 6-10.

²⁵ The SWRCB set December 31, 2020, as the compliance date for these three generators.

²⁶ Ex. 2000, p. 6-10.

²⁷ *Id*

²⁸ Ex. 2000, p. 6-11.

contracts with AES to meet a share of the West LA Basin LCR, including a contract for new NGFG generation at the Alamitos site. On November 24, 2015, the CPUC issued its decision approving two separate contracts with AES for new combined-cycle gas turbines at the Alamitos and Huntington Beach sites.²⁹

Preferred Resources as Substitutes for Dispatchable Natural Gas-Fired Generation

As indicated above, the state's loading order established by the energy agencies in 2003 calls for meeting new electricity needs first with efficiency and demand response, followed by renewable energy and distributed generation, and then with efficient, utility-scale natural gas-fired generation. Section 454.5(b)(9)(C) of the California Public Utilities Code addresses requirements for an electrical corporation's proposed procurement plan, including the requirement to "first meet its unmet resource needs through all available energy efficiency and demand reduction resources that are cost effective, reliable, and feasible." In recent years, energy storage has achieved preferred resource status due to its ability to a) absorb over-generation that may occur at high levels of solar penetration, and b) obviate the need for natural gas-fired generation and associated capacity to meet ramping needs during evening hours when solar resource output declines to zero.³⁰

Preferred resources can provide many of the services provided by dispatchable, natural gas-fired generation. However, where preferred resources cannot ensure reliability, because they lack necessary operating characteristics or are not available in sufficient quantities (e.g., reliability services, such as regulation, spinning reserves, load following, frequency response, and voltage support), the CPUC has found that the procurement of clean, efficient natural gas-fired generation is necessary and is consistent with the state's loading order.³¹

Energy Efficiency

Energy efficiency entails using less energy to provide the same service. Continued development and implementation of comprehensive, long-term energy efficiency strategies and programs remains the top priority to offset increased energy demand. SB 350 requires the Energy Commission to establish annual targets for statewide energy efficiency savings and demand reduction that will achieve a cumulative doubling of statewide energy efficiency savings by January 1, 2030, and requires the CPUC (for the

²⁹ Ex. 2000, p. 6-11.

³⁰ *Id.*

³¹ *Id.*

IOUs) and local publicly owned utilities to establish efficiency targets consistent with this goal.³²

Energy efficiency programs can serve as substitutes for dispatchable, natural gas-fired generation facilities, such as the AEC, and partially meet the project objectives by: 1) reducing the amount of electricity that needs to be generated when targeted at consumption during high-demand hours and when flexible generation is needed most, and 2) reducing the need for natural gas-fired generation capacity, as well as the need for load-serving entities to procure such capacity to satisfy California ISO- and CPUC-imposed system-wide resource adequacy requirements. In targeting consumption in the West LA Basin, energy efficiency programs can reduce the need for conventional generation in the area and the need to procure such capacity to satisfy resource adequacy requirements for local, flexible resources. Energy efficiency programs are thus capable of reducing the need for energy and capacity-related reliability services that conventional natural gas-fired generation facilities, such as the AEC, would provide. However, energy efficiency cannot eliminate the need for all natural gas generation because some amount of electric reliability services (e.g., regulation, spinning reserves, load following, frequency response, and voltage support) is necessary. Therefore, we find that energy efficiency is not a viable alternative to the generation AEC would provide.³³

Demand Response

Demand response (DR) programs provide an economic incentive for end users to modify energy use, whether through direct payments to reduce consumption when requested to do so or rate structures that encourage reducing energy use during hours in which generation is expensive and/or system reliability is threatened.³⁴

DR continues to play an important role in meeting California's capacity planning, including requirements for peak summer demand. DR has attributes that can partially meet some of the AEC's project objectives by: 1) contributing to or reducing the need for capacity-related reliability services, including an array of ancillary services (regulation and spinning reserves), and 2) reducing the need for flexible generation if called upon during hours in which ramping needs are highest. When such programs reduce energy demands in the West LA Basin, they reduce local capacity requirements. DR programs can facilitate the integration of renewable resources by meeting

³² Ex. 2000, p. 6-12.

³³ *Id.*

³⁴ *Id.*

incremental needs for regulation and reserves and reducing ramping needs. Unlike gas-fired generation, DR can absorb over-generation when renewable generation exceeds demand. However, DR cannot eliminate the need for all natural gas generation facilities, such as the AEC, because some amount of electric reliability services (e.g., regulation, spinning reserves, load following, frequency response, and voltage support) is necessary.³⁵ Therefore, we find that demand response is not a viable alternative to the generation AEC would provide.

Utility Scale and Distributed Renewable Generation

In 2010, Governor Edmund G. Brown Jr.'s Clean Energy Jobs Plan established a target of 12,000 MW of renewable distributed generation (DG) by 2020. As of October 31, 2015, 7,200 MW of renewable DG was operational, contracts with another 900 MW had been approved, and 2,200 MW of capacity was anticipated from various incentive programs (the Renewable Auction Mechanism, Renewable Feed-in Tariff, Bioenergy Feed-in Tariff, and utility photovoltaic programs).³⁶

Utility-scale and DG can partially meet some of the AEC's project objectives by 1) becoming a substitute for natural gas-fired generation as sources of energy; 2) becoming substitute sources of capacity during periods of high demand, and to the extent they can produce energy at that time, thereby reducing the need to build and operate gas-fired generation; 3) providing local capacity when located in transmission-constrained areas such as the West LA Basin, thereby, reducing the need to build and operate local natural gas-fired generation facilities. Renewable energy cannot eliminate the need for all natural gas generation such as AEC because some amount of electric reliability services (e.g., regulation, spinning reserves, load following, frequency response, and voltage support) is necessary to ensure adequate supply through a range of conditions. Therefore, we find that distributed renewable energy is not a viable alternative to the generation AEC would provide.³⁷

Energy Storage

California's energy agencies recognize the key role that storage will play in integrating renewable energy resources in a "high variable energy" system in setting a target for the procurement of energy storage capacity for 2020. On October 17, 2013, the CPUC

³⁵ Ex. 2000, p. 6-10.

³⁶ Ex. 2000, p. 6-13.

³⁷ *Id.*

established a target of 1,325 MW for energy storage development, apportioning it to the transmission and distribution systems and the customer side of the meter.³⁸

Energy storage can partially meet some of the AEC's project objectives by 1) replacing generation capacity by being charged during non-peak hours and discharged on peak, in lieu of dispatching natural gas-fired generation and 2) if located in a transmission-constrained area, storage can replace generation capacity needed for local reliability. However, energy storage cannot replace generation as a source of energy because it requires injections of energy in excess of the amounts that are discharged when the stored energy is needed and it cannot eliminate the need for all natural gas generation facilities because some amount of electric reliability services (e.g., regulation, spinning reserves, load following, frequency response, and voltage support) is necessary to ensure adequate supply through a range of conditions. Therefore, we find that energy storage is not a viable alternative to the generation AEC would provide.³⁹

Alternate Equipment

In the **POWER PLANT EFFICIENCY** section of this Decision, we discussed alternative equipment to that proposed by Applicant and found them to be infeasible or inferior to the proposed AEC equipment for meeting project objectives in an efficient manner.⁴⁰

Renewable Resources

In the **POWER PLANT EFFICIENCY** section of this Decision, we compared various alternative technologies with the proposed AEC and found them to be infeasible or inferior to the proposed AEC for meeting project objectives in an efficient manner.⁴¹

Recycled Water Alternative

In the **SOIL AND WATER RESOURCES** section of this Decision, we discussed use of recycled water as an alternative to using of potable water for the process water needs of the AEC. We found recycled water to be economically infeasible.⁴²

NO PROJECT ALTERNATIVE

The CEQA Guidelines state that “the purpose of describing and analyzing a ‘no project’ alternative is to allow decision makers to compare the impacts of approving the

³⁸ Ex. 2000, p. 6-14.

³⁹ *Id.*

⁴⁰ **POWER PLANT EFFICIENCY** pp. 5.2-3 – 5.2-4. of this Decision.

⁴¹ **POWER PLANT EFFICIENCY** pp. 5.2-4 – 5.2-5. of this Decision.

⁴² **SOIL & WATER RESOURCES** section, p.7.2-9 of this Decision.

proposed project with the impacts of not approving the proposed project.”⁴³ Toward that end, the “no project” analysis considers “existing conditions” and “what would be reasonably expected to occur in the foreseeable future if the project were not approved...”⁴⁴

The most reasonably expected “no project” alternative if the AEC is not licensed by the Energy Commission, would be for AGS Units 1-6 to continue operating until December 31, 2020 and then cease operations. Although AGS Units 1-6 could be left in place after decommissioning, the existence of the MOU makes it more likely that the demolition of AGS Units 1-6 would be conducted in accordance with the MOU once all necessary regulatory approvals to retire and decommission the existing AGS units are received.⁴⁵

Under the “no project” alternative, the construction and operational impacts from the AEC would not occur. According to the evidence, the construction and operation of the AEC is not likely to cause potentially significant adverse impacts with the incorporation of conditions of certification. Additionally, the existing visual condition of the AGS site and viewshed would remain visually degraded as the opportunity to implement enforceable measures to restore and enhance the visual quality at the project site in compliance with section 30251 of the California Coastal Act as part of the AEC project would be missed.⁴⁶

The “no-project” alternative would likely result in the construction and operation of another new (different), natural gas-fired generation unit or units in the Western sub-area of the Los Angeles Basin to serve the predicted demand for the service area and electric system and would not make use of the existing AGS infrastructure and brownfield industrial site.⁴⁷ If the AEC were not constructed, it is possible that a project similar to the AEC could be permitted and constructed elsewhere in the LA Basin area, although no specific site or project is identified; therefore, the potential impacts of such a project are unknown.⁴⁸

AGS Units 1-6 are older power generation facilities that the state is looking to replace with fast-start and dispatch flexibility capabilities to provide grid stability to accommodate increased renewable energy and provide back-up for planned and

⁴³ CEQA Guidelines, tit. 14, § 15126.6, subd. (i).

⁴⁴ CEQA Guidelines, tit. 14, § 15126.6, subd. (e)(2); Ex. 2000, p. 6-20.

⁴⁵ Ex. 2000, p. 3-2.

⁴⁶ Ex. 2000, p. 6-21.

⁴⁷ 12/20/16 RT 105:4 – 106:3.

⁴⁸ Ex. 2000, p. 6-21.

unplanned grid outages in response to excessive demands. Therefore, we find the “no-project” alternative would fail to meet most of the basic project objectives.⁴⁹

INTERVENOR’S CHALLENGES TO THE ADEQUACY OF THE AEC ALTERNATIVES ANALYSIS

Intervenor, Los Cerritos Wetlands Land Trust (LCWLT), argues that the AEC Alternatives analysis is insufficient because:

1. There is no discussion of the need for 1,040 MW of gas-fired generation;
2. The AEC is inconsistent with LORS because the CPUC only approved a contract for 640 MW, not the 1,040 MW facility now seeking certification;;
3. The analysis fails to consider a smaller project alternative; and
4. There is inadequate consideration of demand response and the La Paloma power plant.

We address each of these contentions below.

Need for 1,040 MW of gas-fired generation

LCWLT argued about the “need” for 1,040 MW versus the “need” for 640 MW of capacity from the AEC.⁵⁰ LCWLT asserts that the CPUC decision authorizing SCE to procure 640 MW from AEC to meet SCE’s local resource adequacy requirement, mandates a maximum generating capacity “for this specific facility” that can be certified by the Energy Commission.⁵¹ But LCWLT misunderstands the role of the Energy Commission in reviewing proposed power plants.

Prior to January 1, 2000, Public Resources Code required the Energy Commission to perform an “integrated assessment of need” as a prerequisite to certifying a power plant.⁵² Effective January 1, 2000, Senate Bill 110 (Stats. 1999, ch. 581) repealed Sections 25523 (f) and 25524 (a) of the Public Resources Code, and amended other provisions relating to the assessment of need for new generation resources.⁵³ Specifically, this legislation removed the requirement that the Energy Commission make

⁴⁹ Ex. 2000, p. 6-21.

⁵⁰ LCWLT Opening Brief, Part 1, pp. 18-21 (TN 214629-1); 11/15/16 RT 58:1 – 7.

⁵¹ *Id.*, p. 24.

⁵² Pub. Resources Code, § 25009, added by Stats. 1999, ch. 581, § 1.

⁵³ Senate Bill 110 (Stats. 1999, ch. 581.)

a finding of need conformance in a certification Decision.⁵⁴ The legislature explained the Energy Commission's limited role as follows:

Before the California electricity industry was restructured, the regulated cost recovery framework for powerplants justified requiring the commission to determine the need for new generation, and site only powerplants for which need was established. Now that powerplant owners are at risk to recover their investments, it is no longer appropriate to make this determination. It is necessary that California both protect environmental quality and site new powerplants to ensure electricity reliability, improve the environmental performance of the current electricity industry and reduce consumer costs. The success of California's restructured electricity industry depends upon the willingness of private capital to invest in new powerplants. Therefore, it is necessary to modify the need for determination requirements of the state's powerplant siting and licensing process to reflect the economics of the restructured electricity industry and ensure the timely construction of new electricity generation it is no longer appropriate for the Energy Commission to determine the need for a specific power plant.⁵⁵

This is not to say that a proposed facility's contribution to maintaining reliability of the electricity system, which may be evidenced by the existence of a power purchase agreement, is irrelevant to our analysis. For example, the existence of the power purchase agreement could inform an analysis of likely operating scenarios. It could also be relevant to our alternatives analysis if we had found that the AEC will have significant effects that could be mitigated or avoided by a smaller facility that met basic project objectives.

The focus of the Energy Commission's inquiry is a proposed project's potential to create environmental impacts and its consistency with LORS. Indeed, the approval of a power plant by the Energy Commission does not necessarily ensure that all or part of the approved plant will be built. While any facility must be built in conformity with the license granted, the ultimate decision to construct any generating facility is based on market forces as mediated by the CPUC procurement process. Thus, it would clearly be inappropriate for the Energy Commission to disapprove a portion of the proposed project's proposed generating capacity on the sole basis that it lacks a power purchase agreement for this capacity, absent a finding that it causes any significant adverse impacts or is inconsistent with LORS.

⁵⁴ Pub.Resources Code § 25009.

⁵⁵ *Id.*

But the lack of a power purchase agreement (or other evidence demonstrating need for a proposed facility) is not a basis, in and of itself, for the Commission to disapprove a permit. Thus, it would clearly be inappropriate for the Energy Commission to disapprove half of AEC's proposed generating capacity on the sole basis that this lacks a power purchase agreement for this capacity, absent a finding that the AEC will not cause any significant adverse impacts.

LORS Consistency

LCWLT's argument that AEC is inconsistent with applicable LORS is closely related to its arguments about need. In particular, LCWLT asserts that approval of all 1,040 MW of generating capacity proposed in AEC would be inconsistent with the CPUC's LTPP and the ISO tariff.⁵⁶

The Warren-Alquist Act allows the Energy Commission to certify a proposed facility only if it conforms with all applicable LORS, unless it finds that the facility is required for public convenience and necessity which cannot be achieved by more prudent and feasible means.⁵⁷ LORS are therefore applicable state, regional, and local *rules of general applicability* that would apply to the project but for the Energy Commission's exclusive jurisdiction.⁵⁸ For each applicable LORS, the Energy Commission must assess the project's compliance with LORS and make specific findings if there is noncompliance that cannot be eliminated.⁵⁹

Contrary to LCWLT's contention, neither the ISO's tariff, nor the CPUC's LTPP, are "laws" applicable to AEC. Rather, these are processes through which the state identifies the need for generation and capacity, and ultimately contracts for its procurement. It may be true that some of the generating capacity currently proposed by AEC exceeds the need identified by Cal ISO and the CPUC; however, this does not mean it would violate any law to grant AEC to be constructed and operated as proposed. There is no rule prohibiting a developer from obtaining a permit to build a facility to generate power for which it does not yet have a buyer. It is possible that a facility may sell its power to an entity not regulated by the CPUC. As discussed above, this is not a reason for the Energy Commission to disapprove the AEC as proposed.

⁵⁶ LCWLT Opening Brief, Part 1, pp. 23-25. (TN 214629-1)

⁵⁷ Pub. Res. Code § 25525.

⁵⁸ Cal. Code Regs., tit. 20, §1745.5(b)(3).

⁵⁹ *Id.*

LCWLT also argues for the first time in its rebuttal brief⁶⁰ that the AEC is inconsistent with sections 454.5(b)(9)(C), 399.11(a), 2827(c)(4)(B)(ii) and 2836(a)(2) of the California Public Utilities Code, as well as Assembly Bill 32⁶¹ and Senate Bill 32⁶². We reiterate that the Warren-Alquist Act requires the Energy Commission to determine whether a project conforms to all *applicable* LORS.⁶³ The laws cited by LCWLT apply to governmental agencies' or utilities' planning and procurement. These laws do not apply to individual power plants and, therefore, are not *applicable* LORS.

Smaller Project

Our response to the LCWLT's assertion that the AEC should be constrained from building generating capacity for which it lacks a power purchase agreement is discussed above. But LCWLT goes further, arguing that the Energy Commission must consider "alternatives with less capacity than the 640 MW allowed in the CPUC decision," stating that "construction impacts and operation impacts from the AEC will be reduced by a smaller project."⁶⁴ However, as noted above, we find that, with mitigation, the AEC as proposed will not cause or contribute to any significant impacts on the environment due to its construction or operation. In addition, CEQA requires an agency to consider only a reasonable range of alternatives, not all possible alternatives.⁶⁵ Therefore, there is no need to include a smaller project among the alternatives considered by the Energy Commission.

Demand Response and the La Paloma Generating Plant

LCWLT argues that the AEC alternatives analysis is inadequate because even though Staff analyzed demand response among other alternatives, the alternatives were only analyzed in isolation instead of as a "portfolio of preferred resources" in combination with one another.⁶⁶ Specifically, LCWLT offered expert testimony suggesting that the alternatives analysis prepared by Staff is inadequate for failure to consider the combination of alternatives (which they refer to as a "portfolio") of demand response and the La Paloma Generating Plant.⁶⁷

⁶⁰ LCWLT Reply Brief, Part 2, p. 23, (TN 215406).

⁶¹ Nunez, Chapter 488, Statutes of 2006.

⁶² Pavley, Chapter 249, Statutes of 2016.

⁶³ Pub. Res. Code § 25525.

⁶⁴ LCWLT Opening Brief, Part 1, pp. 21; 23. (TN 214629-1)

⁶⁵ CEQA Guidelines, tit. 14, § 15126.6,

⁶⁶ LCWLT Opening Brief, Part 1, p. 22 (TN 214629-1); 11/15/16 RT 35:23 – 36:25.

⁶⁷ LCWLT Opening Brief, Part 1, p. 22 (TN 214629-1); 11/15/16 RT 35:23 – 36:25; Ex. 3009.

The Applicant's rebuttal testimony comparing LCWLT's suggested portfolio to the project objectives, concluded that the portfolio of demand response and the La Paloma Generating Plant would not satisfy most of the basic objectives of the AEC. One key reason for this conclusion is that the La Paloma Generating Plant, located in Kern County, is located in Pacific Gas & Electric's service territory which does not serve the western subarea of the Los Angeles Local Reliability Area.⁶⁸ LCWLT's expert did not contradict Applicant's rebuttal testimony at the evidentiary hearing. We find that LCWLT's testimony fails to demonstrate that its proposed portfolio approach would meet most of the project's basic objectives.

The record contains an analysis of an alternative site, and evaluates the ability of energy efficiency, demand response, renewable energy, and energy storage to meet most of the project's basic objectives. The law does not require us to examine every conceivable alternative to a proposed project.⁶⁹ We find that the range of alternatives examined is reasonable and that none of the alternatives would achieve the project's basic objectives.

AGENCY AND PUBLIC COMMENT

Keith Simmons,⁷⁰ President of the LCWLT, commented that the CPUC assessed the need for the AEC and approved a contract for 640 MW, not the 1,040 MW facility now seeking certification. Mr. Simmons commented that the 400 MW difference is "inconsistent" with the LORS.

Response to Comments: See discussion of LORS consistency under the heading *Intervenor's Challenges to the Adequacy of the AEC Alternatives Analysis*, above.

Elizabeth Lambe⁷¹, representing the LCWLT, commented that the project objectives are "too specific." Ms. Lambe also comments that the AEC violates LORS, the PMPD alternatives analysis is incomplete and insufficient because it does not consider every alternative and does not address the demand (need). Similar comments were also made in a joint letter signed by the **Sierra Club, California Coastal Protection Network, 350.org, Coastal Environmental Rights Foundation, Los Angeles Waterkeeper, Surfrider Foundation, Earth Law Center, Heal the Bay, and Protect Our Communities**.⁷² **Dave Shukla** commented that the committee should consider

⁶⁸ Exs. 1072, pp. 4 – 7; 3059, p. 21.

⁶⁹ Cal. Code Regs., tit. 14, section 15126.5(a).

⁷⁰ 11/15/16 RT 128:10 – 130:20.

⁷¹ TN 216579

⁷² TN 216543

everything in the record and proceed with caution regarding the question of need.⁷³

Response to Comments: In this proceeding, we have accepted the objectives provided by the Applicant, and no other parties objected or requested that we modify the language of the objectives before the evidentiary record closed. However, we are not bound by the language of the objectives and will look beyond a narrowly drafted objective or change it if we find its language too restrictive. Here, the AEC's project objectives appear tailored to balance the intent of CEQA with the Applicant's goals in pursuing the project. The project objectives are not so "specific" or narrowly tailored as to preclude an adequate alternatives analysis.

The other comments echo the points made in LCWLT's briefs. See discussion of alternatives adequacy, LORS consistency, and need under the heading *Intervenor's Challenges to the Adequacy of the AEC Alternatives Analysis*, above. See also, response to comments in the **POWER PLANT EFFICIENCY** section of this Decision.

Isabelle Teraoka⁷⁴ commented, asking "As conservative Republican economists are seriously promoting a Carbon and Dividend plan in Washington, it is likely that a natural gas plant will become costlier and costlier to operate in the not so distant future. Why spend the money on such a plant when battery storage and renewable energy options are available?"

Response to Comments: As explained above, battery storage does not generate electricity and renewable options cannot achieve most of the AEC's objectives.

State Assemblymember, **Patrick O'Donnell**⁷⁵ commented as "a strong advocate of sustainable alternative forms of energy such as the rapidly growing use of wind and solar, that when the wind doesn't blow or the sun doesn't shine, it is critical that we provide reliable energy for our residents and businesses in order to maintain a good quality of life and economic stability in our state." The AEC "can be activated in minutes to meet energy demands during peak times of usage. This replaces the existing 1950's generation plant that takes 36 hours to start up and relies on the use of sea water for cooling. The new Alamos Energy Center will meet the energy needs of our region and the state while preserving the natural resources in our region."

Response to Comments: These comments address information contained in the project objectives and project description.

⁷³ 3/1/17 RT 58:20 – 60:5.

⁷⁴ TN 216549.

⁷⁵ TN 216401.

FINDINGS OF FACT

Based upon the evidence, including that presented on each subject area described in other portions of this Decision, the Energy Commission makes the following findings:

1. The San Onofre Nuclear Generating Station site is not a feasible alternative site location for the Alamos Energy Center and thus was properly eliminated from further consideration.
2. Consistent with Public Resources Code section 25540.6, the Alamos Energy Center has a strong relationship to the Alamos Generating Station site.
3. Energy efficiency will not meet most of the basic objectives of the Alamos Energy Center would provide.
4. Demand response will not meet most of the basic objectives of the Alamos Energy Center would provide.
5. Renewable energy will not meet most of the basic objectives of the Alamos Energy Center would provide.
6. Energy storage will not meet most of the basic objectives of the Alamos Energy Center would provide.
7. Recycled water as an alternative to potable water for the process water needs of the Alamos Energy Center is infeasible.
8. Alternative technologies do not meet the most basic project objectives of the Alamos Energy Center.
9. No site alternative is capable of meeting the stated project objectives.
10. The “no project” alternative will not meet most of the basic objectives and will not provide electrical system benefits, including support for the integration of renewable energy.
11. The “no-project” alternative will fail to meet most of the basic project objectives.
12. Los Cerritos Wetlands Land Trust failed to demonstrate that the existence of a power purchase agreement, or the generating capacity approved by the California Public Utilities Commission are relevant to the alternatives analysis we conducted for the Alamos Energy Center.

CONCLUSIONS OF LAW

- The evidentiary record 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.

- Consistent with Public Resources Code § 25540.6(b), an alternative site evaluation is not required for the Alamos Energy Center because of its strong relationship to the Alamos Generating Station facility.

VII. COMPLIANCE MONITORING PLAN AND CONDITIONS OF CERTIFICATION

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

THE COMPLIANCE PLAN AND CONDITIONS OF CERTIFICATION

The record contains a full explanation of the purposes and intent of the Compliance Plan. The Compliance Plan is the administrative mechanism used to ensure that the Alamitos Energy Center is constructed and operated according to the Conditions of Certification. It describes the respective duties and expectations of the Project Owner and the Energy Commission Staff Compliance Project Manager (CPM) in implementing the design, construction, and operation criteria set forth in this Decision.¹

Compliance with the Conditions of Certification contained in this Decision is verified through mechanisms such as periodic reports and site visits. The Compliance Plan also contains requirements governing the future planned closure, as well as the unexpected temporary and unexpected permanent closure, of the Project.²

The Compliance Plan is composed of two broad elements. The first element establishes the "General Conditions" (referred to as "Compliance and Closure" in **Appendix A**) that set forth:

- the duties and responsibilities of the CPM, the project owner, delegate agencies, and others;
- the requirements for handling confidential records and maintaining the compliance record;
- the procedures for settling disputes and making post-certification changes;

¹ Ex. 2000, pp. 7-3 – 7-5.

² Ex. 2000, p. 7-1.

- the requirements for periodic compliance reports and other administrative procedures necessary to verify the compliance status of all Energy Commission imposed conditions; and
- the requirements for facility closure.³

The second element of the Compliance Plan contains the specific “Conditions of Certification.” These are also found in **Appendix A** following the 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.⁴

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

We note that the Applicant objected to the requirement of a cost estimate in the Final Closure Plan which would be due at least one year prior to facility closure, charging that “it is difficult, burdensome, and would serve no useful purpose.”⁵ We disagree. A cost estimate for project closure would not be a burden as such information is typically necessary anyway when the facility is set for shut down and the closure plan is developed. As part of the Application for Certification, the project Applicant routinely provides cost estimates covering total construction costs, operational expenditures, payroll costs and other expenses.⁶ Closure costs should be equally available. Therefore, we will impose Condition **COM-15** as recommended by Staff.

AGENCY AND PUBLIC COMMENT

We received no public comment on Compliance and Closure.

FINDINGS OF FACT

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

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 Compliance Plan and Conditions of Certification contained in **Appendix A** as part of this Decision.

³ Ex. 2000, pp. 7-3 – 7-7.

⁴ Ex. 2000, pp. 7-7 – 7-8.

⁵ Applicant’s Opening Brief, TN 214628, p. 4.

⁶ Ex. 1503, pp 1-1, 1-9.

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 ensure that the Alamitos Energy Center will be designed, constructed, operated, and closed in conformity with applicable law.

V. ENGINEERING ASSESSMENT

The broad engineering assessment of the proposed Alamitos Energy Center (AEC) 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

INTRODUCTION

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 laws, ordinances, regulations, and standards (LORS), but does not address the project's environmental impacts under the California Environmental Quality Act (CEQA), which is covered in the **ENVIRONMENTAL ASSESSMENT** section of this Decision.

The Supplemental Application for Certification (SAFC) describes 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 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.

This topic was uncontested. Evidence on the topic of facility design is contained in Exhibits 1011, 1014, 1056, 1070, 1407, 1435, 1437, 1500-1508, 2000, 3012 and 3043-3047.¹

PROJECT DESCRIPTION AND SETTING

AEC will be built within the existing site of the Alamitos Generating Station (AGS), an existing power plant in Long Beach. For more information on the site and project description, please see the **PROJECT DESCRIPTION** section of this Decision.

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

¹ 11/15/16 RT 26:10 – 32:15.

linear facilities. 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 AEC'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.²

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. Condition **GEN-2** requires the applicant to supply drawings and specifications of all major structures and equipment included in the initial engineering design of the project to the compliance project manager (CPM) and Chief Building Official (CBO). 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.³

The latest version (2013) of the California Building Standards Code (CBSC) requires specific "dynamic" lateral force procedures for certain structures, while others may be designed using the simpler static analysis procedure. 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.⁴

² Ex. 2000, p. 5.1-3.

³ Ex. 2000, pp. 5.1-3; 5.1-6 - 5.1-20.

⁴ 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. 2000, pp. 5.1-6 – 5.1-20.)

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.⁵

Additionally, the record addresses project closure, which is defined in the record as a facility shutdown with no intent to restart operation.

In order to ensure that facility closure would be completed in a manner that is environmentally sound, safe, and protects the public health and safety, the project owner must submit a closure plan to the Energy Commission for review and approval prior to the commencement of closing the facility, as required in Condition of Certification **COM-15** in the **COMPLIANCE AND CLOSURE** section of this Decision. Although future conditions that could affect facility closure are largely unknown at this time, the requirements in **COMPLIANCE AND CLOSURE** are adequate protection, even in the unlikely event that the project is abandoned.⁶

COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

The purpose of this analysis is to ensure that the AEC will be built to applicable engineering codes, ensure public health and safety, and verify that applicable engineering LORS have been identified. This analysis also evaluates the Applicant's proposed design criteria, describes the design review and construction inspection process, and establishes conditions of certification that would monitor and ensure compliance with engineering LORS and any other special design requirements. These conditions allow both the California Energy Commission compliance project manager (CPM) and the Applicant to adopt a compliance monitoring program that will verify compliance with these LORS.⁷

After the December 20, 2016 evidentiary hearing, Intervenor, Los Cerritos Wetlands Land Trust (LCWLT) argued that the AEC should be analyzed as a multiple facility site and therefore some additional requirements set forth in the Public Resources code have not been met.⁸ Public Resource Code sections 25502-25518 are limited to the Notice of Intent (NOI) process and the provisions covering multiple facility sites apply to NOIs only.⁹ The AEC proceeding is

⁵ Ex. 2000, p. 5.1-4.

⁶ Ex. 2000, p. 5.1-5.

⁷ Ex. 2000, p. 5.1-2.

⁸ LCWLT Opening Brief, Part Two, pp. 2-3

⁹ Pub. Res. Code §§ 25502-25518.

exempt from the NOI process because AEC is a proposed natural gas plant and is only subject to the Application for Certification process.¹⁰ Therefore, these sections are not applicable LORS.

Facility Design Table 1
Laws, Ordinances, Regulations, and Standards

APPLICABLE LORS	DESCRIPTION	DISCUSSION/CONCLUSIONS
FEDERAL		
Title 29 of the Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health standards. (29 C.F.R. § 1910.)	These regulations are intended to fulfil the purpose of the Federal Occupational Safety and Health Act of 1970: imposing 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 human resources.	Compliant. See the WORKER SAFETY and FIRE PROTECTION section of this Decision. Conditions of Certification WORKER SAFETY-1 through -4 incorporate sufficient measures to ensure adequate enforcement of industrial safety. These sections describe the plans and procedures which will be implemented to ensure compliance with health and safety procedures and regulations, for the protection of all workers, particularly industrial workers. A Safety Monitor will report directly to the CBO and CPM and will be responsible for verifying that the Construction Safety Supervisor, as required in Condition of Certification WORKER SAFETY-3 , which implements all appropriate Cal/OSHA, Federal, and Energy Commission safety requirements. ¹¹
STATE		
California Building Standards Code (CBSC) (also known as Title 24, California Code of Regulations) (Cal. Code Regs., tit. 24).	2013 Triennial Edition (2016 Triennial Edition effective January 1, 2017), California Building Standards Code (CBSC) (also known as Title 24, California Code of Regulations) (Cal. Code Regs., tit. 24).	Compliant. Condition of Certification GEN-1 requires and ensures compliance with the CBSC. ¹²
LOCAL		
Long Beach Municipal Code, tit. 18	City of Long Beach Municipal Code regarding building and construction regulations and	Compliant. The Facility Design conditions of certification require the project to comply with the city

¹⁰ Pub. Res. Code § 25540.6(a)(1)

¹¹ Ex. 2000, p. 4.14-4.

¹² Ex. 2000, pp. 5.1-1; 5.1-2; 5.1-6.

APPLICABLE LORS	DESCRIPTION	DISCUSSION/CONCLUSIONS
	ordinances.	of Long Beach building and engineering regulations and ordinances to ensure that the project would be built to applicable engineering codes and ensure public health and safety. See also, Condition of Certification MECH-1 which require and ensure compliance with Long Beach Codes ¹³ .
STANDARDS		
American National Standards Institute (ANSI) American Society of Mechanical Engineers (ASME) American Welding Society (AWS) American Society for Testing and Materials (ASTM)	Professional industry standards for welding, boilers, and other activities, machinery, and items involved with the Project.	Compliant. Condition of Certification GEN-1 , GEN-6 , MECH-1 and MECH-2 require and ensure compliance with these LORS. ¹⁴

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. 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 AEC's proposed design incorporates accepted industry standards for preparing and developing the site. The project owner must implement the provisions of Conditions of Certification **CIVIL-1** through **CIVIL-4** to ensure that design and construction activities comply with applicable LORS.¹⁵

The evidentiary 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. Condition of Certification **GEN-2** requires the applicant to supply drawings and specifications of all major structures and equipment included in the initial engineering design of the project

¹³ Ex. 2000, pp. 5.1-1; 5.1-2; 5.1-6; 5.1-17.

¹⁴ Ex. 2000, pp. 5.1-1; 5.1-2; 5.1-6; 5.1-17.

¹⁵ Ex. 2000, p. 5.1-3.

to the compliance project manager (CPM) and Chief Building Official (CBO). Conditions of Certification **GEN-3** through **GEN-8** require the project owner to employ qualified engineers to monitor and inspect construction of the facility. Conditions of Certification **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 of Certification **ELEC-1** ensures that design and construction of the project's 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 Conditions of Certification in the **FACILITY DESIGN** section of this Decision.¹⁶

The latest version (2013) of the California Building Standards Code (CBSC) requires specific "dynamic" lateral force procedures for certain structures, while others may be designed using the simpler static analysis procedure. To ensure that project structures are analyzed appropriately, Condition of Certification **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.¹⁷

Condition of Certification **GEN-1** requires that the project 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.¹⁸

Additionally, the evidentiary record addresses project closure, which is defined in the record as a facility shutdown with no intent to restart operation.

In order to ensure that facility closure would be completed in a manner that is environmentally sound, safe, and protects the public health and safety, the project owner must submit a closure plan to the Energy Commission for review and approval prior to the commencement of closing the facility, as required in

¹⁶ Ex. 2000, pp. 5.1-3; 5.1-6 - 5.1-20.

¹⁷ 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. 2000, pp. 5.1-6 – 5.1-20.)

¹⁸ Ex. 2000, p. 5.1-4.

Condition of Certification **COM-15** in the **COMPLIANCE AND CLOSURE** section of this Decision. Although future conditions that could affect facility closure are largely unknown at this time, the requirements in **COMPLIANCE AND CLOSURE** are adequate protection, even in the unlikely event that the project is abandoned.¹⁹

The evidence indicates that the design, construction, and eventual closure of the AEC project and its linear facilities will comply with applicable LORS. The **FACILITY DESIGN** conditions of certification ensure compliance with these LORS.

AGENCY AND PUBLIC COMMENT

We received no public comment on the AEC's facility design.

FINDINGS OF FACT

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

1. The **FACILITY DESIGN** evidence provides a preliminary engineering design and description of the Alamitos Energy Center.
2. The **FACILITY DESIGN** evidence addresses consistency with applicable engineering laws, ordinances, regulations and standards 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 will be designed and constructed in conformity with the applicable laws, ordinances, regulations, and standards.
4. The **FACILITY DESIGN** Conditions of Certification require the project owner to comply with the most current version of the California Building Standards Code and other applicable laws, ordinances, regulations and standards in effect at the time that design approval and construction begins.
5. The **FACILITY DESIGN** Conditions of Certification 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, ensure that the project is designed and constructed in accordance with applicable law and in a manner that protects public health and safety.

¹⁹ Ex. 2000, p. 5.1-5.

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

CONCLUSIONS OF LAW

1. Implementation of the **FACILITY DESIGN** Conditions of Certification listed in **Appendix A** ensure that the Alamos Energy Center will be designed and constructed in conformance with the applicable laws, ordinances, regulations and standards related to the engineering elements summarized in this section of the Decision.

B. POWER PLANT EFFICIENCY

INTRODUCTION

This section analyzes whether the consumption of a non-renewable source of energy, natural gas, at the Alamitos Energy Center (AEC) would result in substantial impacts upon energy resources.¹

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 evidentiary record addresses whether there are feasible alternatives that could reduce any wasteful, inefficient, or unnecessary energy consumption attributable to the project.

The evidence on Power Plant Efficiency is contained in Exhibits 1056, 1070, 1407, 1434, 1437, 1500-1508 and 2000.²

SETTING

The AEC site is located on an approximately 21-acre site within the larger 71.1-acre Alamitos Generating Station (AGS) site.

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).³

Alamitos Energy Center (AEC) is designed to generate 1,040 MW (net output) of electricity. Power Block 1 will use two General Electric (GE) 7FA.05 two natural-gas-fired combustion turbine generators (CTGs), two heat recovery steam generators (HRSGs), one steam turbine generator (STG), an air cooled condenser, an auxiliary boiler, and related ancillary equipment in a combined-cycle configuration. Power Block 2 will use four GE LMS100PB simple-cycle CTGs with fin-fan coolers and ancillary equipment. Each block would utilize the GE's fast-start, flexible technology. The different processes of the combined-

¹ Cal. Code Regs., tit. 14, § 15126.4(a)(1), Appendix F.

² 11/15/16 RT 26:10 – 32:15.

³ Ex. 2000, p. 5.3-4.

cycle and simple-cycle configurations are more fully explained in the **PROJECT DESCRIPTION** section of this Decision.⁴

ENVIRONMENTAL ANALYSIS

Thresholds of Significance

CEQA guidelines require that the analysis “...describe feasible measures which could minimize significant adverse impacts, including where relevant, inefficient and unnecessary consumption of energy”.⁵

We evaluate alternatives to the AEC project that could reduce wasteful, inefficient, or unnecessary energy consumption by first examining the AEC’s energy consumption. Project fuel efficiency, and therefore its rate of energy consumption, is determined by both the configuration of the power producing system and the type of equipment used to generate its power.⁶

Impact Assessment and Mitigation

As discussed in the **PROJECT DESCRIPTION** section of this Decision, the AEC’s Power Block 1 will use two General Electric (GE) 7FA.05 CTGs in a combined-cycle configuration. Power Block 2 will use four GE LMS100PB CTG units in a simple-cycle configuration. Each block would utilize the GE’s fast-start, flexible technology.

The AEC project will burn natural gas at a maximum rate of approximately 8,137 million Btu (mmBtu) per hour and consume up to 29,318,594 mmBtu annually. Additional fuel will be consumed to support an estimated 500 annual start-up and shutdown sequences. Energy Commission Staff (Staff) testified that this rate of consumption will not impact energy supplies and we have received no evidence to the contrary.⁷

Fuel consumption is one of the most important economic factors in selecting a turbine generator. Fuel typically accounts for over two-thirds of the total operating costs of a natural gas-fired power plant. Under a competitive power market system, where operating costs are critical in determining the competitiveness and profitability of a power plant, the plant owner is thus strongly motivated to purchase fuel-efficient machinery.⁸

⁴ Ex. 2000, pp. 5.3-1 – 5.3-2.

⁵ [California Code of Regulations, title 14, §15126.4[a][1]]

⁶ Ex. 2000, p. 5.3-4.

⁷ Ex. 2000, p. 5.3-2.

⁸ Ex. 2000, p. 5.3-5.

Modern gas turbines embody the most fuel-efficient electric generating technology currently available. The 7FA.05 heavy duty CTG and LMS100PB CTG proposed for the AEC project are nominally rated at 376 MW net with a 60.3 percent efficiency and 109 MW net with a 44.1 percent efficiency, respectively at International Organization for Standardization or "ISO" conditions; in this case, ISO Standard 27.040 for measurement of gas turbine capacity. These standard conditions are 15°C (59°F), 60 percent relative humidity, and one atmosphere of pressure.

For Power Block 1, alternative machines that can meet the project's objectives of the generating capacity requirements of load following electricity would be the Mitsubishi M501G. The M501G gas turbine is nominally rated at 398 MW net and 58.4 percent efficiency at ISO conditions in a combined-cycle configuration. For Power Block 2, alternative machines that can meet the project's objectives of the generating capacity requirements of peaking/load following services would be the Mitsubishi H-100 gas turbine in a simple-cycle configuration which is nominally rated at 101 MW and 37.8 percent efficiency LHV at ISO conditions.

The uncontested evidence shows that for Power Block 1, the 7FA.05 also offers a significantly higher ISO rated efficiency than the Mitsubishi M501G. Similarly, for Power Block 2, the LMS100 PB CTG offers a significantly higher ISO rated efficiency than the Mitsubishi H-100. However, actual performance may vary and is based on project site conditions, such as annual range of ambient temperature and humidity, and any differences in actual operating efficiency between these two machines may be insignificant. In order to meet the AEC generating capacity requirement of 1,040 MW net, the same amount of CTGs would be needed for each power block.⁹ The efficiency of the combined cycle portion of the project is expected to be 56 percent. The efficiency of the simple-cycle portion of the project would be 41 percent. The 7FA.05 and LMS100 PB are modern CTGs and their efficiency is comparable, if not superior, to the efficiency of other, currently-operating, modern combined cycle CTGs such as the Mitsubishi M501G or the Mitsubishi H-100. Staff concluded that, in terms of thermal efficiency, the GE 7FA.05 and LMS100 PB are appropriate choices of machines for the AEC project.¹⁰ The evidence indicates that these two configurations, with their short start-up time and fast ramping capabilities, are well suited for providing peaking and load-following power.¹¹

⁹ Ex. 2000, p. 5.3-5.

¹⁰ "*Id.*"

¹¹ Ex. 2000, p. 5.3-4.

A gas turbine's power output decreases as ambient air temperatures rise. Cooling the air as it enters the turbine increases its power output and cycle efficiency. Therefore, alternative gas turbine inlet air cooling methods are usually evaluated as a part of the equipment selection process for a power plant. The two most common techniques are evaporative coolers or foggers, and chillers. Both increase power output by cooling gas turbine inlet air. A mechanical chiller offers greater gross power output than the evaporative cooler on hot, humid days; however, it consumes electricity to operate its refrigeration process, slightly reducing the turbine's overall net power output and efficiency. An absorption chiller uses less electricity but necessitates the use of a substantial amount of ammonia. An evaporative cooler or fogger boosts power output most efficiently on dry days; it uses less electricity than a mechanical chiller, possibly producing a slightly higher operating efficiency. Efficiency differences between these alternatives are relatively minor.

The project site climate is mild, tempered by cool sea breezes. This usually mild climatological pattern can be interrupted by periods of extremely hot weather, winter storms, or Santa Ana winds. Staff testified that the evaporative gas turbine inlet air cooling system proposed by the Applicant will have no significant adverse energy impacts.

Staff considered solar technology, other fossil fuels, nuclear, biomass, hydroelectric, wind, and geothermal technologies as alternative generating technologies for AEC. Staff ruled out biomass, hydroelectric, geothermal, wind, and solar technologies because of the lack of adequate space on the project site and/or the unavailability of these energy resources in the project area. Staff ruled out coal and oil as too highly polluting. Due to regulatory prohibitions, nuclear technology was rejected. Therefore, Staff agreed that the Applicant's selection of a natural gas-burning technology is reasonable.¹²

The State Water Resources Control Board's policy requiring the phase out of generating plants utilizing ocean water for once-through cooling purposes is causing the retirement or replacement of generating facilities in California's coastal areas. In keeping with this program, the more efficient proposed AEC will not utilize once-through cooling and, as older, less efficient generating facilities utilizing once-through cooling are retired, the result will be less natural gas consumption per megawatt of generation. Additionally, dispatch orders generally call for the most efficiently-generated energy first; especially when peaking capacity is required. Therefore, the electric grid system's reliance on new

¹² Ex. 2000, p. 5.3-4.

generation in the region rather than on the aging existing plants will result in further decreases in natural gas consumption per megawatt of generation and will help alleviate the potential effect of the closure of Aliso Canyon natural gas storage facility as described more fully in the **POWER PLANT RELIABILITY** section of this Decision.¹³

In conclusion, the project configuration (combined cycle and simple-cycle) and generating equipment (7FA.05 and LMS100 PB) chosen represent a sufficiently efficient combination to satisfy the project objectives of efficient power production with operational flexibility as identified in the Supplemental AFC. The AEC would generate electricity at a full-load efficiency of approximately 56 percent for the combined-cycle block (Power Block 1) and 41 percent for the simple-cycle block (Power Block 2). This efficiency level of 56 percent compares favorably with the average fuel efficiency of a typical combined-cycle power plant and the efficiency level of 41 percent compares favorably with the average fuel efficiency of a simple-cycle plant. Also, the AEC will improve the overall thermal efficiency of electricity production compared to the existing, aging AGS Units 1-6 due to the higher efficiency of the AEC's modern and new CTGs.¹⁴

The evidence shows that there are no alternatives that could significantly reduce AEC's energy consumption.

We find that the 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.¹⁵ We find that no mitigation or conditions of certification are needed for this project.

COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

No Federal, State or local/county laws, ordinances, regulations and standards (LORS) apply to the efficiency of this project.

AGENCY AND PUBLIC COMMENT

We received no comments on the AEC's power plant efficiency.

¹³ Ex. 2000, p. 5.3-3.

¹⁴ Ex. 2000, p. 5.3-5.

¹⁵ Ex. 2000, p. 5.3-6.

FINDINGS OF FACT

Based on the evidence, we make the following findings:

1. The 1040 MW Alamitos Energy Center is designed as both a combined cycle and simple cycle, natural gas-fired power plant.
2. Power Block 1 would consist of two natural-gas-fired combustion turbine generators in a combined-cycle configuration, two heat recovery steam generators, one steam turbine generator, an air cooled condenser, an auxiliary boiler, and related ancillary equipment.
3. Power Block 2 would consist of four simple-cycle CTGs with fin-fan coolers and ancillary equipment.
4. Each block would utilize the GE's fast-start, flexible technology.
5. Alamitos Energy Center will generate electricity at a full-load efficiency of approximately 56 percent for the combined-cycle block (Power Block 1) and 41 percent for the simple-cycle block (Power Block 2)
6. This efficiency level of 56 percent compares favorably with the average fuel efficiency of a typical combined-cycle power plant and the efficiency level of 41 percent compares favorably with the average fuel efficiency of a simple-cycle plant.
7. The record contains a comparative analysis of alternative fuel sources and generation technologies, all of which were either infeasible or inferior to the GE technology for meeting project objectives in an efficient manner.
8. The project will not require the development of new fuel supply resources.
9. The project will benefit the state's electrical system by providing peaking power and base load services in the most efficient manner practicable.
10. Alamitos Energy Center 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.
11. No federal, state, or local laws, ordinances, regulations, or standards have been established to regulate the efficiency of gas-fired power plants.
12. No Conditions of Certification are required for this topic.

CONCLUSIONS OF LAW

1. We therefore conclude that the Alamitos Energy Center Project satisfies the standards established by the California Environmental Quality Act 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.

C. POWER PLANT RELIABILITY

INTRODUCTION

This section discusses whether the Alamos Energy Center (AEC) would be designed, sited, and operated to ensure safe and reliable operation.¹ Evidence on the topic of Power Plant Reliability is contained in Exhibits 1056, 1070, 1072, 1407, 1409, 1435, 1500-1508 and 2000.²

PROJECT DESCRIPTION AND SETTING

For detailed information regarding the setting of the Project, please refer to the **PROJECT DESCRIPTION** section of this Decision.

The AEC will be both a simple-cycle and a combined-cycle plant. The project's combined-cycle combustion turbine generators (CTGs) will be modern General Electric (GE) 7FA turbines. The simple-cycle CTGs will be modern GE LMS100 turbines. Both the GE 7FA model and the GE LMS100 model have been in commercial operation for many years and have exhibited high reliability. The evidence indicates that the AEC's CTGs are expected to outperform the fleet of various, mostly older CTGs.³

For general project description, including the location of the facility, please refer to the **PROJECT DESCRIPTION** section of this Decision.

ENVIRONMENTAL ANALYSIS

Thresholds of Significance

The Energy Commission must determine whether the Alamos Energy Center (AEC) would be designed, sited, and operated to ensure safe and reliable operation.⁴ However, there are no specific laws, ordinances, regulations, or standards (LORS) that establish either power plant reliability criteria or procedures for attaining reliable operation.⁵

In recent years, the means of ensuring system reliability have shifted from the California Independent System Operator's (California ISO) "Reliability Must Run" power purchase agreement to the California Public Utilities Commission's

¹ Pub. Res. Code § 25520(b); Cal. Code Regs, tit. 20, §§ 1741(b)(3); 1745.5(b)(15).

² 11/15/16 RT 26:10 – 32:15.

³ Ex. 2000, p. 5.4-6.

⁴ Pub. Res. Code § 25520(b); Cal. Code Regs, tit. 20, §§ 17411741(b)(3); 1745.5(b)(15).

⁵ Ex. 2000, p. 5.4-1.

(CPUC) Resource Adequacy (RA) program. Nearly all RA programs have "Participating Generator Agreements" (PGA) which allows the California ISO to invoke "command and control" authority on PGA resources and force resources to conform to the California ISO Tariff. These agreements ensure an adequate supply of reliable power.⁶

The California ISO also requires that power plants selling ancillary services fulfill certain requirements, including, filing periodic reports on power plant reliability, reporting all outages and their causes, and scheduling all planned maintenance outages with the California ISO. These mechanisms ensure adequate power plant reliability and support the expectation that new power plants will operate in an equivalent manner to the industry's current level of reliability.⁷

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.⁸

In reviewing a new power plant's potential effect on system reliability, we examine whether the power plant would be built and operated at the typical level of reliability reflected in the power generation industry because, if it compares favorably to "typical industry norms," it is not likely to degrade the overall reliability of the electricity system it serves.⁹

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. The Conditions of Certification in the **FACILITY DESIGN** section of this Decision incorporate these requirements.¹⁰

⁶ Ex. 2000, p. 5.4-2.

⁷ *Id.*

⁸ *Id.*

⁹ Ex. 2000, p.5.4-1.

¹⁰ Ex. 2000, p. 5.4-3.

Plant Maintainability

A generating facility must be capable of being maintained while operating. A typical approach to this is to provide redundant examples of those pieces of equipment that are most likely to require service or repair.

The evidence shows that the AEC project incorporates an appropriate redundancy of function. For example, the CTG's lube oil system will include redundant pumps, filters, and coolers. In addition, redundant microprocessors and sensors will be part of the turbine's control system. Technology advancements have also led to extremely high reliability for the CTGs considered for this project. Energy Commission staff testified that the AEC project's proposed equipment redundancy would be sufficient for its reliable operation.

The project owners will develop the AEC maintenance program based the equipment manufacturers' recommendations for their products. The program will encompass both preventive and predictive maintenance techniques. Additionally, because AEC is expected to operate only up to 50 percent of the time, there will be plenty of opportunity for planned maintenance to be done while the project is offline without affecting its operation. The uncontroverted evidence shows that the AEC will be adequately maintained to ensure an acceptable level of reliability.¹¹

Fuel and Water Availability

The long-term availability of fuel and water for cooling or process use is necessary to ensure power plant reliability. AEC will use natural gas supplied by Southern California Gas Company (SoCalGas) and will connect to a new gas metering station; one for each AEC power block. Gas supplies will be acquired from gas providers in supply regions accessible through the SoCalGas' natural gas transmission system. This represents a resource of considerable capacity and offers access to adequate annual supplies of natural gas. However, the record indicates that the closure and potential long-term de-rate of SoCalGas' Aliso Canyon natural gas storage facility may impact instantaneous natural gas deliveries to the power plants it serves, including the proposed AEC.¹²

Nevertheless, the evidence indicates that the modern and more efficient AEC will replace older and less efficient power facilities which will result in less natural gas consumption per megawatt of generation.

¹¹ Ex. 2000, p. 5.4-3.

¹² Ex. 2000, p. 5.4-4.

The AEC project's process water and potable water source will come from the Long Beach Water District (LBWD) and the point of interconnection will be at the existing onsite AGS water supply pipeline that enters the site along Studebaker Road. LBWD has provided a will-serve letter confirming the adequacy of the regional water supply into the foreseeable future. We find that this source of water supply is reliable (see the **SOIL AND WATER RESOURCES** section of this Decision for a detailed discussion of water supply).¹³

Natural Hazards

The site is located in a seismically active area and the potential for strong ground motion in the project area is considered significant during the life of the proposed structures. The AEC project will be designed and constructed to the latest applicable engineering LORS and will perform at least as well or better than existing plants in the electric power system. **GEOLOGY AND PALEONTOLOGY** Conditions of Certification **GEO-1** and **GEO-2** and **FACILITY DESIGN** Conditions of Certification **GEN-1**, **GEN-5**, and **CIVIL-1** include standard engineering design requirements for mitigation of strong seismic shaking, liquefaction, and potential excessive settlement due to dynamic compaction. The evidence establishes that there are no special concerns with AEC's power plant functional reliability due to seismic shaking.¹⁴

The risk of flooding is minimal because the site is not located within a 100-year flood zone. Nevertheless, project features will be designed and built to provide adequate levels of flood resistance by complying with Conditions of Certification **GEN-1**, **CIVIL-1**, **CIVIL-3**, and **CIVIL-4**.¹⁵

The vicinity of the project site could be subject to tsunamis. The site's final graded elevation will be at least 12 feet above existing mean sea level and there would still be 5.5 feet of elevation between the floodplain and the AEC site.¹⁶ AEC will be designed and constructed in accordance with the relevant sections of the most recent California Building Standards Code (as required by **FACILITY DESIGN** Condition of Certification **GEN-1** and **GEOLOGY AND PALEONTOLOGY** Condition of Certification **GEO-1**). This, combined with the additional buffer of 5.5 feet on the site, would adequately protect the AEC project

¹³ Ex. 2000, p. 5.4-4.

¹⁴ Ex. 2000, p. 5.4-5.

¹⁵ *Id.*

¹⁶ Ex. 2000, p.4.9-18.

from tsunamis. Therefore, we again find that there are no special concerns with power plant functional reliability due to flooding or tsunamis.¹⁷

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 2009 through 2014 demonstrate an availability factor of 80 percent for CTGs with a capacity of 100-299 MW. The AEC project's GE 7FA and GE LMS100 gas turbines have been on the market for many years and can be expected to exhibit typical high availability. According to the Applicant's and Staff's testimony, the CTGs are equipped with the redundant features described above, such that the Applicant's expectation of an annual availability factor of 98 percent is reasonable. We find that the AEC will likely reach an annual availability factor of 98 percent.¹⁸

COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

No Federal, State or local/county laws, ordinances, regulations and standards (LORS) apply to the reliability of this project.

Intervenor, Los Cerritos Wetlands Land Trust (LCWLT) argued that the AEC's 640 MW combined cycle unit violates LORS because it "cannot meet the 20 minute response time requirement in California ISO Tariff Section 40.3.1.1 under any startup scenario (cold, warm, or hot)."¹⁹

However, the tariff section cited concerns only the California ISO Operator's obligations in performing the annual Local Capacity Technical Study and has no applicability to power plant facilities, nor does it make any mention of a 20 minute response time.²⁰ The AEC will not violate any reliability LORS.

AGENCY AND PUBLIC COMMENT

Elizabeth Lambe, representing the LCWLT, commented that the project would violate the 20 minute response time requirement in California ISO Tariff Section 40.3.1.1.²¹ This comment was also made by the **Sierra Club, California Coastal**

¹⁷ Ex. 2000, pp. 5.4-5 – 5.4-6.

¹⁸ Ex. 2000, p. 5.4-6.

¹⁹ LCWLT Part 2 Opening Brief (TN 215201), pp. 1; 11-15.

²⁰ CAISO Tariff § 40.3.1.1.

²¹ TN 216579

Protection Network, 350.org, Coastal Environmental Rights Foundation, Los Angeles Waterkeeper, Surfrider Foundation, Earth Law Center, Heal the Bay, and Protect Our Communities.

Response to Comment: This comment is addressed and considered in the Compliance with LORS section, above.

FINDINGS OF FACT

Based on the evidence, we make the following findings:

1. There are no specific federal or state laws, ordinances, regulations or standards 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 reports that, for the years 2009 through 2014, CTGs with a capacity of 100-299 MW demonstrate an availability factor of 80 percent.
4. Evidence indicates that the Alamos Energy Center can achieve an availability factor of 98 percent, exceeding industry norms for combined cycle units.
5. Implementation of Quality Assurance/Quality Control programs during design, procurement, construction, and operation of the Alamos Energy Center, as well as adequate maintenance and repair of the equipment and systems, will ensure the Alamos Energy Center is sufficiently reliable.
6. The **FACILITY DESIGN** Conditions of Certification in this Decision ensure implementation of the Quality Assurance/Quality Control programs and conformance with seismic design criteria.
7. The Alamos Energy Center's fuel and water supply is reliable.
8. The Alamos Energy Center's process water and potable water source will come from the Long Beach Water District and the point of interconnection will be to the existing onsite Alamos Generating Station water supply pipeline that enters the site along Studebaker Road.
9. With the conditions of certification included in **Appendix A**, the Alamos Energy Center will be designed and constructed in accordance with applicable engineering laws, ordinances, regulations, and standards to withstand seismic events and to prevent incidents of flooding or tsunamis.

10. The Alamos Energy Center is expected to meet or exceed industry norms for power generation reliability and will not degrade the overall electrical system.
11. The redundancy of two power blocks, configured as independent equipment trains, ensures inherent reliability of the Alamos Energy Center's generating capacity.

CONCLUSIONS OF LAW

1. We therefore conclude that the Alamos Energy Center 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 Alamos Energy Center can be designed to meet industry norms for generating reliability.

D. TRANSMISSION SYSTEM ENGINEERING

INTRODUCTION

This section assesses the engineering and long-term planning consequences of new transmission facilities associated with the proposed Alamitos Energy Center (AEC). The California Energy Commission's (Energy Commission) siting jurisdiction includes "...any electric power line carrying electric power from a thermal power plant ...to a point of junction with an interconnected transmission system."¹ Under this authority, the Energy Commission evaluates whether a proposed project's transmission facilities and outlet line to the point of interconnection comply with applicable laws, ordinances, regulations, and standards (LORS) and if any upgrades beyond the interconnection point are necessary to mitigate potential project-related impacts to the electrical grid.

This topic was uncontested. Evidence on the topic of Transmission Systems Engineering is contained in Exhibits 1011, 1013, 1020, 1032, 1035, 1042, 1046, 1055, 1056, 1068, 1070, 1408, 1500-1508, 2000, 2003, 2004, and 2013.²

SETTING

The AEC plant will be situated on approximately 21 acres of the existing 71-acre AGS power plant site and the existing plant infrastructure, including the existing SCE-owned Alamitos 230 kV switchyard and its transmission outlets just north of the AGS project boundary.³

The existing AGS plant is a 1950's era steam turbine technology with ocean water once-through-cooling (OTC) system and related facilities. The AGS plant is located along the coastline of the City of Long Beach and is now operating with six natural gas-fired steam turbine Generator Units for a total generating capacity of 1,950 megawatts (MW) (net). It is scheduled to be shut down by December 31, 2020 as part of the State Water Resources Control Board's phase out of generating facilities utilizing OTC technology. AGS combustion turbine Unit 7 is non-operational and partially demolished. Each of the six AGS units is interconnected individually at the existing SCE-owned Alamitos 230 kV switchyard located directly north of the AGS property.⁴

¹ Pub. Res. Code § 25107.

² 11/15/16 RT 26:10 – 32:15.

³ Ex. 2000, p. 5.5-5.

⁴ Ex. 2000, p. 5.5-2.

The existing SCE-owned Alamitos 230 kV switchyard has a double bus, double breaker arrangement in two sections, section A (west bus) and section B (east bus). Section A and section B have a north and south bus. Thus, the Alamitos switchyard has four busses, section A north, section A south, section B north and section B south.⁵

The two section A busses have eight 230 kV switching bays (SB) each with two 230 kV, 2,500/3,000-ampere circuit breakers (CB). The existing AGS Units 1-4 connect to the section A busses at the SB no. 2, 4, 6, and 8 respectively. There are two 2,500-ampere, 230 kV breakers and two 2,500-ampere associated disconnect switches for each breaker. The four remaining SB bays at the section A busses each have two 3,000-ampere breakers and two associated 3,000-ampere disconnect switches for each breaker and connect to SCE's Lighthipe, Barre and Long Beach substations.⁶

The two section B busses have four 230 kV SBs and the existing AGS Units 5 and 6 are connected to section B busses at SB no. 1 and 3 respectively, each with two 2,500-ampere breakers and two 2,500-ampere associated disconnect switches for each breaker. The remaining two bays at section B busses, each with two 3,000-ampere, 230 kV breakers and two associated disconnect switches for each breaker, connect to SCE's Barre and Center Line substations.⁷

There is a bus-section 3,000-ampere breaker with two associated 3,000-ampere disconnect switches between section A and section B north 230 kV busses.⁸

PROJECT DESCRIPTION

For general project description, including location of the facility and the equipment to be installed, please see the **PROJECT DESCRIPTION** section of this Decision.

The AEC plant will reuse approximately 21 acres of the existing 71-acre AGS power plant site and the existing plant infrastructure, including the existing SCE-owned Alamitos 230 kV switchyard and its transmission outlets just north of the property line.⁹

In Power Block 1, the AEC will consist of a natural gas-fired 2-on-1 combined-cycle generating unit with a steam-turbine generator (STG) unit rated at

⁵ Ex. 2000, p. 5.5-5.

⁶ *Id.*

⁷ *Id.*

⁸ *Id.*

⁹ *Id.*

241.1MW (290 MVA),18 kV, 0.85 power factor (PF) and two combustion turbine generator (CTG) units each rated at 234.5 MW (272 MVA),18 kV, 0.85 PF. The maximum turbine output for the STG will be 241.1MW, and each CTG 234.5 MW.¹⁰

Power Block 2, will be divided into two sub-blocks consisting of two natural gas-fired CTGs for a total of four CTG units in Power Block 2. Each of the CTGs in Power Block 2 will be rated at 103.3 MW (121.5 MVA), 13.8 kV, 0.85 PF.

The AEC plant will have a total gross generating installed capacity of about 1,123.3 MW and a net generating capacity of 1,092.2 MW.¹¹

In Power Block 1, the Applicant expects that the STG unit would be connected through a 10,000-ampere, 18 kV circuit breaker (CB), a disconnect switch and an approximately 100-foot-long 10,000-ampere segregated bus duct to the low voltage terminal of a dedicated 171/228/285 MVA, ONAN/ONAF, 18/230 kV generator step-up (GSU) transformer. Each of the two CTG units in Power Block 1 are expected to be connected through a 10,000-ampere, 18 kV breaker, a disconnect switch and an approximately 100-foot long 10,000-ampere segregated bus duct to the low side voltage terminal of a dedicated 169/225/282 MVA ONAN/ONAF, 18/230 kV GSU. The high side of each of the above three GSU transformers will be connected by a short overhead span of 1113 ACSR “Bluejay” conductor and a 230 kV 1,200-ampere CB with a 1,200-ampere disconnect switch to the switchyard 4 inch schedule 80, 6063 aluminum overhead 230 kV bus.¹²

In Power Block 2, the Applicant expects that each of the four simple-cycle CTG units will be connected through a 7,000-ampere, 13.8 kV breaker, a disconnect switch and an approximately 100-foot long 7,000-ampere segregated bus duct to the low side voltage terminal of a dedicated 72/96/120 MVA ONAN/ONAF,13.8/230 kV GSU transformer. The high side of the GSU transformers for each of the two CTG units will be connected to a 230 kV, 2,000-ampere CB with a 2,000-ampere disconnect switch and then to a 230 kV 4-inch schedule-80, 6063 aluminum overhead 230 kV bus through an approximately 50-foot long overhead 1113 ACSR “Bluejay” conductor. Similarly, the high side of the GSU transformers for the other two simple-cycle CTG units will be connected to a 230 kV CB with a 2,000-ampere disconnect switch and then to another 230 kV overhead bus of 4-inch schedule-80, 6063 aluminum through an

¹⁰ Ex. 2000, p. 5.5-6.

¹¹ *Id.*

¹² *Id.*

approximately 50-foot long 1113 ACSR “Bluejay” overhead conductor. Each of the two 230 kV overhead buses will terminate to a 230 kV common overhead bus of 4 inch schedule-80, 6063 aluminum bus through a 2,000-amp disconnect switch.¹³ The proposed gen tie line for the four CTG units will be connected to the 230 kV overhead common bus through a 230 kV 2,000-ampere breaker with a 2,000-ampere disconnect switch.¹⁴

Interconnection Facilities

The 230 kV bus in the Power Block 1 switchyard will be connected to a new overhead generator tie line through a 230 kV, 2,000 ampere breaker and two 2,000 ampere disconnect switches. The new 0.31-mile long overhead generator tie line will be built with 1113 kcmil bundled “Bluejay” Aluminum Conductor Steel-supported (ACSS) on 95-foot high dead end steel structures and 95-foot high steel poles. The line will terminate at the SCE Alamitos switching station on the section Bus B double busses, switching Bay No.1, with two 2,500 ampere breakers and two 2,500 ampere disconnect switches for each breaker.

At the maximum output from the generators in Power Block 1 and a 0.85 power factor, the full load current in the overhead generator tie line will be 2,100 amperes, and the line rating of the bundled tie line will be 4,200 amperes at 200 degree Celsius. Since the line will be protected by a 230kV, 25 ohms (66.31 MH) current limiting reactor, and the line conductor size rating is more than twice of the full load current, it is expected that the conductor temperature will be limited within 130 degree Celsius as required by the SCE interconnection requirements.¹⁵

For Power Block 2, the switchyard 230 kV bus will be connected to a new overhead generator tie line through a 230 kV, 2,000 ampere breaker with an associated 2,000 ampere disconnect switch. The second overhead generator tie line will be built on 95-foot high dead-end steel structures and 95-foot high steel poles. The second, 0.16 mile long overhead generator tie line, will be built with 1431 kcmil “Bobolink” ACSS conductor. The generator tie line for Power Block 2 will terminate at the SCE Alamitos switching station at the section Bus B double busses, switch bay No.3, with two 2,500 ampere breakers and two 500 ampere disconnect switches for each breaker.¹⁶

¹³ Ex. 2000, p. 5.5-6.

¹⁴ *Id.*

¹⁵ Ex. 2000, p. 5.5-7.

¹⁶ *Id.*

SCE Alamitos 230 KV Switchyard

When the AGS Units 1-4 are disconnected, all the related SBs with 2,500 ampere breakers and the associated 2,500 ampere disconnect switches in the Alamitos 230 kV Switchyard Bus A section will become available. With the disconnection of existing AGS Units 5 & 6, SB 1 & 3 with associated 2,500 ampere breakers and 2,500 ampere disconnect switches will be available for the interconnection of the combined cycle units from Power Block 1 and the simple cycle units from Power Block 2 respectively.¹⁷

ENVIRONMENTAL ANALYSIS

Thresholds of Significance

The AEC would connect to the SCE transmission network. As the interconnecting utility or participating transmission owner, SCE is responsible for ensuring grid reliability. The California Independent System Operator (California ISO) is the control area operator, and is responsible for ensuring electric system reliability for participating entities and determining both the standards necessary to achieve system reliability and whether a proposed project conforms to those standards. Normally, SCE and California ISO perform the Phase 1 and Phase 2 interconnection cluster studies, determine the transmission system impacts of the proposed project, and any mitigation measures needed to ensure system conformance with performance levels required by utility reliability criteria, North American Electric Reliability Corporation (NERC) reliability standards, Western Electric Coordinating Council (WECC) system performance criteria, and California ISO planning standards. We rely on these studies and any review conducted by the responsible agencies to determine the project's effect on the transmission grid and to identify any necessary downstream facilities or indirect project impacts required to bring the transmission network into compliance with applicable reliability standards.¹⁸

Impact Assessment and Mitigation

The California ISO has approved the repower and exempted the AEC project from these studies because the project would not impact the transmission grid significantly different manner than the existing generator.¹⁹ The California ISO tariff Section 25.1 allows a proposed generator to be excused from the interconnection queue study process if the California ISO and the participating

¹⁷ Ex. 2000, p. 5.5-7.

¹⁸ Ex. 2000, p. 5.5-8.

¹⁹ Ex. 1070, p. 16.

transmission owner find that the project is substantially unchanged from the existing project it replaces.²⁰

According to section 25.1.2.1 of the California ISO tariff, the Applicant needs to submit switchyard/substation final design drawings to SCE along with final impedances of the new GSU transformers for SCE's review and approval during final engineering of the SCE interconnection facilities at the SCE Alamitos 230 kV substation. The engineering would be followed by a final interconnection analysis by SCE and/or the California ISO, including a short circuit duty study during the Energy Commission post-licensing period.²¹

Since the proposed AEC plant is replacing the existing AGS OTC plant, and its total generation output and electrical characteristics are substantially unchanged, there is no expectation of additional downstream impacts. Hence, the evidence indicates that the interconnection of the AEC project will have no impacts that would require any new downstream facilities or any downstream upgrades.²²

Cumulative Impacts

A project may result in a significant adverse cumulative impact when 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 (1) past projects; (2) other current projects; and (3) probable future projects.²³

In accordance with California ISO tariff section 25.1, the California ISO has approved the repower without the need for an interconnection study, as the AEC will have similar generating capability and electrical characteristics to the existing AGS. The evidence indicates that the interconnection of the AEC project will have no impacts that would require any new downstream facilities or any downstream upgrades.²⁴ Therefore, we find that the new AEC project will not create any cumulative adverse impacts in the surrounding SCE transmission network.²⁵

²⁰ Ex. 1070, p. 16.

²¹ Ex. 2000, p. 5.5-8.

²² Ex. 2000, p. 5.5-1.

²³ Cal. Code Regs., tit. 14, § 15130.

²⁴ Ex. 2000, p. 5.5-8.

²⁵ *Id.*

COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

**Transmission System Engineering Table 1
Laws, Ordinances, Regulations, and Standards**

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
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 General 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.	Compliant. Conditions of Certification TSE-3 and TSE-5 require the power plant switchyard and outlet line to meet or exceed the electrical, mechanical, civil, and structural requirements of CPUC General Order 95 and ensures conformance with CPUC GO-95 and. 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. ²⁶
California Public Utilities Commission 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.	Compliant. The AEC will not utilize underground lines. ²⁷
The National Electric Safety Code (NESC), 2007	Provides electrical, mechanical, civil and structural requirements for overhead electric line construction and operation.	Compliant. Conditions of Certification TSE-3 and TSE-5 require the power plant switchyard and outlet line to meet or exceed the electrical, mechanical, civil, and structural requirements of NESC and ensures conformance with NESC standards. In case of non-conformance, the project owner shall inform the CPM and CBO in writing within 10 days of discovering such non-

²⁶ Ex. 2000, pp. 5.5-12; 5.5-15.

²⁷ Exs. 1500, p. 3-1; 2000, pp. 5.5-1; 4.11-4.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
		conformance and describe the corrective actions to be taken. ²⁸
The North American Electric Reliability Corporation (NERC) Reliability Standards	<p>Defines the plans, policies and procedures, methodologies and system models, coordination and responsibilities, and performance criteria for reliable planning, control and operation of the North American bulk electric system (BES) over a broad spectrum of system conditions and following a wide range of probable disturbances.</p> <p>The standards require the planning authority to evaluate the risks and consequences for such catastrophic events, and be prepared according to the NERC Emergency Operation Planning Standard and/or to restore the system to normal according to the NERC standard for System Restoration Plans.</p>	<p>Compliant. Condition of Certification TSE-3 ensures that the AEC will be properly interconnected to the transmission grid after receiving California ISO analysis for exemption of section 25.1 of their Tariff. TSE-3 also ensures that the generator output will be properly delivered to the transmission system. Condition of Certification TSE-4 ensures that the AEC will synchronize with the existing transmission system and the operation of the facilities will comply with applicable LORS. Condition of Certification TSE-5 ensures that the AEC project will be built to required specifications and the operation of the facilities will comply with applicable LORS including the NERC reliability standards.²⁹</p>
The Western Electric Coordinating Council (WECC) Regional System Performance Criteria	<p>The WECC performance criteria incorporate Table I NERC transmission planning standards and include the WECC Disturbance-Performance Table W-1 which provides standards for transient voltage and frequency limits, and post-transient system voltage variation. Certain aspects of the WECC performance criteria are either more stringent or specific than the NERC standards, such as inclusion of contingency event frequencies and additional Category C & D contingencies. Adequate reactive power resources planning criteria for transfer path ratings and post-transient voltage stability are also included. For any past disturbance that actually resulted in cascading outages in the interconnected system, the WECC performance criteria require remedial</p>	<p>Compliant. Compliant. Condition of Certification TSE-3 ensures that the AEC will be properly interconnected to the transmission grid after receiving California ISO analysis for exemption of section 25.1 of their Tariff. TSE-3 also ensures that the generator output will be properly delivered to the transmission system. Condition of Certification TSE-4 ensures that the AEC will synchronize with the existing transmission system and the operation of the facilities will comply with applicable LORS. Condition of Certification TSE-5 ensures that the AEC project will be built to required specifications and the operation of the facilities will</p>

²⁸ Ex. 2000, pp. 5.5-12; 5.5-15.

²⁹ Ex. 2000, pp. 5.5-4; 5.5-12 - 5.5-15.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
	action so that future occurrences of such events would not result in cascading outages.	comply with applicable LORS including the NERC reliability standards.
California ISO Planning Standards	Standards and guidelines to ensure the adequacy, security, and reliability in the planning of the California ISO grid transmission facilities. The standards incorporate the current NERC Reliability Planning Standards and WECC Regional System Performance Criteria. However, the California ISO standards are more stringent or specific than the NERC standards and WECC performance criteria. The standards include additional Category B disturbance elements and criteria for existing nuclear plant unit's control. The standards also address new transmission versus involuntary load interruptions. The California ISO Standards apply to the electric systems of all participating transmission owners interconnecting to the California ISO 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 California ISO.	Compliant. Condition of Certification TSE-4 ensures that the AEC will synchronize with the existing transmission system and the operation of the facilities would comply with applicable LORS. Condition of Certification TSE-4 was added as a specific request from the California ISO and serves as a reminder that the synchronization request must be made to the California ISO. Compliance with the request requires submittal of the synchronization letter and evidence of the phone notification. ³⁰
California ISO/FERC Electric Tariff	Provides rules, procedures and 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. The tariff specifies the required Generator Interconnection and Delivery Allocation Procedures and LGIA to be followed for any large generator interconnection to the California ISO controlled grid.	Compliant. The project will have no significant impacts on the existing transmission system. California ISO found that the AEC would be substantially unchanged from the existing AGS plant and approved the repower and exempted the project from the California ISO generator interconnection study process in accordance with section 25.1. Condition of Certification TSE-3 ensures that the AEC will be properly interconnected to the transmission grid after receiving California ISO analysis for exemption of section 25.1 of their Tariff. ³¹

³⁰ Ex. 2000, pp. 5.5-10; 5.5-15.

³¹ Ex. 2000, pp. 5.5-1; 5.5-8.

We find that the AEC facilities from the generator to the interconnection with the SCE Alamos switchyard, including, the step-up transformer, the project switchyards, the 230 kV overhead transmission line, and the termination are acceptable, in accordance with good utility practices and would comply with applicable LORS.

AGENCY AND PUBLIC COMMENTS

We received no public comment on transmission system engineering.

FINDINGS OF FACT

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

1. The Alamos Energy Center consists of two generation power blocks designated as Power Block 1 and Power Block 2 for a total gross generating installed capacity of about 1,123.3 MW and a net generating capacity of 1,092.2 MW.
2. Power Block 1 will consist of a natural gas-fired 2-on-1 combined cycle generating unit with a steam-turbine generator unit rated at 241.1 MW (290 MVA), 18 kV, 0.85 power factor and two combustion turbine generating units each rated at 234.5 MW (272 MVA), 18 kV, 0.85 power factor.
3. Power Block 1, the maximum turbine output for the steam-turbine generator will be 241.1 MW, and each combustion turbine generator will be 234.5 MW.
4. Each of the two combustion turbine generating units and the steam-turbine generator unit in Power Block 1 will be connected through a 10,000 ampere, 18 kV breaker, a disconnect switch and an approximately 100-foot long 10,000 ampere segregated bus duct to the low side voltage terminal of a dedicated 169/225/282 MVA ONAN/ONAF, 18/230 kV generator step-up.
5. The high side of each of the three generator step-up transformers in Power Block 1 will be connected by a short overhead span of 1113 ACSR "Bluejay" conductor and a 230 kV 1,200 ampere circuit breaker with a 1,200 -ampere disconnect switch to the switchyard 4 inch schedule 80, 6063 aluminum overhead 230 kV bus.
6. Power Block 2 will consist of four combustion turbine generator units in Power Block 2. Each of the combustion turbine generator units rated at 103.3 MW (121.5 MVA), 13.8 kV, 0.85 power factor.

7. In Power Block 2, each of the four simple-cycle combustion turbine generator units will be connected through a 7,000 ampere, 13.8 kV breaker, a disconnect switch and an approximately 100-foot long 7,000-ampere segregated bus duct to the low side voltage terminal of a dedicated 72/96/120 MVA ONAN/ONAF, 13.8/230 kV generator step-up transformer.
8. The high side of the generator step-up transformers for the four simple-cycle combustion turbine generator units in Power Block 2 will be connected to a 230 kV circuit breaker with a 2,000 ampere disconnect switch and then to another 230 kV overhead bus of 4-inch schedule-80, 6063 aluminum through an approximately 50-foot long 1113 ACSR "Bluejay" overhead conductor.
9. Each of the two 230 kV overhead busses in Power Block 2 will terminate to a 230 kV common overhead bus of 4 inch schedule-80, 6063 aluminum bus through a 2,000-amp disconnect switch.
10. The generation tie line for the four combustion turbine generator units will be connected to the 230 kV overhead common bus through a 230 kV 2,000 ampere breaker with a 2,000 ampere disconnect switch.
11. All the related switch bays with 2,500-ampere breakers and the associated 2,500 ampere disconnect switches in the Alamos 230 kV Switchyard Bus A section will be available when Alamos Generating Station Units 1-4 are decommissioned.
12. Switch bays 1 & 3 with associated 2,500 ampere breakers and 2,500 ampere disconnect switches will become available for the interconnection of the combined cycle units from Power Block 1 and the combustion turbine generator units from Power Block 2, respectively, when Alamos Generating Station Units 5 & 6 are decommissioned.
13. The California ISO will likely find that the Alamos Energy Center project will be substantially unchanged from the existing Alamos Generating Station plant and will have no significant impacts on the existing transmission system.
14. The Applicant has sought an exemption from the California ISO generator interconnection study process in accordance with section 25.1 of the California ISO tariff which allows the California ISO to exempt a generator from the interconnection queue study process if the new generator is found to be substantially unchanged from the generator it replaces.

15. The proposed interconnection facilities are acceptable, in accordance with good utility practices and would comply with applicable LORS, with implementation of Conditions of Certification **TSE-1** through **TSE-5**.
16. Implementation of the Conditions of Certification **TSE-1** through **TSE-5** will ensure that Alamitos Energy Center does not adversely impact the transmission grid.

CONCLUSIONS OF LAW

1. The Alamitos Energy Center outlet transmission lines and terminations are designed to comply with all applicable LORS.
2. Implementation of the mitigation measures specified in the evidentiary record and in this Decision will ensure that the Alamitos Energy Center's transmission interconnections will not contribute to significant adverse direct, indirect, or cumulative impacts.
3. The Conditions of Certification identified in the appropriate portion of **Appendix A** of this Decision, ensure that the Alamitos Energy Center's electricity transmission system will be designed, constructed, and operated in conformance with the applicable laws, ordinances, regulations, and standards.

E. TRANSMISSION LINE SAFETY AND NUISANCE

INTRODUCTION

The Alamitos Energy Center (AEC) project's transmission line must be constructed and operated in a manner that protects environmental quality, ensures public health and safety, and complies with applicable law. This section 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. This section 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.

This topic was uncontested. Evidence on the topic of transmission line safety and nuisance is contained in Exhibits 1500-1508 and 2000.¹

SETTING

The AEC will connect to the regional electrical grid, for which the California Independent System Operator (California ISO) is the control area operator, using the existing Southern California Edison (SCE) owned, 230-kilovolt (kV) switchyard. The switchyard is located on a parcel of land owned by SCE within the existing Alamitos Generating Station (AGS) site. The nearest residence is located approximately 1,500 feet to the west of the AEC site on East Eliot Street.

The closest airport to the AEC is the Los Alamitos Army Airfield, a military installation approximately 2.5 miles northeast of the AEC project site. Its longest runway is 8,000 feet long (located approximately 14,256 feet or 2.7 miles to the northeast).² The Long Beach Airport is the next closest airport to the AEC. Its longest runway is 10,003 feet long, and is located approximately 20,064 feet or 3.8 miles to the northwest of the AEC.

The nearest public heliport is located at the Long Beach Airport. The Boeing Seal Beach Heliport and the Rockwell Facility Heliport are located 1 mile and 1.1 miles from the AEC site, respectively.³

The existing SCE switchyard is located directly north of the AEC.

The two AEC power blocks will connect into the existing SCE switchyard, via two new single-circuit (or double-circuit) 230-kV lines, which will replace the six

¹ 11/15/16 RT 26:10 – 32:15.

² Ex. 2000, p. 4.10-12.

³ Ex. 1500, p. 5.12-16.

existing 230-kV lines used by AGS Units 1-6.⁴ No changes are planned for the SCE transmission line circuits connecting the SCE switchyard to the area's California ISO-controlled transmission system. The new generation tie lines that connect the AEC power blocks to the existing SCE 230-kV switchyard would be located within the existing AGS site and would not affect the public because the site is industrial land that does not extend off the AGS/SCE site.⁵

PROJECT DESCRIPTION

The existing AGS's Units 1-6 interconnect to the SCE 230-kV switchyard with six separate 230-kV generation tie lines. These six lines would be replaced with two new 230-kV generation tie lines that would connect AEC generator's power blocks 1 and 2 to the SCE 230-kV Alamitos Switching Station. No modifications would be necessary on the existing 230-kV transmission lines connecting the SCE switchyard at the AEC to the California ISO transmission system. The 230-kV switchgear would receive the power from each generator unit and set-up transformer, then combine and meter the power for delivery to the SCE substation located onsite.⁶

The AEC generation tie lines will use 230-kV isolation switches and gas-insulated circuit breakers for each block and an individual generator step-up transformer for each of the generating units within each power block. All generation tie lines from the AEC to the SCE switchyard would be constructed as overhead lines. These overhead lines are within the controlled AEC site and not accessible by the general public. No underground generation tie lines are proposed and no new offsite transmission lines would be needed for the AEC. For more information on the site and its related project description, please see the **PROJECT DESCRIPTION** section of this Decision.⁷

ENVIRONMENTAL ANALYSIS

Thresholds of Significance

The laws, ordinances, regulations, and standards (LORS) listed in **Transmission Line Safety and Nuisance Table 1** have been established to keep impacts below levels of potential environmental significance.⁸

⁴ Exs. 1500, p. 3.1; 2000, p. 4.11-3.

⁵ *Id.*

⁶ Exs. 1500, Section 3.1.3; 2000, p. 4.11-4.

⁷ *Id.*

⁸ Ex. 2000, p. 4.11-2.

Impact Assessment and Mitigation

The potential health and safety impacts from the project's transmission lines involve aircraft collisions, interference with radio frequency communication, audible noise, hazardous shocks, nuisance shocks, fire danger, and EMF exposure.

Aviation Safety

For AEC, any hazard to area aircraft would relate to the potential for collision in the navigable airspace. Federal Aviation Administration (FAA) Regulations, 14 Code of Federal Regulations (CFR) Part 77, establish standards for determining obstructions in navigable airspace and set forth requirements for notification of proposed construction. FAA notification is required for construction over 200 feet above ground level and when within restricted airspace in the approaches to public or military airports and heliports. For airports with runways longer than 3,200 feet, the restricted space extends 20,000 feet (3.79 miles) from the runway. For public or military heliports, the restricted space extends 5,000 feet (0.9 mile).⁹

The Los Alamitos Army Airfield is the nearest airport to the AEC. Its longest runway is 8,000 feet long and is located approximately 2.7 miles northeast of the AEC site. As part of the analysis for the AEC, the FAA Notice Criteria Tool has been used to determine whether the generation tie line for the AEC may meet Federal Aviation Regulation 77.13 (FAR §77.13) requirements regarding the need to notify FAA of the construction of the AEC. Although the generation tie line is less than 200 feet in height, the FAA criteria tool indicates that the generation tie line is in proximity to a navigation facility and may impact assurance of navigation signal reception.¹⁰ Imposition and implementation of Condition of Certification **TRANS-6** requires the owner to notify the FAA of structures or construction equipment that is 132-feet above ground level or higher.¹¹

All four of the nearest heliports are more than one mile from the AEC and therefore FAA notification is not required.¹²

⁹ Ex. 2000, p. 4.10-22.

¹⁰ Ex. 1500, p. 3-5.

¹¹ Ex. 2000, p. 4.10-43.

¹² Ex. 2000, 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 AEC transmission lines will be built and maintained according to standard practices that minimize surface irregularities and discontinuities. Since the proposed AEC’s 230-kV generation tie lines are rated at less than 345 kV and would be located within an existing power plant with no nearby residents, we find that it is unlikely that project-related radio-frequency interference will occur. Therefore, no condition of certification is required.¹³

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 use a low corona design to minimize field strengths. The evidence establishes that the lines will not add significantly to the current background noise levels. See discussion in the **NOISE AND VIBRATION** section of this Decision.¹⁴

Hazardous Shocks

Hazardous shocks could result from direct or indirect contact with the energized transmission lines. Compliance with the California Public Utilities Commission’s (CPUC) GO-95 and GO-128 (for overhead and underground lines, respectively) as required by Condition of Certification **TLSN-1** and **TLSN-3** would be adequate to ensure implementation of the necessary mitigation measures.¹⁵

Nuisance Shocks

Nuisance shocks are caused by current flow at levels generally incapable of causing significant physiological harm. There are no design-specific federal or state regulations to limit nuisance shocks in the transmission line environment. 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-3**.¹⁶

¹³ Ex. 2000, p. 4.11-5.

¹⁴ Ex. 2000, p. 4.11-6.

¹⁵ Ex. 2000, p. 4.11-7.

¹⁶ *Id.*

Fire Hazards

Fire can be caused by sparks from the transmission line's conductors or by direct contact between the transmission line and nearby combustible objects. SCE's standard fire prevention and suppression measures comply with the CPUC's GO-95. GO-95 establishes clearances from other manmade and natural structures, as well as tree-trimming requirements to mitigate fire hazards. Although the new transmission lines will be located within the AEC site, Conditions of Certification **TLSN-1** and **TLSN-2** ensure compliance with these program requirements.¹⁷

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.¹⁸ 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.¹⁹

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 transmission lines must be similar to the fields of comparable transmission lines in that service area. If the project's transmission lines are designed in accord with existing SCE field strength-reducing guidelines, they will comply with CPUC requirements for EMF management.²⁰

SCE'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

¹⁷ Ex. 2000, p. 4.11-6.

¹⁸ 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 SCE, 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. 2000, pp. 4.11-8 – 4.11-12.)

¹⁹ Ex. 2000, p. 4.11-8.

²⁰ Ex. 2000, pp. 4.11-8 – 4.11-12.

- Arranging current flow to maximize the cancellation effects from interacting fields from nearby conductors.²¹

The field strengths of most significance would be those encountered within the boundaries of the existing AGS. These field intensities will depend on the effectiveness of the applied field-reducing measures. The Applicant, AES Alamitos Energy, LLC, calculated the maximum electric and magnetic field intensities expected when the two proposed line circuits are energized. Although CA does not establish limits for EMF intensities, the Applicant calculated what the EMF intensities would be for the proposed project and the measurements are well below regulatory limits established by states that do have levels. These field strength values are similar to those of similar SCE lines (as required under current CPUC regulations) but, in the case of the magnetic field, the estimate is much less than the 150- 250 milligauss currently specified by the few states with regulatory limits.²²

The two AEC power blocks would connect into the existing SCE switchyard (located directly north of the AEC site), via two new single-circuit (or double-circuit) 230-kV lines. The new kV lines would replace the six existing 230-kV lines used by AGS Units 1-6. No changes are planned for the SCE transmission line circuits connecting the SCE switchyard to the area's California ISO-controlled transmission system. The new generation tie lines would be located within the existing AGS site and would not extend off the AGS/SCE site.²³ In addition, the nearest residents to the AEC are approximately 1,500 feet to the west. Therefore, no new effects from the AEC transmission lines are anticipated to impact the public.

Cumulative Impacts

A project may result in a significant adverse cumulative impact when 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 (1) past projects; (2) other current projects; and (3) probable future projects.²⁴

The AEC's transmission lines will connect with the nearby SCE lines. The evidence indicates that the AEC's transmission lines will be designed, built, and operated according to applicable field-reducing SCE guidelines (as currently

²¹ Ex. 2000, p. 4.11-12.

²² Ex. 2000, pp. 4.11-9 – 4.11-12.

²³ Ex. 1500, p. 3-1.

²⁴ Title 14, Cal. Code Regs, §§ 15065(a)(3); 15130.

required by the CPUC for effective field management). Any contribution to cumulative area exposures will be at levels expected for SCE lines of similar voltage and current-carrying capacity and not considered cumulatively considerable in the present health risk-based regulatory scheme.²⁵

COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

**Transmission Line Safety and Nuisance Table 1
Laws, Ordinances, Regulations, and Standards**

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
AVIATION SAFETY		
FEDERAL		
Title 14, part 77 of the Code of Federal Regulations (CFR), "Safe, Efficient Use, and Preservation of the Navigable Airspace." (14 C.F.R. § 77 et seq.)	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.	Compliant. Imposition and implementation of Condition of Certification TRANS-6 requires the Applicant to file a "Notice of Proposed Construction or Alteration" with the FAA. See the Aviation Impacts discussion in the TRAFFIC & TRANSPORTATION section of this Decision. ²⁶
Federal Aviation Administration (FAA) Advisory Circular No. 70/7460-2K, "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 7460-1) with the FAA in cases of potential for an obstruction hazard.	Compliant. Imposition and implementation of Condition of Certification TRANS-6 requires the Applicant to file a "Notice of Proposed Construction or Alteration" with the FAA. See also, the Aviation Impacts discussion in the TRAFFIC & TRANSPORTATION section of this Decision. ²⁷
FAA Advisory Circular 70/7460-1K (through January 4, 2015), now 70/7460-1L, effective October 8, 2016, "Obstruction Marking and Lighting"	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. (14 C.F.R. § 77 et seq.)	Compliant. Imposition and implementation of Condition of Certification TRANS-6 requires the Applicant to file a "Notice of Proposed Construction or Alteration" with the FAA. See also, the Aviation Impacts discussion in the TRAFFIC & TRANSPORTATION section of this Decision. ²⁸

²⁵ Ex. 2000, p. 4.11-13.

²⁶ Ex. 2000, pp. 4.11-4 – 4.11-5.

²⁷ *Id.*

²⁸ *Id.*

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
Interference with Radio Frequency Communication		
FEDERAL		
Title 47, CFR, part 15 (47 C.F.R. § 15 et seq.), Federal Communications Commission (FCC)	Prohibits operation of devices that can interfere with radio-frequency communication.	Compliant. Since the AEC's 230-kV generation tie lines are rated at less than 345 kV and will be located within an existing power plant with no nearby residents, it is unlikely that project-related radio-frequency interference will occur. Therefore, no condition of certification is required. ²⁹
STATE		
CPUC General Order 52 (GO-52)	Governs the construction and operation of power and communications lines to prevent or mitigate inductive interference.	Compliant. The project owner will construct the 230-kV transmission lines according to the requirements of CPUC's GO-52, as required in Condition of Certification TLSN-1 . ³⁰
Audible Noise		
LOCAL		
City of Long Beach General Plan	Identifies and appraises noise problems within the community and assists the city in making land use decisions.	Compliant. The evidence establishes that the lines will not add significantly to the current background noise levels. See discussion in the NOISE AND VIBRATION section of this Decision. ³¹
City of Long Beach Municipal Code, title 8	Establishes performance standards that noise sources should achieve at existing or planned residential or other noise-sensitive land uses.	Compliant. The evidence establishes that the lines will not add significantly to the current background noise levels. See discussion in the NOISE AND VIBRATION section of this Decision. ³²
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.	Compliant. The project owner will construct the 230-kV transmission lines according to the requirements of CPUC GO-95, as required in Condition of Certification TLSN-1 . ³³

²⁹ Ex. 2000, p. 4.11-5.

³⁰ Ex. 2000, p. 4.11-16.

³¹ Ex. 2000, p. 4.11-6.

³² *Id.*

³³ *Id.*

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
California Code of Regulations, Title 8, 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.	Compliant. Implementing the CPUC GO-95-related measures against direct contact with the energized line will serve to minimize the risk of hazardous shocks. Conditions of Certification TLSN-1 and TLSN-3 are adequate to ensure implementation of the necessary mitigation measures. ³⁴
National Electrical Safety Code (NESC)	Specifies grounding procedures to limit nuisance shocks. Also specifies minimum conductor ground clearances.	Compliant. Condition of Certification TLSN-3 ensures proper grounding for AEC. ³⁵ Conditions of Certification TSE-3 and TSE-5 require the power plant switchyard and outlet line to 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; . In case of non-conformance, the project owner shall inform the Compliance Project Manager and Chief Building Official in writing within 10 days of discovering such non-conformance and describe the corrective actions to be taken. ³⁶

³⁴ Ex. 2000, p. 4.11-7.

³⁵ Ex. 2000, pp. 4.11-7; 4.11-15.

³⁶ Ex. 2000, pp. 5.5-12 - 5.5-15.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
INDUSTRY STANDARDS		
Institute of Electrical and Electronics Engineers (IEEE) 1119-1188, "IEEE Guide for Fence Safety Clearances in Electric-Supply Stations"	Provides design guidance for the location of fences with respect to live parts within an electric-supply station. The intent of the fence safety clearance is to provide a reasonable safety clearance zone so that someone inserting an object through the electric-supply station fence should not contact live parts or come close enough to the live parts to violate the required live part to ground clearance and cause a flashover to occur. The safety clearance zone is necessary to minimize a possible hazard to anyone on the outside of an electric-supply station fence.	Compliant. Condition of Certification TLSN-3 ensures proper grounding for AEC. ³⁷
Electric and Magnetic Fields		
STATE		
CPUC GO-131-D, "Planning and construction of facilities for the generation of electricity and certain electric transmission facilities"	Specifies application and noticing requirements for new line construction including EMF reduction.	Compliant. The project owner must submit proof of compliance with CPUC GO-131-D to the Compliance Project Manager, as required in Condition of Certification TLSN-1 . ³⁸
CPUC Decision D.93-11-013	Specifies CPUC requirements for reducing power frequency electric and magnetic fields.	Compliant. EMFs produced by new transmission lines must be similar to the fields of comparable transmission lines in that service area. Condition of Certification TLSN-1 requires the project's transmission lines are designed in accordance with existing SCE field strength-reducing guidelines, and will therefore comply with CPUC requirements for EMF management. ³⁹

³⁷ Ex. 2000, p. 4.11-7.

³⁸ Ex. 2000, p. 4.11-16.

³⁹ Ex. 2000, p. 4.11-12.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
CPUC Decision D.06-01-042	Re-affirms CPUC EMF policy.	Compliant. EMFs produced by new transmission lines must be similar to the fields of comparable transmission lines in that service area. Condition of Certification TLSN-1 requires the Applicant to design the transmission lines in accordance with existing SCE field strength-reducing guidelines, and will therefore comply with CPUC requirements for EMF management. ⁴⁰
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"	Uniform procedures for the measurement of power frequency EMFs from alternating current (AC) overhead power lines and for the calibration of the meters used in these measurements are established. The procedures apply to the measurement of EMFs close to ground level. The procedures can also be tentatively applied (with limitations, as specified in the standard) to electric fields near an energized conductor or structure.	Compliant. Since the CPUC currently requires that most new transmission lines in California be designed according to safety and EMF-reducing guidelines of the electric utility in the service area involved, their fields are required to be similar to fields from similar lines in that service area. Designing the proposed project transmission lines according to existing SCE field strength-reducing guidelines, as required by Condition of Certification TLSN-1 , and it will comply with the ANSI/IEEE requirements for EMF management. ⁴¹
Fire Hazards		
STATE		
California Code of Regulations, Title 14, 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.	Compliant. Compliance with Title 14, California Code of Regulations, Sections 1250-1258, will minimize fire hazards while the use of low-corona line design, together with appropriate corona-minimizing construction practices, will minimize the potential for corona noise and its related interference with radio-frequency communication in the area around the route. ⁴²

⁴⁰ Ex. 2000, p. 4.11-12.

⁴¹ Ex. 2000, p. 4.11-13.

⁴² Ex. 2000, p. 4.11-1 – 4.11-3.

PUBLIC COMMENT

There were no public comments on transmission line safety and nuisance.

FINDINGS OF FACT

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

1. The existing Alamos Generating Station Units 1-6 interconnect to the Southern California Edison 230-kilovolt switchyard with six separate 230-kilovolt generation tie lines which will be replaced with two new 230-kilovolt generation tie lines.
2. The Alamos Energy Center will connect to the regional electrical grid using the existing Southern California Edison /California ISO-controlled, 230-kilovolt switchyard located on a parcel of land owned by Southern California Edison within the existing Alamos Generating Station site.
3. No new offsite transmission lines would be needed for the Alamos Energy Center.
4. The Alamos Energy Center lines will not exceed the height threshold established by the Federal Aviation Administration and there is no evidence that the project's lines will pose an aviation hazard to either area helicopters or to fixed-wing aircraft.
5. There is no evidence that the Alamos Energy Center 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.
6. Compliance with California Public Utilities Commission and Southern California Edison fire prevention and hazardous/nuisance shock prevention requirements will ensure that the Alamos Energy Center lines do not result in significant public health and safety impacts.
7. The available scientific evidence does not conclusively establish that electric and magnetic fields pose a significant health hazard to humans.
8. There are no residences along the route of the Alamos Energy Center's transmission lines.
9. The Alamos Energy Center transmission lines will incorporate standard electric and magnetic fields -reducing measures established by the California Public Utilities Commission and as required by Southern California Edison.

10. The project owner will coordinate with Southern California Edison to provide field intensity measurements before and after line energization to assess electric and magnetic fields contributions from the project-related current flow.
11. The Alamos Energy Center'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.

CONCLUSIONS OF LAW

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

VI. PUBLIC HEALTH AND SAFETY

Site preparation (including demolition activities), construction and operation of the Alamitos Energy Center (AEC) will create combustion products and utilize certain hazardous materials that pose health risks to the general public and to the workers at the facility. The following sections discuss the regulatory programs, standards, protocols, and analyses pertaining to these issues, as they relate to **GREENHOUSE GAS EMISSIONS, AIR QUALITY, PUBLIC HEALTH, HAZARDOUS MATERIALS MANAGEMENT, and WORKER SAFETY/FIRE PROTECTION.**

A. GREENHOUSE GAS (GHG) EMISSIONS

INTRODUCTION

Generation of electricity using any fossil fuel, including natural gas, can produce greenhouse gases (GHGs) and criteria air pollutants that have been traditionally regulated under the federal and state Clean Air Acts. Criteria air pollutants are defined as air contaminants for which the state and/or federal government has established an ambient air quality standard to protect public health. The criteria air pollutants analyzed are nitrogen dioxide (NO₂), sulfur dioxide (SO₂), carbon monoxide (CO), ozone (O₃), inhalable particulate matter (PM₁₀), and fine particulate matter (PM_{2.5}).¹

GHG emissions are not criteria air pollutants with direct impacts; they are discussed in the context of cumulative impacts. In December 2009, the U.S. Environmental Protection Agency (U.S. EPA) declared that GHGs threaten the public health and welfare of the American people (the “endangerment finding”), and this became effective on January 14, 2010. Regulating GHGs at the federal level is required by the Prevention of Significant Deterioration Program (PSD) for sources that exceed 100,000 tons per year of carbon dioxide-equivalent emissions.²

Federal rules that became effective December 29, 2009 (40 CFR 98) require federal reporting of GHGs. In addition, the State has demonstrated a clear willingness to address global climate change through research, adaptation, and GHG inventory reductions.³ We therefore evaluate the ability of the project to comply with existing federal- and state-level policies and programs for GHGs.

GHGs include carbon dioxide (CO₂), nitrous oxide (N₂O), methane (CH₄), sulfur hexafluoride (SF₆), hydrofluorocarbons (HFC), and perfluorocarbons (PFC). CO₂

¹ Ex. 2014, pp. 4.1-173; 4.1-174.

² *Id.*

³ *Id.*

emissions are 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 CO₂-equivalent” (MTCO₂e) for simplicity.⁴

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. The California Legislature has declared that “[g]lobal warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California.”⁵

Our analysis of the GHG emissions from a power plant’s operation is not only assessed by analysis of the plant’s emissions, but also in the context of operation of the entire electricity system of which the plant would be an integrated part.

From a policy and regulatory standpoint, the GHG emissions from a power plant’s operation is assessed in the context of the state’s GHG laws and policies, such as Assembly Bill (AB) 32.⁶

This topic was contested. Evidence on the topic of Greenhouse Gas Emissions is contained in Exhibits 1001, 1003, 1011, 1012, 1014, 1017, 1018, 1021, 1022, 1026, 1032, 1034, 1036, 1037, 1039, 1041, 1043, 1044, 1045, 1047, 1048, 1049, 1053, 1056, 1057, 1058, 1060-1063, 1065, 1068-1071, 1411, 1434, 1435, 1442, 1443, 1444, 1445, 1446, 1500-1508, 1600-1611, 2000, 2014, 2015, 3001, 3002, 3006, 3009, 3015, 3020, 3021, 3024, 3042-3048, 3052, 3054, 3055, 3059-3061, 3064, 3069, 3070-3073, and 3076 -3083.⁷

SETTING

For information regarding the project setting, please refer to the **PROJECT DESCRIPTION** section of this Decision. The project emissions are described in greater detail in the **AIR QUALITY** section of this Decision.

PROJECT DESCRIPTION

For information regarding the design and features of the project, please refer to the **PROJECT DESCRIPTION** section of this Decision.

⁴ Ex. 2014, p. 4.1-173.

⁵ Ex. 2014, p. 4.1-175.

⁶ *Id.*

⁷ 12/20/16 RT 37:3-63:24; 91:14 – 92:7.

ENVIRONMENTAL ANALYSIS

Thresholds of Significance

The California Environmental Quality Act Guidelines identify three factors lead agencies must consider when assessing the significance of impacts for the analysis of GHG emissions impacts:⁸

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 determines 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. Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an Environmental Impact Report must be prepared for the project.⁹

We evaluate the GHG emissions of this project in the context of the electricity sector as a whole and the AB 32 Scoping Plan implementation efforts for the sector, including the cap and trade regulation that constitutes the state's primary mechanism for reducing GHG emissions from the electricity sector. The Energy Commission's assessment approach does not include a specific numeric threshold of significance for GHG emissions. Rather the assessment is completed in the context of how the project will affect the electricity sector's GHG emissions based on its proposed role and its compliance with applicable regulations and policies.¹⁰

Included in this sector-wide GHG emission analysis method is the determination of whether a project is consistent with the Avenal precedential decision, which requires a finding as a conclusion of law that any new natural gas-fired power plant certified by the Energy Commission must:

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

⁸ CEQA Guidelines, tit. 14 Cal. Code Regs. § 15064.4.

⁹ Ex. 2014, p. 4.1-181.

¹⁰ *Id.*

- not interfere with generation from existing renewables or with the integration of new renewable generation; and
- taking into account the two preceding factors, reduce system-wide GHG emissions.¹¹

Impact Assessment and Mitigation

Construction Emissions

Construction of industrial facilities such as power plants requires coordination of numerous equipment and personnel. The concentrated on-site activities result in temporary, unavoidable increases in vehicle and equipment emissions that include greenhouse gases. Construction of the AEC project will occur over approximately 57 months. It includes the demolition of the remaining portions of Alamitos Generating Station (AGS) Unit 7, and construction of the combined cycle combustion turbine generators (CCGT or Power Block 1) and simple cycle combustion turbine generators (SCGT or Power Block 2). The Applicant provided an annual GHG emission estimate for the construction phase in **Greenhouse Gas Table 1**, below. The term CO_{2e} represents the total GHG emissions after weighting by the appropriate global warming potential.¹²

Greenhouse Gas Table 1
Estimated Maximum Annual Construction Greenhouse Gas Emissions

AEC	GHG Construction Emissions, Metric Tons per Year ^a			
	CO ₂	CH ₄	N ₂ O	CO _{2e}
Weighted Construction Total^b	6,591	3.25	16.99	6,611

Source: AEC 2015 Table 5.1A30 CH2 2016s, CH2 2016aa, CH2 2016bb, Staff analysis.

Notes: ^a One metric tonne (MT) equals 1.1 short tons or 2,204.6 pounds or 1,000 kilograms.

^b Global Warming Potential weighting factors: CH₄ = 25, N₂O = 298

The evidence indicates that the GHG emissions increases from mitigated construction activities will not be significant for several reasons. First, the intermittent emissions during the construction phase are not ongoing during the life of the project. Additionally, control measures in the conditions of certification that address criteria pollutant emissions, such as limiting idling times and requiring, as appropriate, equipment that meets the latest criteria pollutant emissions standards, would further minimize greenhouse gas emissions to the extent feasible. The use of newer equipment will increase efficiency and reduce GHG emissions and be compatible with low-carbon fuel (e.g., bio-diesel and ethanol) mandates that will likely be part of future California Air

¹¹ Final Commission Decision, Avenal Energy Application for Certification (08-AFC-1) December 2009, p. 114.

¹² Ex. 2014, p. 4.1-179.

Resources Board (ARB) regulations to reduce GHG from construction vehicles and equipment.¹³

Direct/Indirect Operational Impacts and Mitigation

The primary sources of GHGs during operation of the AEC would be the natural gas-fired combustion turbines and the auxiliary boiler. The GHG emissions from employee and delivery traffic are considered negligible.¹⁴

Greenhouse Gas Table 2 shows estimated annual GHG emissions of CO₂ and CO₂e for Power Block 1. The parameters reflect predicted actual operation to conservatively demonstrate how the plant would satisfy the requirements based on how it intends to operate.¹⁵

Greenhouse Gas Table 2
Estimated Potential Annual Greenhouse Gas (GHG) Emissions

Alamitos Energy Center	Power Block 1 (CCTGs) and Auxiliary Boiler Operational GHG Emissions (MTCO ₂ e/yr) ^a
Carbon Dioxide (CO ₂)	1,117,681.94
Methane (CH ₄)	526.71
Nitrous Oxide (N ₂ O)	627.84
Sulfur Hexafluoride (SF ₆) Leakage	17.44
Total Project GHG Emissions (MTCO₂e/yr)^b	1,118,853.92
Estimated Annual Energy Output (MWh/yr) ^c	2,509,309
Estimated Annualized GHG Performance (MTCO₂/MWh)	0.45

Source: Ex. 1608, pp. 117, 118, 127, 144, and 145.

Notes: ^a One metric tonne (MT) equals 1.1 short tons or 2,204.6 pounds or 1,000 kilograms.

^b Global Warming Potential weighting factors: CH₄ = 25, N₂O = 298, SF₆ = 22,800

^c Annualized basis uses the project owner's assumed maximum permitted operating basis.

The Applicant expects the plant capacity factor of the AEC (both the combined-cycle and simple-cycle turbines) each to be below 60 percent. The proposed maximum operation of the combined cycle generator is 4,640 hours, which is a 47 percent capacity factor.¹⁶ The proposed maximum operation of the simple cycle generators is 2,000 hours per year, which is a 23 percent capacity factor that is well below 60

¹³ Ex. 2014, p. 4.1-182.

¹⁴ Ex. 2014, p. 4.1-180.

¹⁵ *Id.*

¹⁶ Ex. 1047, p. 190, Table 5.1B.24.

percent.¹⁷ Therefore, the AEC would not be subject to the SB 1368 Greenhouse Gas Emission Performance Standard (EPS) of 0.500 MTCO₂/MWh. SB 1368 applies to plants that are “designed or intended” to operate as base load generation. Base load units are defined as units that are expected to operate at a capacity factor 60 percent or higher.¹⁸ Any assessment of the impact of a new power plant on system-wide GHG emissions must begin with the understanding that electricity generation and demand must be in balance at all times. The energy provided by any new generation resource simultaneously displaces exactly the same amount of energy from an existing resource or resources. The GHG emissions produced by AEC are thus not incremental additions to system-wide emissions, but are offset by reductions in GHG emissions from those generation resources that are displaced.¹⁹

At low to moderate penetration levels of renewable generation, new natural gas-fired plants, such as AEC, directly displace less efficient natural gas-fired generation. At very low gas prices relative to coal prices, i.e., when electricity from natural gas is cheaper than that from coal, new gas-fired generation will displace coal-fired generation, leading to even greater reductions in GHG emissions. In markets such as California, where GHG emissions allowance costs are a component of the market price, coal-fired generation is displaced even sooner due to its higher carbon content. The development and operation of AEC would not lead to the displacement of energy from zero-carbon generation such as that of renewable, large hydro or nuclear facilities. These have zero (or, in the case of nuclear, very low) fuel costs and will still be dispatched before natural gas-fired generation.²⁰

The amount of new natural gas-fired capacity needed to provide reliable service to the customers of the state is determined in the California Public Utilities Commission’s (CPUC’s) Long-term Procurement Planning (LTPP) proceeding. The state’s loading order²¹ mandates development of cost-effective preferred resources (zero- and low-GHG emitting resources, such as energy efficiency, demand response, and renewable generation) in support of the state’s climate change policies before authorizing the development/financing of conventional fossil resources.²²

¹⁷ Ex. 1047, p. 189, Table 5.1B.23.

¹⁸ Ex. 2014, p. 4.1-178.

¹⁹ Ex. 2014, p. 4.1-191.

²⁰ *Id.*

²¹ The loading order is set forth in California’s Energy Action Plans. Energy Action Plan I was adopted by the state’s energy agencies in April/May 2003 and Energy Action Plan II in September 2005. An update to these plans was issued in February 2008.

²² Ex. 2014, p. 4.1-187.

It is reasonable to assume that the AEC would be dispatched whenever it is a cheaper source of energy than a more expensive resource that would otherwise be called upon to operate. The costs of dispatching a power plant are largely the costs of fuel, plus variable operations and maintenance costs. Fuel represents the largest share of such costs (90 percent or more). The AEC would be dispatched when it burns less fuel per megawatt hour (MWh) than the resources it displaces which translates to fewer GHG emissions.²³

In the longer-term, the development and operation of AEC ultimately leads to the retirement of less-efficient and higher-emitting generation. AEC will render these other facilities less profitable and riskier to operate by reducing their revenue streams. The developers of AEC cannot stimulate demand for energy and other products they provide, but merely supply a share of the energy that is needed to meet demand and the capacity needed to reliably operate the system. Therefore, the AEC would both discourage the use of less-efficient generation and expedite its retirement. The long-run impact of the natural gas-fired fleet turnover has been demonstrated in the historical record. Between 2000 and 2010, California experienced a 22 percent reduction in GHG emissions despite a 3.5 percent increase in generation.²⁴

The relationship between a natural gas-fired plant's heat rate and its dispatch in the real world is more complicated than that described above. Natural gas-fired plants differ in their thermal efficiency (the amount of fuel combusted, and thus GHG emissions per unit of electricity generated). But natural gas plants that are very efficient when run at maximum output are not necessarily dispatched before less efficient ones. This may seem to contradict the assertion that output from a new plant will always displace a higher emitting one, but a plant that is less efficient because it has a higher heat rate may actually combust less fuel during a duty cycle than a plant with a lower heat rate, and thus produce fewer GHG emissions. For example, a 30-MW peaking plant with a heat rate of 10,000 Btu/kWh when operated at full output can be turned on quickly and generate approximately 15 to 30 MW in a matter of minutes. Use of the peaking plant to meet demand on a hot afternoon may result in less incremental fuel combustion than a 100 MW plant with a lower heat rate at full output. That is because the 100 MW plant combusts large amounts of fuel to start up after several hours and must be kept on overnight or for several hours in order to be available later the same day or the next day. Also, a 100 MW plant may not be able to operate at 30 MW without a marked degradation in thermal efficiency and thus increases its GHG emissions. As a result, a resource such as the AEC, which has sacrificed some degree of thermal efficiency at

²³ *Id.*

²⁴ Ex. 2014, p. 4.1-192.

full load in order to provide additional flexibility (multiple starts and shutdowns, faster starts and ramp rates, lower minimum operating levels), may produce fewer GHG gas emissions in providing the same services as a gas-fired alternative with a lower full-load heat rate.²⁵

At higher levels of renewable energy penetration, such as that necessary to meet California's 2030 Renewables Portfolio Standard of 50 percent, relatively efficient fast-start, fast-ramping resources such as the AEC further contribute to GHG emission reductions by increasing the amount of renewable energy that can be integrated into the electricity system. While AEC is less thermally efficient than the natural gas-fired combined cycles built in California during the past decade, AEC is capable of operating at lower levels of output, and doing so without a marked decrease in efficiency. It can be off line until shortly before being needed in the late afternoon and early evening. As a result, it can allow for more renewable generation than a conventional combined cycle, with the concomitant reduction in GHG emissions serving to offset the impact of its lower efficiency at full output.²⁶

The evidence shows, and we find, that the AEC will lead to a net reduction in GHG emissions across the electricity system that provides energy and capacity to California. In addition, it will provide flexible, dispatchable, and fast-ramping power in relatively small increments of capacity, which will improve the electric system reliability in a high-renewables, low-GHG system. The AEC will not increase the overall system heat rate for natural gas plants, nor interfere with generation from existing or new renewable facilities, and will ensure a reduction of system-wide GHG emissions.²⁷

Cumulative Impacts

A project may result in a significant adverse cumulative impact when 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 (1) past projects; (2) other current projects; and (3) probable future projects.²⁸ Such impacts may be relatively minor and incremental, yet still be significant because of the existing environmental background, particularly when one considers other closely related past, present, and reasonably foreseeable future projects.²⁹

²⁵ Ex. 2014, p. 4.1-193.

²⁶ Ex. 2014, pp. 4.1-194 – 4.1-195.

²⁷ Ex. 2014, pp. 4.1-185 – 4.1-19586.

²⁸ Cal. Code Regs., tit. 14, § 15130.

²⁹ Ex. 2014, p. 4.1-182.

This entire GHG assessment is a cumulative impact assessment. This project alone would not be sufficient to change the global climate, but would emit greenhouse gases and therefore has been analyzed as a potential cumulative impact in the context of existing GHG regulatory requirements and GHG energy policies.³⁰ The AEC will result in a cumulative overall reduction in GHG emissions from the state's power plants and will not worsen current conditions. We find that the AEC's contribution to greenhouse gas emissions will not result in cumulatively considerable greenhouse gas emissions impacts.³¹

COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

GREENHOUSE GAS TABLE 3
LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
FEDERAL		
40 Code of Federal Regulations (CFR) Parts 51, 52, 70 and 71	"Tailors" GHG emissions to PSD and Title V permitting applicability criteria.	Compliant. New emissions sources are subject to the requirements of New Source Review (NSR) as specified in Regulation XIII, which includes South Coast Air Quality Management District (SCAQMD) Rules 1300 through 1325. For RECLAIM facilities, this rule only applies to pollutants not addressed by Regulation XX RECLAIM. Therefore, criteria pollutants PM10, SOx, VOC and CO are subject to SCAQMD Rules 1300 through 1325 and NOx is restricted through SCAQMD Rules 2000 through 2013. The SCAQMD has been delegated authority to implement those programs. In addition, SCAQMD Rule 1714 incorporates provisions of 40 CFR Part 52.21 – Prevention of Significant Deterioration of Air Quality by reference. Part 52.21 includes provisions that can invalidate approval for construction if construction is not commenced within 18 months after the receipt of the approval. Extensions can be granted when justified. Part 52.21

³⁰ Ex. 2014, p. 4.1-182.

³¹ Ex. 2014, p. 4.1-184.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
		also states that Best Available Control Technology (BACT) determination for phased construction projects shall be reviewed and modified as appropriate at the latest reasonable time occurring no later than 18 months prior to construction. ³²
[2] 40 Code of Federal Regulations (CFR) Parts 51 and 52	A new stationary source that emits more than 100,000 TPY of GHGs (and other criteria pollutants for which the project area attains federal air quality standards) is considered to be a major stationary source subject to PSD requirements. As of June 23, 2014 the U.S. Supreme Court has invalidated this requirement as a sole PSD permitting trigger. However, for permits issued on or after July 1, 2011, PSD applies to GHGs if the source is otherwise subject to PSD (for another regulated NSR pollutant) and the source has a GHG potential to emit (PTE) equal to or greater than 75,000 TPY CO ₂ e. The proposed AEC is subject to GHG PSD analysis.	Compliant. 40 CFR Parts 51 and 52 establish procedures for allowing new sources of air pollution to be constructed or existing sources to be modified in areas classified as attainment. Prevention of Significant Deterioration (PSD) requirements apply on a pollutant specific basis for major stationary sources. The AEC would be considered one of 28 source categories that are subject to PSD requirements for attainment pollutants if facility annual emissions exceed 100 tons per year. The AEC would exceed the 100 tons per year threshold for NO _x and CO and is subject to the PSD analysis requirements. AEC would also be a major stationary source of GHG (exceeding 100,000 tons per year) which requires a PSD analysis for GHGs. The facility owner submitted the PSD application to the SCAQMD and the SCAQMD issuance of the Final Determination of Compliance outline AEC's compliance with the requirements of 40 CFR Parts 51 and 52. ³³
40 Code of Federal Regulations (CFR) Parts 60, 70, 71 and 98	On October 23, 2015, the U.S. EPA published new source performance standards (NSPS) for GHG emissions for new, modified, and reconstructed fossil fuel-fired electric utility generating units. AEC turbines would be subject to these requirements.	Compliant. To evaluate compliance with federal New NSPS requirements for GHGs, the SCAQMD Final Determination of Compliance calculated the gross energy output for the combined-cycle and simple-cycle gas turbines. A thermal efficiency of 937.88 lbs. CO ₂ per MWh (gross), assuming 8 percent performance degradation, was calculated for the proposed combined-cycle turbines. For the

³² Ex. 2014, pp. 4.7-77; 4.7-82; 12/20/16 RT 71:13-15.

³³ Ex. 2014, p. 4.1-185.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
		combined-cycle turbines, this is less than the allowable 1,000 lbs CO ₂ /MWh (gross). A thermal efficiency of 1,356.03 lbs. CO ₂ per MWh (gross), assuming 8 percent performance degradation, was calculated for the proposed simple-cycle turbines. However, the 1,000 lbs. CO ₂ /MWh (gross) limit does not apply to them because they are expected to have capacity factors less than their lower heating value efficiency. The applicable limit for them is 120 lb CO ₂ per million Btus of heat input. Each GE LMS-100PB turbine is estimated to emit 117 lb. CO ₂ per MMBtu, which rounds to 120 lb. CO ₂ per MMBtu at two digits of precision. Conditions of Certification AQ-E6, AQ-E7, AQ-E8 and AQ-E10 ensure compliance with these NSPS requirements. ³⁴
40 Code of Federal Regulations (CFR) Part 98	Requires mandatory reporting of GHG emissions for facilities that emit more than 25,000 metric tons of CO ₂ equivalent emissions per year. This requirement is triggered by this facility.	Compliant. The AEC would be subject to mandatory reporting of GHG emissions per federal government and California Air Resources Board (ARB) greenhouse gas regulations. These reports enable these agencies to gather information needed to regulate the AEC in trading markets, such as those that are required by regulations implementing the California Global Warming Solutions Act of 2006 (AB 32). In addition, the AEC may be subject to additional reporting requirements and GHG reduction and trading requirements as these regulations continue to evolve. Conditions of Certification AQ-E9 and AQ-E10 ensure compliance with these reporting requirements. ³⁵
STATE		
California Global Warming Solutions Act of 2006, AB 32 (Stats. 2006; Chapter	Requires the ARB to enact standards to reduce GHG emissions to 1990 levels by 2020. Electricity production facilities are	Compliant. The AEC will be required to participate in California's GHG cap-and-trade program. AEC will obtain GHG emissions

³⁴ Ex. 2014, p. 4.1-183.

³⁵ Ex. 2014, p. 4.1-185.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
488; Health and Safety Code sections 38500 et seq.)	included. The cap-and-trade program became active in January 2012, with enforcement beginning in January 2013. Cap-and-trade is expected to achieve approximately 20 percent of the GHG reductions expected under AB 32 by 2020.	allowances (and offsets) by purchasing allowances from the capped market and offsets from outside the AB 32 program.
California Code of Regulations, Title 17, Subchapter 10, Article 2, sections 95100 et. seq.	These ARB regulations implement mandatory GHG emissions reporting as part of AB 32. California's landmark AB 32 Program is a statewide program coordinated with a region wide Western Climate Initiative program to reduce California's GHG emissions to 1990 levels by 2020.	Compliant. AEC is required to report its GHG emissions and to obtain GHG emissions allowances (and offsets) for those reported emissions by purchasing allowances from the capped market and offsets from outside the AB 32 program. The AEC, as a GHG cap-and-trade participant, would be consistent with California's AB 32 Program. Conditions of Certification AQ-E9 and AQ-E10 ensure compliance with these reporting requirements. ³⁶
Title 20, California Code of Regulations, Section 2900 et seq.; CPUC Decision D0701039 in proceeding R0604009	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 MTCO ₂ /MWh) or 1,100 pounds carbon dioxide per megawatt-hour (1,100 lbs CO ₂ /MWh).	Compliant. The project owner has proposed that the AEC would have less than a 60 percent annual full load capacity factor; therefore, the AEC would not be subject to the requirements of SB 1368 and the current EPS. The project's combined cycle GHG emission performance has been demonstrated to be below the SB 1368 EPS limit of 1,100 lb./net MWh (see Greenhouse Gas Table 3), and with the proposed federal New Source Performance Standard (NSPS) of 1,000 lb./gross MWh for new combustion. The project's simple cycle GHG performance would not be subject to the SB 1368 ESP limit. ³⁷
LOCAL		
Rule 1714 – Prevention of Significant Deterioration for Greenhouse Gases, Gas Turbines	Establishes preconstruction review requirements for GHGs. This rule is consistent with federal PSD rule as defined in 40 CFR Part 52.21. This rule requires the owner or operator of a new major	Compliant. The AEC is evaluated for these requirements in the FDOC. The AEC would be a major PSD source. The SCAQMD performed a PSD BACT analysis for GHGs and concluded thermal efficiency is the

³⁶ Ex. 2014, p. 4.1-183.

³⁷ Ex. 2014, p. 4.1-183.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
	source or a major modification to obtain a PSD permit prior to commencing construction.	only technically and economically feasible alternative for CO ₂ /GHG emissions control for the AEC. The current design proposed for the AEC meets the BACT requirement for GHG emission reductions. ³⁸

The evidence indicates and we find, that with the imposition and implementation of the conditions of certification, construction and operation of the AEC project will comply with all applicable LORS regarding GHGs.

AGENCY AND PUBLIC COMMENT

Bhaskar Chandan,³⁹ Air Quality Analysis and Compliance Supervisor for the SCAQMD, commented that according to the SCAQMD's Final Determination of Compliance, the total potential to emit for all six boilers at the existing AGS is 10.14 million tons per year while the actual emissions from those boilers are 910,000 tons per year, based on the actual gas usage. In comparison, the AEC's total potential to emit CO₂ emissions is 1.72 million tons per year (approximately one-fifth the AGS's total potential to emit). As for the GHG BACT, the FDOC's Condition E193.4 limits the combined-cycle units to 937.88 pounds CO₂ per gross megawatt hour, while Condition E193.5 limits the simple-cycle GHG emissions to 1,356 pounds CO₂ per gross megawatt hour. So simple cycles emit about 45 percent more GHGs compared to combined cycle.⁴⁰

Response: These comments restate some of the content of Exhibit 1608, which is the Final Determination of Compliance.

Robert Garcia,⁴¹ Mayor of Long Beach, filed a written comment in support of the project that stated, "The Alamitos Energy Center is consistent with the City's goals as it will use 50 percent less fuel to deliver the same electricity service, enable the electrical system to integrate more intermittent renewable energy, enable the closure of the existing 2,000 MW Alamitos generating station and cut emissions by nearly half."

FINDINGS OF FACT

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

³⁸ Ex. 2014, p. 4.1-184.

³⁹ 12/20/16 RT 110:21 – 116:9.

⁴⁰ Ex. 1608 pp. 95 - 96; 150; 278; 290.

⁴¹ TN 215139.

1. Greenhouse gases include carbon dioxide (CO₂), nitrous oxide (N₂O), methane (CH₄), sulfur hexafluoride (SF₆), hydrofluorocarbons (HFC), and perfluorocarbons (PFC).
2. The greenhouse gas emissions from the Alamos Energy Center's construction are likely to be 6,611 MTCO₂E during the approximate 57-month site preparation (including demolition) and construction period.
3. The project will use best practices to control its construction-related greenhouse gas emissions.
4. The greenhouse gas emission increases from mitigated construction activities will not be significant.
5. The plant capacity factor of the Alamos Energy Center (both the combined-cycle and simple-cycle turbines) will likely be below 60 percent, such that, the Alamos Energy Center would not be subject to the SB 1368 Greenhouse Gas Emission Performance Standard of 0.500 MTCO₂/MWh.
6. The combined cycle portion is the only portion of the proposed Alamos Energy Center whose actual operation could potentially approach a 60 percent capacity factor, but it would still comply with Senate Bill (SB) 1368.
7. The Alamos Energy Center is not considered a baseload plant and is not subject to the requirements of SB 1368, the Greenhouse Gas Emission Performance Standard..
8. The greenhouse gas emissions produced by the Alamos Energy Center are not incremental additions to system-wide emissions, but are offset by reductions in greenhouse gas emissions from those generation resources that it displaces.
9. California's energy resource 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.
10. At higher levels of renewable energy penetration, such as that necessary to meet California's 2030 Renewables Portfolio Standard of 50 percent, relatively efficient fast-start, fast-ramping resources such as the Alamos Energy Center further contribute to greenhouse gas emission reductions by increasing the amount of renewable energy that can be integrated into the electricity system.
11. The Alamos Energy Center will not increase the overall system heat rate for natural gas plants because it will displace plants that have higher heat rates.

12. The development and operation of Alamitos Energy Center would not lead to the displacement of energy from zero-carbon generation such as that of renewable, large hydro or nuclear facilities.
13. When it operates, the Alamitos Energy Center will displace generation from higher-greenhouse gas-emitting power plants.
14. The Alamitos Energy Center's operation will reduce overall greenhouse gas emissions from the electricity system.
15. The Alamitos Energy Center will result in a cumulative overall reduction in greenhouse gas emissions from the state's power plants and will not worsen current conditions.
16. The Alamitos Energy Center will not result in impacts that are cumulatively considerable.
17. The Alamitos Energy Center will be required to participate in the State's cap-and-trade program and will be required to purchase allowances and offsets for its greenhouse gas emissions.
18. The Alamitos Energy Center's construction-related greenhouse gas emissions will not cause a significant environmental impact because they are limited in duration, are subject to best available control technology restrictions and are of relatively small magnitude compared to operations emissions.
19. The greenhouse gas emissions from a power plant's operation should be assessed in the context of the operation of the entire electricity system of which the plant is an integrated part.
20. When considered on a system-wide basis, the operation of the Alamitos Energy Center will reduce greenhouse gas emissions, and will therefore not cause a significant environmental impact.

CONCLUSIONS OF LAW

1. The Alamitos Energy Center's operation will help California utilities meet their RPS obligations.
2. The Alamitos Energy Center's construction and operation will be consistent with California's loading order for power supplies and with all other applicable Laws, Ordinances, Regulations, and Standards (LORS).
3. The Alamitos Energy Center's operation will foster the achievement of the greenhouse gas goals of Assembly Bill (AB) 32.
4. The AEC is consistent with the Energy Commission's Avenal Precedential Decision.

5. Even if considered in isolation, the Green House Gas impacts from operation of the Alamitos Energy Center will not cause a significant environmental impact, because the Alamitos Energy Center will comply with cap and trade, a statewide program for management and reduction of the cumulative Green House Gas impacts of the electric and industrial sectors.
6. Construction and operation of the Alamitos Energy Center project will comply with all applicable laws, ordinances, regulations, and standards (LORS) regarding Green House Gases.

B. AIR QUALITY

INTRODUCTION

The construction and operation of the Alamitos Energy Center (AEC) 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 the AEC will comply with applicable state and federal air quality laws, ordinances, regulations, and standards (LORS), whether it will result in significant air quality impacts, and whether the proposed mitigation measures will reduce potential impacts to insignificant levels.

This topic was contested. Evidence on the topic of Air Quality is contained in Exhibits 1001, 1003, 1011 - 1014, 1017, 1018, 1021, 1022, 1026, 1032, 1034, 1036, 1037, 1039, 1041, 1043, 1044, 1045, 1047, 1048, 1049, 1053, 1056, 1057, 1058, 1060-1063, 1065, 1068-1071, 1411, 1434, 1435, 1442, 1443-1447, 1500-1508, 1600-1611, 2000, 2014, 2015, 3001, 3002, 3006, 3009, 3015, 3020, 3021, 3024, 3042-3048, 3052, 3054, 3055, 3059-3061, 3064, 3069, 3070-3073 and 3076-3083.¹

SETTING

The AEC will be located in the South Coast Air Basin. The South Coast Air Basin is a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean on the west and south, and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The climate of the South Coast Air Basin is strongly influenced by local terrain and geography. The AEC site is on a gently sloping coastal terrace above the Alamitos Bay Marina. There are no significant terrain features within the immediate area surrounding the AEC site.²

PROJECT DESCRIPTION

The AEC will consist of two natural gas-fired power blocks. Power Block 1 includes two General Electric (GE) Frame 7FA.05 combustion turbine generators (CTGs) with nominal ratings of 227 MW each, and one shared steam turbine generator (STG) with a nominal rating of 229 MW. Each CTG will exhaust to a heat recovery steam generator (HRSG) without supplemental firing capabilities. Both of the CTG/HRSG trains will feed into the common STG, forming a standard 2-on-1 configuration.³

Power Block 1 would also include an air-cooled condenser, a 70.8 MMBtu/hr Babcock and Wilcox auxiliary boiler and related ancillary equipment. The auxiliary boiler will provide enhanced startup times by maintaining the steam cycle in a ready state. Prior to

¹ 12/20/16 RT 37:3-63:24; 91:14 – 92:7.

² Ex. 2014, p.4.7-9.

³ Ex. 2014, p.4.7-21.

a combined-cycle startup, the auxiliary boiler increases load from a minimum turndown rate to produce steam. The steam is directed to the system for HRSG sparging, turbine seals, pipe warming, condenser dearating, and fuel gas heating.⁴

The exhaust stacks for the two combined-cycle gas turbines (CCGT) in Power Block 1 will be equipped with selective catalytic reduction (SCR) and carbon monoxide (CO) oxidation catalysts to control oxides of nitrogen (NOx), CO, and volatile organic compound (VOC) emissions. The SCR will utilize 19 percent aqueous ammonia as the reducing agent. One new 40,000 gallon tank will be used to store ammonia solution. An oil/water separator will also be used to collect equipment wash water and rainfall.⁵

Power Block 2 will include four 100-MW GE LMS-100PB simple-cycle gas turbines (SCGT). Each intercooled CTG will include dry low NOx combustors, SCR equipment for NOx reduction and a catalyst to reduce CO and VOC emissions. Ancillary equipment includes an inlet filter house with an evaporative cooler, turbine intercooler and associated intercooler circulating pumps. Two simple CTGs will share a fin-fan heat exchanger and one generator step up transformer and other ancillary equipment. The four SCGT exhaust stacks will be equipped with SCR and CO oxidation catalysts and will also use aqueous ammonia and an oil/water separator in the same way as Power Block 1.⁶

The AEC will provide fast-starting and stopping capabilities and flexible generating resources. The AEC, as proposed, will be configured and deployed as a multi-stage generating facility allowing power generation across a wide operating range. The multiple generators can operate singly or in different combinations to provide a large range of generating capacity. The AEC facility will have rapid startup and turndown capabilities and the ability to quickly ramp when needed. The facility would be capable of serving peak and intermediate loads and would be capable of operating in either load-following or partial shutdown mode.⁷

No diesel-fueled equipment will be used at this facility. The construction of AEC will include the installation of two new electric fire pumps. Since the proposed emergency engines are electric, emissions of criteria pollutants do not need to be quantified.⁸

The proposed AEC will be constructed adjacent to the existing Alamitos Generating Station (AGS). As explained in the **PROJECT DESCRIPTION** section of this Decision, the demolition of existing AGS Units 1-6 equipment and ancillary equipment is not a reasonably foreseeable consequence of the AEC and not necessary for the construction

⁴ Ex. 2014, p.4.7-21.

⁵ Ex. 2014, p. 4.7-22.

⁶ *Id.*

⁷ *Id.*

⁸ Ex. 2014, p. 4.7-23.

of the AEC project.⁹ It is therefore not considered part of the scope of the project. AGS Unit 7 has been decommissioned and partially demolished. The removal of AGS Unit 7's building and ancillary equipment, fuel storage tank, tank berms, small maintenance shops, and two wastewater retention basins, is needed to prepare the site for the construction of the AEC. Therefore, site preparation activities, including the remaining demolition of AGS Unit 7, is considered part of the proposed project scope and is evaluated in this analysis.¹⁰

Existing AGS Units 1-6 will remain in operation during the construction of AEC. The evidence indicates that the AGS Units 1, 2 and 6 will be retired once the AEC CCGT reaches the commissioning stage and becomes operational. AGS Unit 3 will be retired once the AEC SCGT reaches the commissioning stage and becomes operational or by December 31, 2020, whichever occurs first. AGS Units 4 and 5 may operate through December 31, 2020, the once-through-cooling (OTC) policy compliance deadline.¹¹

Separate emissions estimates for the AEC project during the construction phase, commissioning, and operation are each described in the following sections.

For more information regarding the location, design, and features of the AEC, please refer to the **PROJECT DESCRIPTION** section of this Decision.

ENVIRONMENTAL ANALYSIS

Thresholds of Significance

Potential impacts from the AEC will result from the site preparation, construction, commissioning, normal operation phases, and cumulative effects. All project emissions of nonattainment criteria pollutants and their precursors (NOx, VOC, PM10, PM2.5, and SOx) are considered significant and must be mitigated. For short-term construction activities that essentially cease before operation of the power plant, the assessment is qualitative and mitigation consists of controlling construction equipment tailpipe emissions and fugitive dust emissions to the maximum extent feasible. For operating emissions, mitigation includes both the Best Available Control Technology (BACT) and emission reduction credits (ERC) or other valid emission reductions to mitigate emissions of both nonattainment criteria pollutants and their precursors.¹²

Ambient air quality impacts occur when project emissions cause the ambient concentration of a pollutant to increase. A proposed project emits pollutants on a mass basis. Project-related emissions are the actual mass of emitted pollutants, which are dispersed in the atmosphere before reaching the ground. Impacts refer to the

⁹ Ex. 2002.

¹⁰ *Id.*

¹¹ *Id.*

¹² Ex. 2014, p.4.7-38.

concentration of any pollutant that reaches the ground level. An impact analysis includes quantifying the emissions released from the proposed equipment and the use of an atmospheric dispersion model to determine the probable impact at ground level. The analysis focuses on the predicted change to the ground-level impact due to the additional emissions from the project.¹³

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 (one-hour, three-hour, eight-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 ($\mu\text{g}/\text{m}^3$).¹⁴

The Applicant conducted air dispersion modeling based on guidance presented in the Guideline on Air Quality Models¹⁵ and the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD). The inputs for the air dispersion models include stack information (exhaust flow rate, temperature, and stack dimensions), specific turbine emission data and meteorological data, such as wind speed and atmospheric conditions, and site elevation.¹⁶

Summary of Background Ambient Air Quality

There are several monitoring stations located near the project site. South Coast Los Angeles County 2 (South Long Beach) station is located approximately 4.6 miles northwest of the project site. The South Long Beach station has been in operation since 2003 and monitors PM₁₀, PM_{2.5}, lead, and SO₄. The South Coast Los Angeles County 1(North Long Beach) station is located 6.4 miles northwest and currently measures PM_{2.5}. The North Long Beach monitoring station only monitors PM_{2.5}. The South Coastal Los Angeles 3 (Hudson Long Beach) station is located approximately 7.2 miles northwest of the project site and monitors O₃, NO₂, CO, SO₂, and PM₁₀. The Long Beach Route 710 station is located approximately 8.5 miles north-northwest and measures NO₂ and PM_{2.5}. The Central Orange County (Anaheim) station is located 10.1 miles to the east-northeast and measures O₃, NO₂, CO, PM₁₀, and PM_{2.5}. The South Central Los Angeles County (Compton) station is located 10.9 miles north-northwest and measures O₃, NO₂, CO, PM₁₀, PM_{2.5}, and lead. The meteorological data collected at the North Long Beach monitoring station was selected by SCAQMD for

¹³ Ex. 2014, p. 4.7-39.

¹⁴ *Id.*

¹⁵ 40 CFR Part 51, Appendix W.

¹⁶ Ex. 2014, p. 4.7-39.

the modeling (discussed further below) because that station is the closest to the AEC site, there is no complex terrain between the monitoring station and the site, and the land uses surrounding that station and AEC are similar.¹⁷

The Long Beach Weather Service Contract Meteorological Office (WSCMO) climatological station is located near the AEC site. The WSCMO station measures site data including precipitation, temperature, humidity and wind movement. Information from the WSCMO station indicates December and January are the coldest months, while the warmest month is August. The monthly average high is 84 degrees¹⁸ in August, with record highs of 111 degrees in September and October of 2011. The monthly average low is 46 degrees in January and December. The annual average high is 74 degrees and the annual average low is 55 degrees. The majority of rainfall occurs during the period from October through April, and the maximum average precipitation occurs in February. The annual average rainfall is reported as 12.01 inches per year.¹⁹

The evidence describes the wind flow, atmospheric stability, and mixing heights which are important factors in the determination of pollutant dispersion. Wind flow patterns affect air movement in the atmosphere and influence the transport of pollutants to and from the AEC site. Quarterly and annual wind rose data collected at the WSCMO station from 2006-2009 and 2011 displays the wind direction, speed and frequency at that location. The most predominant annual wind direction is from the west. There are also less frequent winds from the south and northeast occurring throughout the year. The annual average wind speed is 1.89 meters/second (m/s).²⁰

The southern California coast is characterized by the cooling effect of the ocean on the surface air. As the surface air cools, it becomes denser than the warmer air above it, producing an inversion layer. Inversion layers are formed when temperature increases with height. The inversion layer forms a stable layer that limits the mixing of air near the surface and therefore pollutants tends to be trapped close to the surface.²¹ Inversion layers are present along the southern California coast for approximately 87 percent of the days in the year.

The potential for high concentrations of pollutants can vary seasonally. During late spring, summer and early fall, light winds, low mixing heights and sunshine combine to create an environment favorable to the production of photochemical oxidants, particularly ozone. During the spring and summer, deep marine layers are frequently

¹⁷ Ex. 2014, pp.4.7-11; 4.7-13 – 4.7-15.

¹⁸ All temperatures are measured as Fahrenheit unless otherwise indicated.

¹⁹ Ex. 2014, p.4.7-9.

²⁰ Ex. 2014, p.4.7-10.

²¹ *Id.*

formed along the southern California coast and sulfate concentrations are at their peak.²²

Ambient Air Quality Standards

The U.S. Environmental Protection Agency (U.S. EPA) and the California Air Resources Board (ARB) have both established allowable maximum ambient concentrations of criteria air pollutants. These are based upon public health impacts and are called “ambient air quality standards”. Ambient air quality standards are designed to protect people who are most susceptible to respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and people engaged in strenuous work or exercise. The ambient air quality standards are also set to protect public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.²³

The California Ambient Air Quality Standards (CAAQS), established by ARB, are typically lower (more stringent) than the federally established National Ambient Air Quality Standards (NAAQS). Current state and federal ambient air quality standards are listed in **Air Quality Table 1**. The averaging time for the various ambient air quality standards (the duration of time the measurements are taken and averaged) ranges from one hour to one year. The standards are read as a concentration, in parts per million (ppm), parts per billion (ppb), or as a weighted mass of material per unit volume of air, in milligrams (mg) or micrograms (µg) of pollutant in a cubic meter (m³) of ambient air, drawn over the applicable averaging period.²⁴

²² Ex. 2014, p.4.7-10.

²³ Ex. 2014, p.4.7-11.

²⁴ *Id.*

Air Quality Table 1
Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Standard	California Standard
Ozone (O₃)	8 Hour	0.070 ppm (137 µg/m ³) ^a	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 ppm (10 mg/m ³)
	1 Hour	35 ppm (40 mg/m ³)	20 ppm (23 mg/m ³)
Nitrogen Dioxide (NO₂)	Annual	53 ppb (100 µg/m ³)	30 ppb (57 µg/m ³)
	1 Hour	100 ppb (188 µg/m ³) ^b	180 ppb (339 µg/m ³)
Sulfur Dioxide (SO₂)	24 Hour	—	0.04 ppm (105 µg/m ³)
	3 Hour	0.5 ppm (1300 µg/m ³)	—
	1 Hour	75 ppb (196 µg/m ³) ^c	0.25 ppm (655 µg/m ³)
Respirable Particulate Matter (PM₁₀)	Annual	—	20 µg/m ³
	24 Hour	150 µg/m ³	50 µg/m ³
Fine Particulate Matter (PM_{2.5})	Annual	12 µg/m ³	12 µg/m ³
	24 Hour	35 µg/m ³ ^b	—
Sulfates (SO₄)	24 Hour	—	25 µg/m ³
Lead	30-Day Average	—	1.5 µg/m ³
	Rolling 3-Month Average	1.5 µg/m ³	—
Hydrogen Sulfide (H₂S)	1 Hour	—	0.03 ppm (42 µg/m ³)
Vinyl Chloride (chloroethene)	24 Hour	—	0.01 ppm (26 µg/m ³)
Visibility Reducing Particulates	8 Hour	—	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent.

Source: Ex. 2014, pp.4.7-11 – 4.7-12.

Note: ^a Fourth- highest maximum 8 – hour concentration, averaged over 3 years.

^b 98th percentile of daily maximum value, averaged over 3 years.

^c 99th percentile of daily maximum value, averaged over 3 years.

Ambient Air Quality Attainment Status

The U.S. EPA, ARB, and the SCAQMD have established air monitoring plans designed to obtain representative data on the ambient levels of pollutants. This data is used to classify an area as attainment, unclassified, or nonattainment, depending on whether or not the monitored ambient air quality data indicates compliance, insufficient data is available, or non-compliance with the ambient air quality standards, respectively. In general, an area is designated as attainment if the concentration of a particular air contaminant does not exceed the air quality standard. Likewise, an area is designated as nonattainment for an air contaminant if it exceeds the corresponding air quality standard.²⁵ In circumstances where there is not enough ambient data available to support designations as either attainment or nonattainment, the area can be designated as unclassified or unclassifiable. An unclassified area is normally treated the same as

²⁵ Ex. 2014, p. 4.7-12.

an attainment area for regulatory purposes. In addition, an area could be designated as attainment for one air contaminant while nonattainment for another, or attainment for the federal standard and nonattainment for the state standards for the same air contaminant.²⁶

Exceptional events that are out of human control that create very high pollutant concentrations such as wind storms and fires are generally excluded from attainment designations.

The federal and state attainment status for specified pollutants in the SCAQMD is summarized in **Air Quality Table 2**. “Criteria air pollutants” include nitrogen dioxide (NO₂), sulfur dioxide (SO₂), carbon monoxide (CO), ozone (O₃), and inhalable/fine particulate matter (PM₁₀/PM_{2.5}). Precursor pollutants for O₃ include nitrogen oxides (NO_x), consisting of nitric oxide [NO] and NO₂, and volatile organic compounds (VOC). Precursors for particulate matter are primarily NO_x, sulfur oxides (SO_x) and ammonia (NH₃).²⁷

Air Quality Table 2
Attainment Status of South Coast Air Quality Management District (SCAQMD)

Pollutants	Attainment Status	
	Federal Classification	State Classification
Ozone (1-hr)	No Federal Standard ^a	Nonattainment
Ozone (8-hr)	Nonattainment	Nonattainment
CO	Unclassified/Attainment	Attainment
NO ₂	Unclassified/Attainment	Attainment
SO ₂	Attainment	Attainment
PM₁₀	Attainment	Nonattainment
PM_{2.5}	Nonattainment	Nonattainment
Sulfates	No Federal Standard	Attainment
Lead	Nonattainment^b	Attainment
Hydrogen Sulfide (H ₂ S)	No Federal Standard	Unclassified
Visibility Reducing Particulates	No Federal Standard	Unclassified

Source: Ex. 2014, p.4.7-12.

Note: ^a The federal 1-hour standard was revoked in June 2005, however the South Coast Air Basin has not attained this standard and is subject to anti-backsliding requirements.

Note: ^b Los Angeles County portion of the basin.

Lead is monitored as a toxic substance at the South Long Beach and North Long Beach monitoring stations. Data from the South Long Beach and North Long Beach monitors (both in Orange County) show lead values are well below respective ambient air quality standards however the Los Angeles County portion of the South Coast Air Basin is federally designated as partial nonattainment for near-source monitors.²⁸ The **PUBLIC**

²⁶ Ex. 2014, p. 4.7-12.

²⁷ Ex. 2014, pp. 4.7-15 – 4.7-20.

²⁸ Ex. 2014, p. 4.7-20.

HEALTH section of this Decision provides additional information regarding the quantity of emissions and the health risks of the lead emissions from this project. Due to the very low concentrations shown in the available ambient monitoring data and the insignificant lead emissions from the AEC project, the evidence shows that the project will not create significant impacts based on the ambient lead standards.²⁹

Air Quality Table 3 shows the highest criteria pollutant or average concentrations from the last three years of available data collected from the surrounding monitoring stations. This information was used to determine the baseline for the modeling and impacts analysis. Concentrations in excess of their ambient air quality standard are shown in bold.³⁰

Air Quality Table 3
Energy Commission Staff-Recommended Background Concentrations (µg/m³)

Pollutant	Averaging Time	Recommended Background	Limiting Standard	Percent of Standard
NO ₂	State 1 hour	256	339	75
	Federal 1 hour	146	188	78
	Annual	48	57	84
PM ₁₀	24 hour	59	50	118
	Annual	27.3	20	137
PM _{2.5}	24 hour	27.2	35	89
	Annual	10.97	12	95
CO	1 hour	3,665	23,000	16
	8 hour	2,978	10,000	30
SO ₂	1 hour	58	655	9
	Federal 1 hour	31	196	10
	Federal 3 hour	58 ^a	1,300	4
	24 hour	11	105	16

Source: Ex. 2014, p.4.7-21.

Note: An exceedance is not necessarily a violation of the standard, and that only persistent exceedances lead to designation of an area as nonattainment.

^a The maximum one hour background is conservatively used for background.

Project-related modeled concentrations are added to the highest background concentrations to determine the total impact of the project. This is a conservative approach because it assumes the highest project impacts occur concurrently with the worst case background concentrations. Energy Commission staff (Staff) revised the background concentrations provided by the Applicant where necessary to reflect the most recent worst case background values, as shown in **Air Quality Table 3**. Staff combined the project owner modeled impacts with the appropriate background concentrations, and compared the results with the ambient air quality standards for

²⁹ Ex. 2014, p. 4.7-20.

³⁰ Ex. 2014, p. 4.7-21.

each respective air contaminant to determine whether the project's emission impacts would cause a new exceedance of the ambient air quality standards or contribute to an existing exceedance.³¹

Impact Assessment and Mitigation

Construction

The Applicant estimated the AEC's short-term construction ambient air quality impacts. The maximum construction emission estimates are associated with the construction of Power Block 1. This activity is expected to last approximately 34 months and will occur while the existing AGS is in operation. In order to accurately capture the impacts of the construction while the existing AGS boilers are in operation, the following overlap scenarios were developed and modeled:

- Overlap Scenario 1: AEC CCGT construction with simultaneous operation of existing AGS Units 1-6; and
- Overlap Scenario 2: AEC SCGT construction with simultaneous operation of the AEC CCGT and existing Units 3, 4 and 6.

Air Quality Table 4 summarizes the results of the modeling analysis for the modeled Overlap Scenario 1. The maximum construction short-term and annual emissions rates were used in conjunction with the maximum rolling 24-month emissions from 2008 through 2012 from each AGS unit. The total impact is the sum of the existing background condition plus the maximum impact predicted by the modeling analysis for Overlap Scenario 1. The values in **bold** in the Background and Total Impact columns of **Air Quality Table 4** represent the values that either equal or exceed the relevant ambient air quality standard.³²

³¹ Ex. 2014, p. 4.7-40.

³² Ex. 2014, pp. 4.7-50 – 4.7-51.

Air Quality Table 4
Proposed Maximum Overlap Scenario 1 Impacts, (µg/m³)^a

Pollutant	Averaging Period	Project Impact ^a (µg/m ³)	Background (µg/m ³)	Total ^b Impact (µg/m ³)	Limiting Standard (µg/m ³)	Percent of Standard
NO ₂ ^c	1 hour	12.7	256	268	339	79%
	1 hour NAAQS ^d	12.5	146	159	188	85%
	Annual	1.87	48	49	57	87%
PM ₁₀	24 hour	7.31	59	66	50	133%
	Annual	2.08	27.3	29.4	20	147%
PM _{2.5}	24 hour ^d	1.60	27.2	28.8	35	82%
	Annual	0.67	10.97	11.64	12	97%
CO	1 hour	277	3,665	3942	23,000	17%
	8 hour	183	2,978	3161	10,000	32%
SO ₂	1 hour	1.59	58	60	655	9%
	1 hour NAAQS	1.24	31	32	196	16%
	3 hour NAAQS	1.24	58	59	1,300	5%
	24 hour	0.45	11	11	105	11%

Source: Ex. 2014, p.4.7-51

Notes:

^a Onsite construction only

^b Modeled concentration plus background values adjusted by Staff

^c NO₂ determined with U.S. EPA Ambient Ratio Method (ARM) based on NO₂/NO_x ratio of 0.80 and 0.75 for 1-hour and annual averaging times respectively.

^d The 24-hour PM_{2.5} and federal 1-hour NO₂ standards are based on 3-year average of 98th percentile daily maximum values

Air Quality Table 5 summarizes the results of the modeling analysis for the modeled Overlap Scenario 2. The maximum SCGT construction short-term and annual emissions rates were used in conjunction with the maximum rolling 24-month emissions from 2008 through 2012 from AGS Units 3, 4, and 6 (later replaced by Unit 5), and AEC CCGT operating scenarios resulting in maximum impacts.

Air Quality Table 5
Proposed Maximum Overlap Scenario 2 Impacts, (µg/m³)

Pollutant	Averaging Period	Project Impact ^a (µg/m ³)	Background (µg/m ³)	Total ^b Impact (µg/m ³)	Limiting Standard (µg/m ³)	Percent of Standard
NO ₂ ^c	1 hour	31.2	256	287	339	85%
	1 hour NAAQS ^d	25.6	146	172	188	92%
	Annual	0.93	48	49	57	85%
PM10	24 hour	12.8	59	72	50	144%
	Annual	2.24	27.3	29.5	20	148%
PM2.5	24 hour ^d	4.93	27.2	32.13	35	92%
	Annual	0.76	10.97	11.73	12	98%
CO	1 hour	234	3,665	3899	23,000	17%
	8 hour	111	2,978	3089	10,000	31%
SO ₂	1 hour	2.39	58	61	655	9%
	1 hour NAAQS	2.14	31	33	196	17%
	3 hour NAAQS	2.14	58	60	1,300	5%
	24 hour	0.7	11	11	105	11%

Source: Ex. 2014, p.4.7-52

Notes:

^a Onsite construction only

^b Modeled concentration plus background values adjusted by Staff

^c NO₂ determined with U.S. EPA Ambient Ratio Method (ARM) based on NO₂/NO_x ratio of 0.80 and 0.75 for 1-hour and annual averaging times respectively.

^d The 24-hour PM2.5 and federal 1-hour NO₂ standards are based on 3-year average of 98th percentile daily maximum values

Air Quality Tables 4 and 5 demonstrate that the emissions from the entire facility during routine operations will not cause new exceedances of any state or federal air quality standard. The PM10 emissions from the entire facility will contribute to existing violations of ambient air quality standards due to the high background concentrations. The direct impacts of NO₂, CO, and SO₂ will not be significant because construction of the AEC facility will neither cause nor contribute to a violation of these standards. Mitigation for construction emissions of PM10, PM2.5, SO_x, NO_x, and VOC are appropriate for reducing impacts to PM10, PM2.5, and ozone.³³

Estimates for the maximum daily, maximum monthly and total annual emissions over the approximate 57-month construction period are included in the analysis. The maximum daily emissions are expected to occur during month 18 for NO_x, VOC, CO, and SO_x, and during month 20 for PM10 and PM2.5. The maximum annual emissions vary depending on the pollutant. Maximum annual emissions occur between months 14

³³ Ex. 2014, p. 4.7-52.

and 25 for VOC, SOx, and PM2.5, months 13 and 24 for NOx, months 15 and 26 for PM10, and months 16 and 27 for CO.³⁴

Construction Mitigation

The Applicant proposed the following mitigation measures to reduce the exhaust emissions from the diesel heavy equipment and fugitive dust emissions during the construction of the AEC project:

- Watering unpaved roads three times per day.
- During construction, watering areas disturbed by grading and bulldozing activities every three hours.
- Limiting onsite vehicle speed to 10 miles per hour, or other speeds as approved by the Energy Commission compliance project manager based on site conditions, and posting the approved speed limit.
- Sweeping onsite paved roads and entrance roads on an as-needed basis.
- Replacing ground cover in disturbed areas as soon as practical.
- Covering truck loads when hauling material that could be entrained during transit.
- Applying dust suppressants or covers to soil stockpiles and disturbed areas when inactive for more than 2 weeks.
- Use of Tier 4 final construction equipment, to the extent feasible.
- Maintaining all diesel-fueled equipment per manufacturer's recommendations to reduce tailpipe emissions.
- Limiting diesel heavy equipment idling to less than 5 minutes, to the extent practical.
- Using electric motors for construction equipment, to the extent feasible.³⁵

We concur with the Applicant's proposed mitigation measures, which mirror many of the mitigation requirements of previous siting cases. We will impose additional fugitive dust mitigation, such as requiring the use of soil binders or paving to reduce emissions on unpaved roads to reduce the high fugitive dust emission potential during construction. We also include off-road equipment mitigation measures beyond those proposed by the Applicant.

Condition of Certification **AQ-SC1** requires an Air Quality Construction/Demolition Mitigation Manager to ensure compliance with the conditions for construction/demolition

³⁴ Ex. 2014, pp. 4.7-24 – 4.7-25.

³⁵ Ex. 2014, pp. 4.7-52 – 4.7-53.

activities. Condition of Certification **AQ-SC2** requires a plan detailing the steps necessary to limit emissions from construction/demolition activities outlined in the Conditions of Certification. Condition of Certification **AQ-SC3** requires standard mitigation for fugitive dust control for Energy Commission projects and is similar to what was proposed by the Applicant. Condition of Certification **AQ-SC4** requires monthly reporting and monitoring requirements for mitigating construction dust. Condition of Certification **AQ-SC5** would require diesel-fueled engine control equipment (e.g., oxidizing soot filters) to ensure that the cleanest engines available are used to protect public health and for consistency with the construction impact modeling.³⁶

Construction impacts would contribute to violations of the ozone, PM10, and PM2.5 ambient air quality standards, however, we find that Conditions of Certification, including Conditions of Certification **AQ-SC1** to **AQ-SC5** mitigate the construction-phase impacts of the AEC to a less than significant level.

Operations

Routine Operations Impacts

The record contains detailed modeling analyses used to estimate the ambient air quality impacts of the AEC. Emissions and operating parameters exhibit variation with ambient temperature and operating load. To determine the worst case air quality impacts, a dispersion modeling analysis was conducted at three load scenarios and at three different temperatures. The record identifies the assumptions built into the separate modeling for the CCGTs, SCGTs and auxiliary boiler. **Air Quality Table 6** summarizes the predicted maximum ground-level concentrations for criteria pollutants and the corresponding averaging period for routine operation of the AEC. The table includes background values and compares the total impact to the limiting Ambient Air Quality Standards (AAQS). The values shown in bold indicated an exceedance of an air quality standard.³⁷

³⁶ Ex. 2014, pp. 4.7-52 – 4.7-53.

³⁷ *Id.*

Air Quality Table 6
Predicted AEC Routine Operations Impacts

Pollutant	Averaging Period	Project Impact ($\mu\text{g}/\text{m}^3$)	Background ($\mu\text{g}/\text{m}^3$) ^a	Total Impact ($\mu\text{g}/\text{m}^3$)	Limiting Standard ($\mu\text{g}/\text{m}^3$)	Percent of Standard
NO ₂	1 hour	31.3	256	287	339	85%
	1 hour NAAQS	22.6	146	169	188	90%
	Annual	0.20	48	48	57	84%
PM ₁₀	24 hour	1.71	59	61	50	121%
	Annual	0.19	27.3	27.49	20	137%
PM _{2.5}	24 hour	1.25	27.2	28.45	35	81%
	Annual	0.19	10.97	11.16	12	93%
CO	1 hour	186	3,665	3851	23,000	17%
	8 hour	44.3	2,978	3022	10,000	30%
SO ₂	1 hour	2.12	58	60	655	9%
	1 hour NAAQS	1.59	31	32	196	16%
	3 hour NAAQS	1.69	58	60	1,300	5%
	24 hour	0.53	11	11	105	11%

Source: Ex. 2014, p.4.7-44.

^a Background values are adjusted as presented in **Air Quality Table 3**

Air Quality Table 6 demonstrates that the project will not cause a significant impact except for its 24-hour and annual PM₁₀ emissions. Routine operations impacts could contribute to existing violations of annual PM₁₀ ambient air quality standards. The impacts of PM_{2.5} are close to the most stringent standards due to the existing high background concentrations, but the routine operations impacts will not create new violations. The direct impacts of CO and SO₂ will not be significant because routine operation of the AEC will neither cause nor contribute to a violation of these standards. Mitigation for emissions of PM₁₀, PM_{2.5}, SO_x, NO_x, and VOC will be appropriate for reducing impacts to PM₁₀, PM_{2.5}, and ozone.³⁸

Fumigation Impacts

During the early morning hours before sunrise, the air is usually very stable. During such stable meteorological conditions, emissions from elevated stacks rise through this stable layer and are dispersed. When the sun first rises, the air at ground level is heated, resulting in a vertical (both rising and sinking air) mixing of air for a few hundred feet or so. Emissions from a stack that enter this vertically mixed layer of air would also be vertically mixed, bringing some of those emissions down to the ground level. Later in

³⁸ Ex. 2014, p. 4.7-45.

the day, as the sun continues to heat the ground, this vertical mixing layer rises and the emissions plume becomes better dispersed.³⁹

The early morning pollution event, called “fumigation,” usually lasts approximately 30 to 90 minutes. There is the potential that higher short-term concentrations of pollutants may occur during fumigation conditions. Fumigation conditions are short-duration events and are generally only compared to one-hour standards. The fumigation analysis considered the operating scenarios and loads included in the Routine Operation Analysis discussed above, using regulatory default mixing heights. The record identifies the assumptions built into the analytical model.⁴⁰

The analysis in evidence indicated that the combustion sources were too far away from the shoreline to result in shoreline fumigation occurrences. The results of the revised inversion break-up impacts analysis combined with background concentrations are included in **Air Quality Table 7**.⁴¹

Air Quality Table 7
Maximum Revised Inversion Break-Up Impacts, (µg/m³)

Pollutant	Averaging Period	Project Impact (µg/m ³)	Background (µg/m ³) ^a	Total Impact (µg/m ³)	Limiting Standard (µg/m ³)	Percent of Standard
NO ₂	1 hour ^b	69.4	256	325	339	96%
CO	1 hour	414	3,665	4079	23,000	18%
	8 hour	138	2,978	3116	10,000	31%
SO ₂	1 hour	4.9	58	63	655	10%
	3 hour	4.9	58	63	1,300	5%

Source: Ex. 2014, p.4.7-46.

^a Background values are adjusted based on Staff analysis as presented in **Air Quality Table 3**.

^b Includes an ambient NO₂ to NO_x conversion ratio of 0.80

The evidence establishes that the maximum inversion break-up impacts combined with background values are below the applicable AAQS and are therefore not significant.

Commissioning-Phase Impacts

Plant commissioning impacts from the AEC CCGT and SCGT will occur during two separate periods. The commissioning period for the CCGTs in Power Block 1 will take approximately 6 months and is expected to occur over approximately 1,992 operating hours total for both combustion turbines (996 hours per combustion turbine). The analysis in evidence describes the assumptions and methodologies used to predict the commission phase impacts in detail. The AERMOD dispersion analysis for Power Block 1 assumed both turbines would be simultaneously commissioned. The maximum impact

³⁹ Ex. 2014, p. 4.7-45.

⁴⁰ *Id.*

⁴¹ *Id.*

would occur if both turbines were undergoing commissioning activities with the highest unabated emissions.⁴²

Air Quality Table 8 includes the results of the AEC CCGT commissioning phase impact analysis. The predicted impacts from the PM10 emissions, highlighted in bold font, are above the CAAQS. However, the PM10 background concentrations already exceed the CAAQS without taking into account an incremental contribution from the AEC. Therefore, the commissioning of the CGTs will contribute to existing violations of the annual PM10 ambient air quality standard. The impacts from PM2.5 and NO₂ are close to the most stringent standards due to the existing high background concentrations, but will not create new violations.⁴³

Air Quality Table 8
Predicted Combined-Cycle Commissioning Impacts, (µg/m³)^a

Pollutant	Averaging Period	Project Impact ^a (µg/m ³)	Background (µg/m ³)	Total ^b Impact (µg/m ³)	Limiting Standard (µg/m ³)	Percent of Standard
NO ₂ ^c	1 hour	67.6	256	323.6	339	95%
	Annual	0.26	48	48	57	85%
PM10	24 hour	1.62	59	61	50	121%
	Annual	0.21	27.3	27.5	20	138%
PM2.5	24 hour ^d	1.14	27.2	28.3	35	81%
	Annual	0.21	10.97	11.18	12	93%
CO	1 hour	1,231	3,665	4,896	23,000	21%
	8 hour	835	2,978	3,813	10,000	38%
SO ₂	1 hour	2.24	58	60	655	9%
	3 hour	1.92	58	60	1,300	5%
	24 hour	0.55	11	12	105	11%

Source: Ex. 2014, p.4.7-46.

Notes:

^a Includes impacts from commissioning of two GE Frame 7FA.05 turbines and normal operation of the auxiliary boiler

^b Modeled concentration plus background values adjusted by Staff

^c NO₂ determined with U.S. EPA Ambient Ratio Method (ARM) based on NO₂/NO_x ratio of 0.80 and 0.75 for 1-hour and annual averaging times respectively.

^d The 24-hour PM2.5 standards is based on 5-year average, high-8th-high modeled concentration

The commissioning period for the four AEC SCGTs is expected to last 90 days. Commissioning activities for the simple-cycle turbines are expected to occur over approximately 1,120 operating hours total for all four combustion turbines (280 hours per combustion turbine). The AERMOD dispersion analysis for Power Block 2 assumed the four CTGs would be simultaneously commissioned while both combined-cycle CTGs were operated in cold start mode. The maximum impact would occur if both

⁴² Ex. 2014, p. 4.7-46.

⁴³ *Id.*

turbines were undergoing commissioning activities with the highest unabated emissions. For the AEC SCGT this corresponds to emissions tuning.⁴⁴

Air Quality Table 9 includes the results of the AEC SCGT commissioning phase impact analysis. The predicted impacts from the PM10 emissions, highlighted in bold font, are above the CAAQS. However the PM10 background concentrations are above the CAAQS without taking into account an incremental contribution from the proposed AEC. Therefore, the commissioning of the GE LMS-100PB simple-cycle turbines will contribute to existing violations of the annual PM10 ambient air quality standard. The impacts from PM2.5 and NO₂ are close to the most stringent standards due to the existing high background concentrations, but will not create new violations.⁴⁵

Air Quality Table 9
Proposed Simple-Cycle Commissioning Impacts, (µg/m³)^a

Pollutant	Averaging Period	Project Impact ^a (µg/m ³)	Background (µg/m ³)	Total ^b Impact (µg/m ³)	Limiting Standard (µg/m ³)	Percent of Standard
NO ₂ ^c	1 hour	61.9	256	317.9	339	94%
	Annual	0.20	48	48	57	85%
PM10	24 hour	1.71	59	61	50	121%
	Annual	0.20	27.3	27.5	20	138%
PM2.5	24 hour ^d	1.25	27.2	28.5	35	81%
	Annual	0.20	10.97	11.17	12	93%
CO	1 hour	470	3,665	4,135	23,000	18%
	8 hour	240	2,978	3,218	10,000	32%
SO ₂	1 hour	2.12	58	60	655	9%
	3 hour	1.69	58	60	1,300	5%
	24 hour	0.53	11	12	105	11%

Source: Ex. 2014, p.4.7-48.

Notes:

^a Includes impacts from commissioning of two GE Frame 7FA.05 turbines and normal operation of the auxiliary boiler

^b Modeled concentration plus background values adjusted by Staff

^c NO₂ determined with U.S. EPA Ambient Ratio Method (ARM) based on NO₂/NO_x ratio of 0.80 and 0.75 for 1-hour and annual averaging times respectively.

^d The 24-hour PM2.5 standards is based on 5-year average, high-8th-high modeled concentration

Chemically Reactive Pollutant Impacts

The project's gaseous emissions of NO_x, SO_x, VOC, and ammonia can contribute to the formation of secondary pollutants: ozone and PM10/PM2.5. There are no regulatory agency models approved for assessing single-source ozone impacts, however, the emissions of NO_x and VOC from the AEC project do have the potential (if left unmitigated) to contribute to higher ozone levels in the region. These impacts would be

⁴⁴ Ex. 2014, p. 4.7-47.

⁴⁵ Ex. 2014, p. 4.7-48.

cumulatively significant because they would contribute to ongoing violations of the state and federal ozone ambient air quality standards.⁴⁶

Secondary particulate formation, which is assumed to be 100 percent PM_{2.5}, is the process of conversion from gaseous reactants to particulate products. Basically, SO_x and NO_x emissions are converted into sulfuric acid and nitric acid first and then react with ambient ammonia to form sulfate and nitrate. The sulfuric acid reacts with ammonia much faster than nitric acid and converts completely and irreversibly to particulate form. Nitric acid reacts with ammonia to form both a particulate and a gas phase of ammonium nitrate. The process of gas-to-particulate conversion is described in more detail in the evidentiary record.⁴⁷

Ammonia (NH₃) is a particulate precursor but not a criteria pollutant because there is no ambient air quality standard for ammonia. Staff recommends limiting ammonia slip emissions to the maximum extent feasible to avoid unnecessary ammonia emissions by requiring control systems be operated and maintained to routinely achieve less than 5.0 ppmvd (see Conditions of Certification AQ-A16 and AQ-A17).⁴⁸ We concur with Staff's recommendation.

Operation Mitigation

Emission Controls

The Applicant proposes the use of dry low NO_x combustors with selective catalytic reduction (SCR) to control NO_x emissions to 2.0 ppmvd (1-hour average) for the GE 7FA.05 combined-cycle turbines and 2.5 ppmvd (1-hour average) for the GE LMS-100PB simple-cycle turbines. For the auxiliary boiler, the Applicant proposes the use of flue gas recirculation and SCR to control NO_x emissions to 5.0 ppmvd corrected to 3 percent oxygen and to control CO emissions of the auxiliary boiler to 50 ppmvd at 3 percent oxygen. The Applicant also proposes best combustion design and the installation of an oxidation catalyst system to reduce CO emissions to 1.5 ppmvd for the GE 7FA.05 combined-cycle turbines and 2.0 ppmvd (1-hour average) for the GE LMS-100PB simple-cycle turbines.⁴⁹

The Applicant proposes best combustion design and the installation of an oxidation catalyst system to control VOC emissions to 2.0 ppmvd (1-hour average) for the GE 7FA.05 combined-cycle turbines and the GE LMS-100PB simple-cycle turbines as best available control technology (BACT) for VOC emissions. The use of pipeline quality natural gas and good combustion design for VOC control is BACT for the auxiliary

⁴⁶ Ex. 2014, p. 4.7-49.

⁴⁷ *Id.*

⁴⁸ Ex. 2014, pp. 4.7-38, 4.7-49 - 4.7-50.

⁴⁹ Ex. 2014, p. 4.7-53.

boiler. Using best combustion practices, pipeline-quality natural gas, and inlet air filtration to limit PM₁₀/PM_{2.5} emissions to 8.5 pounds per hour for the GE 7FA.05 turbines, 6.23 pounds per hour for the GE LMS-100PB turbines, and 0.51 pounds per hour for the auxiliary boiler are consistent with BACT at other similar sources. Operating exclusively on low sulfur pipeline-quality natural gas with a maximum fuel sulfur content of 0.75 grains/100 scf is the BACT for SO_x.⁵⁰

The SCAQMD completed a detailed BACT evaluation for the AEC that included commissioning, start up, and shutdown events, and concurred with the proposed BACT limits outlined above. Staff concurred with the SCAQMD's determination.⁵¹

During commissioning, it is not feasible to meet BACT limits for all periods of operation. The CCGT, SCGT, and auxiliary boiler will use low-NO_x combustors that may not be optimally tuned during commissioning. In addition, the emissions are only partially abated as the control systems are installed and tested in stages. The SCAQMD is proposing to add limits to the commissioning period for the CTGs and auxiliary boiler, such as, maximum operating hour limits when emission controls are not available for the CCGT and SCGT.⁵²

During startup periods, it is also not feasible to meet BACT limits for all periods of operation. The AEC CCGT, SCGT and auxiliary boiler emission control equipment are not fully effective. It takes time for the catalyst to reach the recommended operating temperature. The SCAQMD is proposing cold and non-cold startup events for the CCGT limiting the number of startup events for the SCGT. The SCAQMD is also limiting the duration, emissions from, and total number of startup events. The SCAQMD is also proposing cold, warm and hot startup events for the boiler and placing restrictions on the number of events and corresponding emissions.

During shutdown periods, it is not feasible to meet BACT limits for all periods of operation for all equipment. For the AEC CCGT and SCGT, the SCR used to control emissions ceases operations. However, the SCR and CO catalysts are still above ambient temperature and partially controlling emissions. The SCAQMD is proposing to limit shutdown events including the number of events, duration, and corresponding emissions.⁵³

Emission Offsets

The Applicant proposes to provide emission offsets for PM₁₀, SO₂, and VOC emissions and RECLAIM Trading Credits (RTCs) for NO_x emissions consistent with SCAQMD

⁵⁰ Ex. 2014, p. 4.7-54.

⁵¹ *Id.*

⁵² Ex. 2014, p. 4.7-55.

⁵³ *Id.*

Rules 1303, 1304(a)(2), 1304.1, and 2005. Under SCAQMD Rule 1304(a)(2), PM₁₀, SO₂ and VOC offsets for AEC will be secured from the SCAQMD internal accounts for the combined-cycle and simple-cycle turbines.⁵⁴

The Applicant proposes to provide VOC and PM₁₀ offsets for the auxiliary boiler at a 1.2-to-1 ratio, consistent with SCAQMD Rule 1303(b)(2) and has secured 5 pounds of VOC and PM₁₀ emission reduction credits to fully offset the auxiliary boiler.

The Applicant calculated the expected NO_x RECLAIM requirements for the commissioning and operation scenarios as shown in **Air Quality Table 10**. The Applicant testified that they hold sufficient NO_x RTC allocations for the operating and commissioning periods outlined in **Air Quality Table 10**.

Air Quality Table 10
Applicant Expected RECLAIM Trade Credit Requirements

Equipment	(lbs/year)
	NO _x , RTCs ^a
AEC CCGT Commissioning and Operation	220,432
AEC CCGT Operation	165,238
AEC CCGT Operation and SCGT Commissioning and Operation	293,102
AEC CCGT and SCGT Operation	270,213

Source: Ex. 2014, p. 4.7-54.

SCAQMD Rule 1303(b)(2) requires that all increases in emissions be offset unless exempt from offset requirements pursuant to SCAQMD Rule 1304. Since CO is an attainment pollutant and not a precursor to any nonattainment pollutant, offsets for CO are not required for the AEC since modeling demonstrated the AEC would not cause or contribute to a violation of a CO ambient air quality standard.⁵⁵

Per SCAQMD Rule 1304, the project is exempt from providing offsets directly for the AEC combined-cycle and simple-cycle turbines. Instead, AEC will get the offsets from SCAQMD internal accounts. According to the FDOC,⁵⁶ AES is proposing 1,094.7 MW of new generation for the two combined-cycle turbines (692.951 MW-gross total) and four simple-cycle turbines (401.751 MW-gross total) by retiring existing AGS Unit 1 (175 MW-gross), AGS Unit 2 (175 MW-gross), AGS Unit 3 (320 MW-gross), and AGS Unit 6 (480 MW-gross). AES has not identified plans for the surplus 55 MW from the retirements of these four utility boilers. The generating capacity from AEC will be limited to 1094.7 MW by Condition of Certification **AQ-E11**. Condition of Certification **AQ-F5**

⁵⁴ Ex. 2014, p. 4.7-54.

⁵⁵ Ex. 2014, p. 4.7-55.

⁵⁶ Ex. 1608.

requires the project owner to develop a plan to shut down AGS Units 1, 2, 3 and 6, to mitigate emissions of the new combined-cycle and simple-cycle units.⁵⁷

The operating equipment other than the combined-cycle and simple-cycle turbines, auxiliary boiler and oil/water separator, will not be eligible for the offset exemption. Therefore, the Applicant will need to provide offsets for the auxiliary boiler and the oil/water separators using 30-day emission averages. The offset ratio for ERCs is 1.2-to-1. The SCAQMD calculated offset requirements, which are included in **Air Quality Table 11**, are acceptable to Staff since the SCAQMD proposed mitigation is more conservative than a pounds-per-day annual average emission calculation.⁵⁸

Air Quality Table 11
Project Offset Requirements for Emission Reduction Credits

Component	VOC	SOx	PM10
Auxiliary Boiler and Oil/Water Separator 30-Day Emission Averages (lb/day)	3.4	1.06	3.78
SCAQMD Offset Ratio for ERCs	1.2	1.2	1.2
Total Calculated (lb/day)	4.08	1.27	4.54
SCAQMD Rounded Required Offset (lb/day)	4	1	5
Maximum Annual Auxiliary Boiler and Oil/Water Separator Emissions (lb/yr)	1,223	382	1,362
Annualized Auxiliary Boiler and Oil/Water Separator Emissions (lb/day)	3.35	1.05	3.73

Source Ex. 2014, p. 4.7-57.

Note: ^a First Year

The AEC would have VOC, SOx and PM10 emission offset requirements for the auxiliary boiler and oil/water separators according to SCAQMD Rule 1303. The Applicant has provided ERCs of 4 pounds per day for VOC, 1 pound per day for SOx, and 5 pounds per day for PM10 for the auxiliary boiler and oil/water separators.⁵⁹

The facility is still required to hold NOx RTCs to cover the first compliance year per SCAQMD Rule 1304.1. The first year NOx requirement for the AEC will include only the combined-cycle turbines and auxiliary boiler first year requirements because the first year of operation for the SGCT is expected to occur in 2021. The NOx RTC holdings for 2020 and 2021 from the current RECLAIM Annual Emission Allocations are included in **Air Quality Table 12**.⁶⁰

⁵⁷ Ex. 2014, p. 4.7-56.

⁵⁸ *Id.*

⁵⁹ Ex. 2014, p. 4.7-57.

⁶⁰ *Id.*

Air Quality Table 12
Project RECLAIM Trade Credit Requirements (lbs/year)

Equipment	(lbs/year)
	NO _x , RTCs ^a
Total AEC CCGT	216,754
Total AEC SCGT	274,300
Auxiliary Boiler	1,351
Required RECLAIM 1 st Year - AEC CCGT and Auxiliary Boiler	218,105
NO _x RTC Holding for 2020	432,413
Required RECLAIM 1 st Year - AEC SCGTs	274,300
NO _x RTC Holding for 2021	394,195

Source: Ex. 2014, p. 4.7-58.

Note: ^a First Year

The NO_x RTC holding for 2020 is greater than the first year RECLAIM NO_x RTC requirements for the AEC CCGT and auxiliary boiler. In addition, the 2021 NO_x RTC holding is greater than the first year RECLAIM NO_x RTC for the AEC SCGT. The NO_x RTCs are a valid mechanism to mitigate the NO_x emissions due to the extensive monitoring and reporting requirement for the RECLAIM program.⁶¹

SCAQMD Rule 1325 requires a major polluting facility to offset PM_{2.5} emissions at the offset ratio of 1.1:1. A major polluting facility is defined in the rule as a facility located in a federally designated non-attainment area for PM_{2.5}, with actual emissions, or a potential to emit of greater than 100 tons per year. The definition in SCAQMD Rule 1325 for major polluting facility was recently modified. After August 14, 2017 or until the effective date of the U.S. EPA's approval (whichever is later), the potential to emit in the definition would be lowered to 70 tons per year. The AGS has a potential to emit less than 100 tons per year and the AEC potential to emit would be 69.52 tons per year. The SCAQMD is proposing a permit that will limit facility PM_{2.5} emissions to below 100 tons per year. Condition of Certification **AQ-F1** will incorporate the facility limit.⁶²

Condition of Certification **AQ-SC6** requires the project owner to provide copies to the Energy Commission Compliance Project Manager (CPM) of all air permits issued by the SCAQMD including any proposed modification. Condition of Certification **AQ-SC7** requires quarterly reports to ensure ongoing compliance during commissioning and routine operation. Condition of Certification **AQ-SC8** requires mitigation for the operation of the auxiliary boiler and oil/water separators. Condition of Certification **AQ-SC8** establishes the quantity of offsets required and requires CPM approval if substitutions are made to the mitigation. Condition of Certification **AQ-SC9** requires the boiler to complete commissioning activities prior to the commissioning of the CCGT.

⁶¹ Ex. 2014, p. 4.7-58.

⁶² *Id.*

This condition is added because overlap was not included as a modeling scenario. Condition of Certification **AQ-SC10** requires the AEC CCGT to complete commissioning activities prior to the commissioning of the SCGT because overlap in these activities was also not included as a modeling scenario.⁶³

Condition of Certification **AQ-SC11** allows the CPM to make insignificant changes to the air quality conditions of certification when appropriate. This condition establishes appropriate guidelines on what would be considered an insignificant change. Condition of Certification **AQ-SC11** allows the CPM to approve administrative changes (such as typographical errors, facility name or owner) and other minor changes. The condition requires the project owner to apply for the change and the CPM to approve the change before the change could become effective. Also, Conditions of Certification **AQ-D11** and **AQ-D13** allow for alternative tests methods to be used for source testing if there is concurrence with the U.S. EPA, ARB and SCAQMD.⁶⁴

With the implementation of the Conditions of Certification in **Appendix A** of this Decision, the AEC will neither cause new violations of any CO, NO₂, or SO₂ ambient air quality standard nor contribute to existing violations for these pollutants. Therefore, we find the direct CO, NO₂, and SO₂ impacts of the AEC are less than significant.

Although the AEC's NO_x and VOC emissions will contribute to existing violations of state and federal ozone ambient air quality standards, we find the RTCs, VOC offsets from the SCAQMD's internal bank, and VOC offsets acquired by the project owner will mitigate the ozone impact to a less than a significant level. In addition, although the PM₁₀ and PM_{2.5} emissions and the PM₁₀/PM_{2.5} precursor emissions from the AEC will contribute to the existing violations of PM₁₀ and PM_{2.5} ambient air quality standards, the SCAQMD will offset the PM₁₀ emissions from its internal bank to mitigate the PM₁₀/PM_{2.5} impacts of the combustion gas turbines to a less than significant level. Likewise, SO_x emissions from the AEC are considered precursor emissions to PM₁₀/PM_{2.5} and could contribute to the existing violations of PM₁₀/PM_{2.5} ambient air quality standards. We find the SO_x offsets from the SCAQMD's internal bank, and SO_x offsets acquired by the project owner, will mitigate the PM₁₀/PM_{2.5} impacts to a less than a significant level. In summary, implementation of the conditions of certification described in the analysis will reduce potential adverse impacts to insignificant levels and ensure that the project's emissions are mitigated to less than significant.⁶⁵

In its opening brief, intervenor, Los Cerritos Wetlands Land Trust (LCWLT), argues that the 640 MW CCGTs "will emit substantially more criteria air pollutants (with the

⁶³ Ex. 2014, pp. 4.7-59 – 4.7-60.

⁶⁴ Ex. 2014, p. 4.7-60.

⁶⁵ Ex. 2014, pp. 4.7-108 – 4.7-109.

exception of CO) and GHG emissions than the existing Alamitos Units 1-6,” based upon a comparison table that is not found anywhere in the evidentiary record.⁶⁶ The table presented in LCWLT’s brief appears to compare two different metrics: the first line of the table provides the average of *actual reported emissions* from the AGS Units 1-6 from 2013 and 2014 and the second line of the table provides the *potential* to emit (PTE) for the AEC.⁶⁷ It is not clear how the results of the second line of LCWLT’s table were derived. The PTE for a facility represents its maximum permitted emissions, not the actual quantities of emissions, which could be lower.⁶⁸

A comparison of the PTE of AGS Units 1-6 and the PTE of the AEC are shown in **Air Quality Table 13** below.

Air Quality Table 13
Alamitos Generating Station and Alamitos Energy Center – Potential to Emit

	NOx (tpy)	CO (tpy)	VOC (tpy)	Sox (tpy)	PM10 (tpy)	PM2.5 (tpy)	CO2e (tpy)
AGS⁶⁹	636	21,872	454	50	627	98	10,141,971
AEC⁷⁰	137	244	68	10	70	70	1,716,926

As shown in **Air Quality Table 13**, the PTE of the AEC is lower than the PTE of the AGS Units 1-6 in all listed criteria air pollutants. For example, the NOx PTE for AGS Units 1-6 is 636 tons/year, while the NOx PTE for the AEC is 137 tons/year.⁷¹ The PTE for the AEC was calculated based on conservative assumptions, operating scenarios and emission factors, documented in the SCAQMD FDOC and Energy Commission FSA Part 2, not actual emissions.⁷²

The comparison of the AGS’s actual emissions to the PTE of the AEC’s CCGT is of little probative value because it is not an “apples to apples” comparison. Nevertheless, the great weight of the evidence has shown that the AEC’s criteria pollutants will be mitigated below levels of significance based upon its PTE, not its actual emissions

⁶⁶ LCWLT Opening Brief, Part 2, p. 16.

⁶⁷ *Id.*

⁶⁸ Ex. 2014, p. 4.7-92.

⁶⁹ Ex. 1608, p. 95.

⁷⁰ Ex. 1608, p. 150.

⁷¹ Ex. 1608, pp.95-96.

⁷² Exs. 2014, pp. 4.7-40; 4.7-69; 1608 pp. 178; 189; 191; 261; 263; 297; 321; and 328.

which may be less than its PTE. Therefore, we are unpersuaded by LCWLT's argument.⁷³

Cumulative Impacts

A project may result in a significant adverse cumulative impact when 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 (1) past projects; (2) other current projects; and (3) probable future projects.⁷⁴

For air quality, cumulative impacts are assessed in terms of conformance with an air district's attainment or maintenance plans.⁷⁵ The SCAQMD is the agency with principal responsibility for analyzing and addressing cumulative air quality impacts, including the impacts of ambient ozone and particulate matter. The SCAQMD has summarized the cumulative impact of ozone and particulate matter on the air basin from the broad variety of its sources. Analyses of these cumulative impacts, as well as the measures the SCAQMD proposes to reduce impacts to air quality and public health, are summarized in the record.⁷⁶

The AEC and other reasonably foreseeable projects could cause impacts that would be locally combined. Future projects would introduce stationary sources that are not included in the "background" conditions. Reasonably foreseeable future projects are those that are either currently under construction or in the process of being approved by a local air district or municipality. Future projects that have not yet entered the approval process do not normally qualify as "foreseeable" since the detailed information needed to conduct this analysis is not available. Sources that are presently operational are included in the background concentrations. Background conditions also take into account the effects of non-stationary sources.⁷⁷

A complete list of current and future planned projects is identified in the Cumulative Projects table of the **PROJECT DESCRIPTION** section of this Decision. For air quality cumulative impacts analysis, we consider projects with stationary sources located up to six miles from the project site. The relevant list was derived from Exhibits 1021, 1061, 1062, and 1063 and includes the AEC, U.S. Government Veterans Affairs' six emergency diesel-powered generators, Trend Offset Printing Services, Inc., and the Los Angeles Department of Water and Power Haynes Generating Station. The cumulative air quality impacts analysis results are included in **Air Quality Table 14**. The modeled

⁷³ Exs. 2014, pp. 4.7-40; 4.7-69; 1608 pp. 178; 189; 191; 261; 263; 297; 321; and 328.

⁷⁴ Cal. Code Regs., tit. 14, § 15130.

⁷⁵ Pub. Res. Code § 21083; Cal. Code Regs., tit. 14, §§ 15064(h), 15065l, 15130, and 15355; Ex. 2014, p. 4.7-38.

⁷⁶ Ex. 2014, pp. 4.7-61 – 4.7-67.

⁷⁷ Ex. 2014, p. 4.7-67.

impacts are combined with background concentrations to determine the total predicted impacts. As noted by the Applicant, the background concentrations are considered conservative because they do not take into consideration the removal of the AGS boiler units.⁷⁸

Air Quality Table 14
Revised AEC Cumulative Impacts

Pollutant	Averaging Period	Cumulative Impacts ($\mu\text{g}/\text{m}^3$)	Background ($\mu\text{g}/\text{m}^3$) ^a	Total Impact ($\mu\text{g}/\text{m}^3$)	Limiting Standard ($\mu\text{g}/\text{m}^3$)	Percent of Standard
NO ₂	1 hour	68.2	256	324	339	90%
	1 hour NAAQS	22.8	146	169	188	90%
	Annual	0.35	48	48	57	85%
PM ₁₀	24 hour	2.05	59	61	50	122%
	Annual	0.26	27.3	27.6	20	138%
PM _{2.5}	24 hour	1.6	27.2	28.8	35	82%
	Annual	0.26	10.97	11.23	12	94%
CO	1 hour	187	3,665	3852	23,000	17%
	8 hour	44.7	2,978	3022.7	10,000	30%
SO ₂	1 hour	2.11	58	60	655	9%
	1 hour NAAQS	1.6	31	33	196	17%
	3 hour NAAQS	1.71	58	60	1,300	5%
	24 hour	0.51	11	12	105	11%

Source: Ex. 2014, p. 4.7-70.

^a Background values are adjusted as presented in **Air Quality Table 12**.

^b The total predicted concentrations for the federal 1-hour NO₂ standard and 24-hour PM_{2.5} standard are the 5-year average, high-8th-high modeled concentrations combined with the 3-year average, 98th percentile background concentrations.

^d The total predicted concentration for the federal 1-hour SO₂ standard is the 5-year average, high-4th-high modeled concentration combined with the 3-year average, 99th percentile background concentration.

The background PM₁₀ concentration in **Air Quality Table 14** exceed the AAQS without the addition of the cumulative sources. Therefore, the particulate matter emissions from the AEC would be cumulatively considerable because they would contribute to existing violations of the PM₁₀ ambient air quality standards. The project owner will mitigate emissions through the use of BACT, RTCs, emission offsets from the SCAQMD's internal bank, and ERCs for the auxiliary boiler. Therefore, the evidence shows that the cumulative operating impacts of AEC, after mitigation, are considered to be less than significant and not cumulatively considerable.⁷⁹

⁷⁸ Ex. 2014, p. 4.7-69.

⁷⁹ Ex. 2014, p. 4.7-70.

The impacts from NO₂, CO, SO₂, and PM_{2.5} emissions in the refined cumulative analysis are not expected to cause or contribute to a violation of any AAQS and are therefore considered to be less than significant and not cumulatively considerable.⁸⁰

Furthermore, as demonstrated in **Air Quality Table 14**, the contribution from the AEC and surrounding sources alone are a small percentage of the total impact. The background values account for the majority of the total impact even taking into consideration the conservative assumptions used for the cumulative modeling analysis. The cumulative increment from the construction, commissioning, and operation scenarios modeled for AEC would continue to be an insignificant increment with the proposed mitigation. Any potential cumulative impact from additional potential surrounding emissions sources, including, but not limited to the demolition of the AGS would be dependent on the significance of the additional project emissions and not the operation of the AEC. Furthermore, the background values measured from surrounding monitors should include the operation of the existing AGS. Retirement or demolition of the AGS would mean the AGS units are no longer in operation and would no longer contribute to background values or cumulative impacts. Demolition of AGS, regardless of how it was performed, would be temporary and localized to the site compared with its operations.⁸¹

LCWLT argues there have been no proposed offsets for the increases in PM_{10/2.5} and VOC emissions caused by the project.⁸² The mitigation proposed for operation of the AEC includes mitigation for the project's NO_x, VOC, SO_x, and PM₁₀ based on the facility's PTE.⁸³ Proposed mitigation for PM₁₀ and VOC includes offsets secured from the SCAQMD internal accounts according to SCAQMD Rule 1304(a)(2).⁸⁴ Under Rule 1304(a)(2), the project is exempt from providing offsets directly for the combined-cycle and simple cycle turbines.⁸⁵ A complete demonstration of the use of Rule 1304(a)(2) was provided in the SCAQMD FDOC.⁸⁶

LCWLT also argues that "dust" impacts on wetlands cannot be mitigated with regional offsets.⁸⁷ As the record explains, mitigation differs as to whether the impact is from particulate matter derived from gaseous sources, which has a very different dispersion pattern than larger particulate matter referred to as 'dust', which is expected from

⁸⁰ Ex. 2014, p. 4.7-70.

⁸¹ Ex. 2014, p. 4.7-71.

⁸² LCWLT Opening Brief, Part 2, pp. 16-17.

⁸³ Ex. 2014, pp. 4.7-52 - 4.7-61.

⁸⁴ Ex. 1608, pp. 73 – 77.

⁸⁵ Ex. 2014, pp. 4.7-54 - 4.7-56; 4.7-89.

⁸⁶ Ex. 1608, pp. 73 – 77.

⁸⁷ LCWLT Opening Brief, Part 2, pp. 18-19.

fugitive sources of construction or demolition. Both types of particulate matter were analyzed for regional and localized impacts, as appropriate, and recommended mitigation was developed to address these different types of impacts.⁸⁸ Airborne dust and particulate matter impacts from the AEC will be less than significant with the implementation of the mitigation measures contained in the conditions of certification. As noted in the **BIOLOGICAL RESOURCES** section of this Decision, with the imposition and implementation of the conditions of certification, there will be no significant impacts to nearby wetlands from the construction and operation of the AEC facility.⁸⁹

We conclude that the evidence adequately addresses potential cumulative air quality impacts and with the imposition and implementation of the Conditions of Certification that the AEC's contribution will not be cumulatively considerable.

COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

Air Quality Table 15
Laws, Ordinances, Regulations, and Standards

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
FEDERAL		
Title 40 Code of Federal Regulations (CFR) Part 50 (National Primary and Secondary Ambient Air Quality Standards)	National Ambient Air Quality Standards (NAAQS) are set in this part. NAAQS define levels of air quality that are necessary to protect public health.	Compliant. 40 Code of Federal Regulations (CFR) Part 50 National Primary and Secondary Ambient Air Quality Standards codifies the NAAQS. The project owner conducted dispersion modeling to determine if the AEC project would exceed and AAQS. The modeling analysis demonstrated the AEC would not cause a violation for any of the criteria attainment pollutants during normal operations (including startup and shutdown periods). Nonattainment pollutant emissions would be mitigated consistent with SCAQMD's SIP approved NSR program. ⁹⁰

⁸⁸ 12/20/16 RT 98:16-25 -100:24; Ex. 2014, pp. 49-53.

⁸⁹ Ex. 2000, pp. 4.2-1, 4.2-28 to 4.2-37.

⁹⁰ Ex. 2000, p. 4.7-71.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
Title 40 CFR Part 51 (Requirements for Preparation Adoption and Submittal of Implementation Plans)	Requires new source review (NSR) facility permitting for construction or modification of specified stationary sources. NSR applies to sources of designated nonattainment pollutants. This requirement is addressed through SCAQMD Regulation XIII.	Compliant. 40 CFR Part 51 Requirements for Preparation Adoption and Submittal of Implementation Plans requires NSR permitting for new stationary sources. NSR applies to sources of designated nonattainment pollutants. The NSR permitting is addressed through SCAQMD Regulation XIII. A Permit to Construct and Permit to Operate will be obtained by the project owner satisfying the requirements. ⁹¹
Title 40 CFR Part 52 (Approval and Promulgation of Implementation Plans)	Prevention of Significant Deterioration (PSD)—Establishes requirements for attainment emissions. PSD requirements apply on a pollutant specific basis for major stationary sources. Twenty-eight source categories are subject to PSD requirements for attainment pollutants if facility annual emissions exceed 100 tons per year. SCAQMD has partial delegation of PSD authority from the United States Environmental Protection Agency (U.S. EPA) depending on the calculation methodology and plant wide applicability limits.	Compliant. 40 CFR Part establishes procedures for allowing new sources of air pollution to be constructed or existing sources to be modified in areas classified as attainment. Prevention of Significant Deterioration (PSD) requirements apply on a pollutant specific basis for major stationary sources. The AEC would be considered one of 28 source categories that are subject to PSD requirements for attainment pollutants if facility annual emissions exceed 100 tons per year. The AEC would exceed the 100 tons per year threshold for NOx and CO and is subject to the PSD analysis requirements. AEC would also be a major stationary source of GHG (exceeding 100,000 tons per year) which requires a PSD analysis for GHGs. The facility owner submitted the PSD application to the SCAQMD. See SCAQMD Regulation XVII for additional analysis. ⁹²

⁹¹ Ex. 2000, p. 4.7-71.

⁹² *Id.*

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
Title 40 CFR Part 60, Subpart A (General Provisions)	Outlines general requirements for facilities subject to standards of performance including, notification, work practice, monitoring and testing requirements.	Compliant. Any source subject to an applicable standard under 40 CFR Part 60 is also subject to the general provisions of Subpart A. Subpart A outlines general provisions for the proposed AEC including notification, work practice, monitoring and testing requirements. See Conditions of Certification AQ-D10, AQ-D11, AQ-D13 and AQ-D14 . ⁹³
Title 40 CFR Part 60, Subpart Dc (Standards of Performance for Small Industrial Commercial Institutional Steam generating Units)	Establishes new source performance standards (NSPS) for steam generating units with heat input rates between 10 and 100 million British thermal units (MMBtu) per hour (hr). The auxiliary boiler would be subject to the requirements and fuel records would need to be retained.	Compliant. This subpart affects steam generating units with heat input rates between 10 and 100 million British thermal units per hour (MMBtu/hr) installed after June 9, 1989. The auxiliary boiler is subject to this requirement. The auxiliary boiler would be fired exclusively on natural gas and therefore would be required to maintain monthly fuel consumption records. The auxiliary boiler would also have to meet Rule 2012 requirements of recording monthly fuel usage using a non-resettable totalizing fuel meter. Rule 2012 requires the use of a continuous emission monitoring system (CEMS). The conditions of certification contain appropriate measures and compliance is managed by the CPM per Condition of Certification AQ-SC7 . ⁹⁴
Title 40 CFR Part 60, Subpart KKKK (Standards of Performance for Stationary Combustion Turbines)	Establishes NSPS for new combustion turbines and the associated heat recovery steam generator (HRSG) and duct burners. NOx emissions are limited to 15 parts per million (ppm) at 15 percent oxygen (O ₂) and fuel sulfur limit of 0.060 pounds (lbs.) of SOx per MMBtu heat input. This subpart establishes NOx and	Compliant. The AEC combined-cycle and simple-cycle turbines will meet the Subpart KKKK requirements with the use of dry-low NOx and SCR systems limiting NOx emissions to 2.0 ppm and 2.5 ppm. AEC will be limited to pipeline quality natural gas as fuel to meet SO ₂ emission

⁹³ Ex. 2000, p. 4.7-72.

⁹⁴ Ex. 2000, p. 4.7-73.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
	SO ₂ emission limits for new combustion turbines. New combustion turbines with a rated heat input greater than 850 MMBtu/hr are required to meet NO _x emission limits of 15 ppm at 15 percent oxygen. The fuel sulfur would be limited to 0.060 lbs. SO ₂ per MMBtu. Combustion turbines regulated under Subpart KKKK are exempt from Subpart GG.	requirements. The AEC combined-cycle and simple-cycle turbines will monitor NO _x emissions with a CEMS. The conditions of certification contain appropriate measures. ⁹⁵
Title 40 CFR Part 60, Subpart TTTT (Standards of Performance for Greenhouse Gas Emissions for electrical Generating Units)	Establishes standards of performance for carbon dioxide (CO ₂). Affected base load electric generating units are subject to a gross energy output standard of 1,000 lbs of CO ₂ per megawatt hour (MWh).	<p>Compliant. Conditions of certification ensure compliance with Subpart TTTT. Condition of Certification AQ-E6 provides the 1,000 pounds per gross megawatt-hours CO₂ emission limit (inclusive of degradation) shall only apply if a turbine supplies greater than 1,481,141 MWh-net electrical output to a utility distribution system on both a 12-operating-month and a 3-year rolling average basis. Compliance with the 1,000 pounds per gross megawatt-hours CO₂ emission limit (inclusive of degradation) is determined on a 12-operating month rolling average basis.</p> <p>Condition of Certification AQ-E7 provides the 120 pounds per MMBtu CO₂ emission limit shall only apply if a turbine supplies no more than 1,481,141 MWh-net electrical output to a utility distribution system on either a 12-operating-month or a 3-year rolling average basis. Compliance with the 120 pounds per MMBtu CO₂ emission limit is determined on a 12-operating month rolling average basis.</p> <p>Condition of Certification AQ-E7 limits the CO₂ emissions to 610,480 tons per year per turbine on a 12-month rolling average basis from the GHG</p>

⁹⁵ Ex. 2000, p. 4.7-73.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
		<p>emissions calculations above. In addition, the calendar annual average CO₂ emissions are limited to 937.88 pounds per gross MW-hour (inclusive of degradation) from the thermal efficiency calculations above.</p> <p>The simple-cycle block would not be able to meet the 1000 pounds per gross megawatt-hours CO₂ emission limit. Therefore the units would be restricted to operate below the base load threshold. Therefore the simple-cycle block must comply with Subpart TTTT emission limit of 50 kg CO₂ per GJ of heat input (120 lb CO₂/MMBtu). Compliance with this standard can be demonstrated by the exclusive use of natural gas as fuel.</p> <p>Condition of Certification AQ-E8 requires the 120 pounds per MMBtu CO₂ emission limit for non-base load turbines shall apply. Compliance with the 120 pounds per MMBtu CO₂ emission limit is determined on a 12-operating month rolling average basis.</p> <p>Condition of Certification AQ-E8 limits the CO₂ emissions to 120,765 tons per year per turbine on a 12-month rolling average basis from the GHG emissions calculations above. In addition, the calendar annual average CO₂ emissions are limited to 1,356.03 pounds per gross MW-hour (inclusive of degradation) from the thermal efficiency calculations above.⁹⁶</p>
Title 40 CFR Part 64 (Compliance Assurance Monitoring)	Compliance Assurance Monitoring (CAM) establishes operation and maintenance requirements for emission control systems. The	Compliant. The CAM regulations are applicable to the combined-cycle turbines for NO _x , CO, and VOC, and apply

⁹⁶ Ex. 2014, pp. 4.7-74 – 4.7-75.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
	proposed emission control system would require continuous emission monitoring under a Title V permits and is therefore exempt from these requirements.	to the simple-cycle turbines for NOx. CEMS will be installed for NOx and for CO which will qualify as continuous compliance determination methods and which provides an exemption from this subpart for NOx and CO. This subpart applies to the VOC emissions because the VOC BACT limit is achieved with the assistance of the oxidation catalyst. The oxidation catalyst is primarily installed to control CO emissions, but also controls VOC emissions. The oxidation catalyst is located at the outlet of the turbine and designed to provide the required control efficiency at the expected turbine exhaust temperature range. There are no operational requirements for the CO catalyst. To assure that the catalyst is operating as designed, each turbine would be required to be source tested every three years for VOC pursuant to Condition of Certification AQ-D11 . CAM regulations are not applicable to the auxiliary boiler. ⁹⁷
Title 40 CFR Part 70 (State Operating Permit Programs) 42 USC 7661-7661 (Permits)	The AEC project would be considered a federal major source and subject to the Title V Operating Permit Program. Title V permits consolidate federally enforceable operating limits. AEC would exceed major source thresholds and a Title V permit would be required. AEC has submitted an application to SCAQMD to modify the existing Title V permit. The Title V program is within the jurisdiction of the SCAQMD with U.S. EPA oversight (see SCAQMD Regulation XXX).	Compliant. The Operating Permits Program requires the issuance of Title V permit identifying all applicable federal performance, operating, monitoring, recordkeeping and reporting requirements. The Title V requirements apply to facilities considered major sources having the potential to emit greater than 10 tons per year NOx or VOC, 100 tons per year of SO ₂ , 50 tons per year of CO, or 70 tons per year of PM ₁₀ , if the HAP potential to emit is greater or equal to 25

⁹⁷ Ex. 2014, pp. 4.7-75 – 4.7-76.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
		tons per year for combined HAPs and 10 tons per year for individual HAPs. The AEC facility will exceed Title V thresholds and will be required to obtain a Title V permit. SCAQMD has received delegation authority for this program through SCAQMD Regulation XXX. The facility owner filed an application for an amendment to the existing facility Title V permit for AGS. ⁹⁸
Title 40 CFR Part 72 (Permits Regulation)	Electrical generating units greater than 25 MW are subject to the provisions involving NO _x and SO ₂ reductions. Requires a Title IV permit and compliance with acid rain provisions, implemented through the Title V program. This program is within the jurisdiction of the SCAQMD with U.S. EPA oversight.	Compliant. The AEC will comply with the monitoring requirements of the acid rain provisions with the use of gas meters in conjunction with natural gas default sulfur data as allowed by the Acid Rain regulations (Appendix D to 40 CFR Part 75). If additional SO ₂ credits are needed, the project owner would obtain the credits from the SO ₂ trading market. ⁹⁹
STATE		
California Health & Safety Code (H&SC) §21080, 39619.8, 40440.14 (AB 1318)	Requires the executive officer of the SCAQMD, upon making a specified finding, to transfer emission reduction credits for certain pollutants from the SCAQMD's internal emission credit accounts to eligible electrical generating facilities.	Compliant. PM ₁₀ , SO ₂ and VOC offsets for AEC will be secured from the SCAQMD internal accounts for the combined-cycle and simple-cycle turbines. ¹⁰⁰

⁹⁸ Ex. 2014, p. 4.7-76.

⁹⁹ Ex. 2014, p. 4.7-76.

¹⁰⁰ Exs.1608; 2014, p. 4.7-54.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
H&SC §41700 (Nuisance Regulation)	Prohibits discharge of such quantities of air contaminants that cause injury, detriment, nuisance, or annoyance.	Compliant. The project owner will comply with Section 41700 of the California State Health and Safety Code, which restricts emissions that would cause nuisance or injury. The evidence indicates that Conditions of Certification required in the SCAQMD's FDOC and the Energy Commission's affirmative findings for the project ensure compliance. See the PUBLIC HEALTH section of this Decision. ¹⁰¹
H&SC §44300-44384 (Air Toxic "Hot Spots" Information and Assessment)	Requires preparation and biennial updating of facility emission inventory of hazardous substances; health risk assessments. The SCAQMD requires participation in a district level inventory and reporting program.	Compliant. See the PUBLIC HEALTH section of this Decision.
Title 13 California Code of Regulations (CCR), §2449 (General Requirements for In-Use Off-Road Diesel Fueled Fleets)	In-Use Off-road Diesel Vehicle Regulation. Imposes idling limits of five minutes, requires a plan for emissions reductions for medium to large fleets, requires all vehicles with engines greater than 25 horsepower (hp) to be reported to the ARB and labeled, and restricts adding older vehicles into fleets.	Compliant. See Condition of Certification AQ-SC5 .
Title 17 CCR, Subchapter 10 (Climate Change)	Established requirements for mandatory greenhouse gas reporting, verification and other requirements pursuant to cap and trade regulations.	Compliant. See the GREENHOUSE GAS section of this Decision.
Title 20 CCR, §2900-2913 (Provisions Applicable to Power Plants 10 MW and Larger)	Establishes the greenhouse gases emission performance standard (EPS), applicable to 10 MW and larger power plants (SB1368).	See the GREENHOUSE GAS section of this Decision.

¹⁰¹ Ex. 2014, p. 4.7-77.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
LOCAL		
SCAQMD Regulation II – Permits	<p>This regulation sets forth the regulatory framework of the application for issuance of construction and operation permits for new, altered and existing equipment.</p> <p>Rule 218 – Continuous Emission Monitoring. Requires specified facilities to install and maintain stack monitoring systems. The proposed project would be required to install and maintain stack monitoring systems by permit condition. Per Rule 2001, RECLAIM facilities for NOx and SOx are exempt from NOx and SOx requirements.</p>	<p>Compliant. The AEC combined-cycle and simple-cycle turbines will each be equipped with oxidation catalysts to control CO. Each turbine is required to be equipped with a CO CEMS to demonstrate compliance. The project owner is required to submit an “Application for CEMS” for each proposed CO CEMS, retain records and follow reporting procedures once approval to operate the CO CEMS is granted.¹⁰²</p>
SCAQMD Regulation III – Fees	<p>Establishes application fees for the SCAQMD.</p>	<p>Compliant. AEC has selected a payment option with the SCAQMD. The preliminary estimated annual payment would be required prior to the issuance of the Permits to Construct. The project owner would be required to demonstrate compliance with the specific requirements of this rule prior to issuance of the Permits-to-Construct for the AEC. The FDOC noted that a payment option has been selected.¹⁰³</p>

¹⁰² Ex. 2014, p. 4.7-80.

¹⁰³ Ex. 2014, pp. 4.7-58; 4.7-89.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
SCAQMD Regulation IV – Prohibitions	<p>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 specific emission units.</p> <p>Rule 401 – Visible Emissions. Establishes limits on visible emissions from stationary sources.</p> <p>Rule 402 – Nuisance. Prohibits the discharge of air contaminants or other material which could cause injury, detriment, nuisance or annoyance to the public or could damage business or property.</p> <p>Rule 403 – Fugitive Dust. Establishes requirements for controlling man-made fugitive dust. The provisions apply to any activity of man-made condition capable of generating fugitive dust.</p> <p>Rule 407 – Liquid and Gaseous Contaminants. Limits emissions of CO and sulfur compounds calculated as sulfur dioxide (SO₂) from stationary sources.</p> <p>Rule 409 – Combustion Contaminants. Limits total particulate emissions on a density basis.</p> <p>Rule 431.1 – Sulfur Content of Gaseous Fuels. Limits sulfur content in gaseous fuels to reduce SO_x emissions.</p> <p>Rule 475 – Electric Power Generating Equipment. Limits combustion contaminant (PM₁₀) emissions from any equipment with a maximum rating of more than 10 MW used to produce electric power. Combustion</p>	<p>Compliant. Rule 401 prohibits the discharge of visible emissions which are as dark, or darker, than number 1 on the Ringelmann Chart for a period aggregating more than three minutes. The gas turbines and the auxiliary boiler will be fired exclusively with pipeline quality natural gas and subject to BACT requirements. There-fore, visible emissions from the turbines and auxiliary boiler will comply with this rule.¹⁰⁴</p> <p>Compliant. Rule 402 Nuisance problems are not expected under normal operating conditions of the gas turbines, auxiliary boiler and other equipment.¹⁰⁵</p> <p>Compliant. Rule 403: Condition of Certification AQ-SC4 outlines monitoring requirements for dust from construction activities to ensure adequacy of the mitigation.¹⁰⁶ During normal operations, fugitive dust is not expected from the gas turbines, auxiliary boiler, SCR oxidation catalysts, ammonia tanks and oil/water separators, therefore, compliance is anticipated.¹⁰⁷</p> <p>Compliant. Rule 407: AEC will comply with the CO limit of this rule because the AEC CCGTs are subject to the BACT CO emission limit of no more than 1.5 ppmv and the AEC SCGTs are subject to the BACT CO emission limit of no more 2 ppmv at 15 percent oxygen. The auxiliary boiler will comply</p>

¹⁰⁴ Ex. 2014, p. 4.7-80.

¹⁰⁵ . Ex. 2014, p. 4.7-80.

¹⁰⁶ Ex. 2014, p. 4.7-59.

¹⁰⁷ Ex. 2014, p. 4.7-80.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
	<p>contaminants are limited to 11 pounds per hour and 0.01 grains per dry standard cubic feet (gr/dscf) calculated at 3 percent O₂ over 15 consecutive minutes. Per Rule 2001, RECLAIM facilities for NO_x and SO_x are exempt from NO_x and SO_x requirements.</p>	<p>with a CO emission limit of 50 ppmv at 3 percent oxygen. Compliance with CO will also be verified through the CEMS data for the gas turbines. A CO emission limit of 50 ppmv at 3 percent oxygen. Compliance a CO emission limit of 50 ppmv at 3 percent oxygen. Compliance with CO will also be verified through the CEMS data for the gas turbines.¹⁰⁸</p> <p>Compliant. Rule 409: AEC will comply. This rule limits combustion generated PM emissions to 0.1 grains/dscf calculated to 12 percent CO₂. The FDOC demonstrated that the PM loading would be 0.007 grains/dscf for the AEC CCGT, and 0.01 grains/dscf for the AEC SCGT. The auxiliary boiler emissions rate during normal operation of 0.15 pounds per hour is significantly less than the turbines.¹⁰⁹</p> <p>Compliant. Rule 431.1: AEC will comply. This rule requires that the sulfur content as H₂S of the natural gas shall be less than 16 ppmv. The natural gas fuel that AEC would use is pipeline quality natural gas supplied from the Southern California Gas pipeline, which is limited to maximum fuel sulfur content of less than 0.75 grains of sulfur per 100 standard cubic feet. The commercial grade natural gas has an average H₂S content of 4 ppm.¹¹⁰</p> <p>Compliant. Rule 475. This rule applies to power generating equipment greater than 10 MW installed after May 7, 1976. This</p>

¹⁰⁸ Ex. 2014, p. 4.7-81.

¹⁰⁹ Ex. 2014, p. 4.7-81.

¹¹⁰ Ex. 2014, p. 4.7-81.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
		<p>rule limits combustion contaminants as PM to be either less than 11 lbs/hour, or less than 0.01 gr/dscf. For natural gas fired gas turbine engines almost all PM emissions are PM10 emissions. As calculated in the Rule 409 evaluation PM10 emissions are 0.003 gr/dscf for the combined-cycle turbines, and 0.005 gr/dscf for the simple-cycle turbines. Since they both are less than 0.01 gr/dscf, AEC's compliance is established.¹¹¹</p>
<p>SCAQMD Regulation XI: Source Specific Standards</p>	<p>Establishes requirements for specific source categories.</p> <p>Rule 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional and Commercial Boilers, Steam Generators, and Process Heaters. Establishes NOx limits and monitoring and testing requirements for applicable boilers. Per Rule 2001, RECLAIM facilities for NOx and SOx are exempt from NOx and SOx requirements.</p>	<p>Compliant. Rule 475: NOx emissions are not subject to this rule because the rule is superseded by NOx RECLAIM pursuant to Rule 2001, Table 1. However, the CO emissions are still subject to this requirement. Rule 1146 establishes NOx and CO emissions and compliance requirements. The equipment BACT requirements are more stringent than the emissions requirements established through Rule 1146. Rule 1146 CO limit is 400 ppmv corrected to 3 percent oxygen. The BACT CO limit of 50 ppm for the auxiliary boiler is required by Condition of Certification AQ-A14. Condition AQ-D13 requires initial source testing with set averaging periods and test methods, Condition AQ-D14 requires ongoing testing according to Rule 1146 frequency (currently every three years), and Condition AQ-H1 requires compliance with all Rule 1146 requirements. RECLAIM supersedes Rule 1146 requirements. The boiler is a major NOx source and will be required to be equipped with a certified CEMS. Compliance</p>

¹¹¹ Ex. 2014, p. 4.7-81.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
		with the CO requirements is established through the applicable conditions of certification. ¹¹²
SCAQMD Regulation XIII: New Source Review	<p>Establishes the pre-construction review requirements for new, modified or relocated facilities to ensure that these facilities do not interfere with progress in attainment of the national ambient air quality standards and that future economic growth in the SCAQMD is not unnecessarily restricted. For RECLAIM facilities this regulation only applies to pollutants not addressed by Regulation XX (RECLAIM).</p> <p>Rule 1303 – Requirements. Establishes Best Available Control Technology (BACT), modeling and offset requirements.</p> <p>Rule 1304/1304.1 – Exemption. Establishes modeling and offset exemptions for specific categories including electric utility steam boiler replacements. A fee is established for projects utilizing the exemption.</p> <p>Rule 1313 – Permits to Operate. Established requirements for the existing AGS.</p> <p>Rule 1325 – Federal PM2.5 New Source Review Program. Outlines requirements for PM2.5 for any new major polluting facility or major modification to a major polluting facility located in areas designated as nonattainment for PM2.5. Establishes the use of lowest achievable emission rate (LAER), offsets, certification of compliance with emission limits and alternative analysis for applicable projects. SCAQMD adopted an update to this rule but the effective date is likely to be after the Energy</p>	<p>Compliant. Rule 1303: AEC will comply. BACT requirements would be included in Air Quality Conditions of Certifications AQ-A9, A12, and A15 for the AEC CCGT; AQ-A10, A13, and A15 for the AEC SCGTs; AQ-A11 and A14 for the auxiliary boiler; AQ-C6 and E12 for the ammonia storage tanks; and AQ-E13 for the oil/water separator. Alternative analysis requirements can be met through compliance with CEQA.¹¹³</p> <p>Compliant. Rule 1304: AEC will comply. SCAQMD Rule 1304(a) exempts specified sources replacing existing electric utility under specific circumstances from modeling requirements. The two combined-cycle and four simple turbines qualify for this exemption. The auxiliary boiler would not be exempt and therefore modeling is required. However, AEC performed a complete modeling analysis including the entire facility. SCAQMD reviewed the modeling to determine compliance with SCAQMD rules and regulations. The SCAQMD modeling review is included with the FDOC (Ex. 1608).¹¹⁴</p> <p>Compliant. Rule 1313: AEC will comply. See Conditions of Certification AQ-F5, AQ-C6, AQ-E12, AQ-E13, AQ-A1, AQ-A2, AQ-A3, AQ-A9, AQ-A10, AQ-A11, AQ-A12, AQ-A13,</p>

¹¹² Ex. 2014, p. 4.7-82.

¹¹³ Ex. 2014, pp. 4.7-82 4.7-87.

¹¹⁴ Ex. 2014, p. 4.7-85.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
	Commission decision for AEC.	<p>AQ-A14, AQ-A15, AQ-A16 and AQ-A17.¹¹⁵</p> <p>Compliant. Rule 1325: AEC will comply. A major polluting facility is defined as a facility with actual emissions, or a potential to emit of greater than 100 tons per year. The AEC would have a potential to emit over 100 tons per year for NOx, but below for SO2 and PM2.5. In addition the net increase of NO2 would be over 40 tons per year. Therefore Rule 1325 is only applicable to NOx. Condition of Certification AQ-F1 limits the PM2.5 emissions for the facility to 100 tons per year. Conditions of Certifications AQ-A1, AQ-A2, and AQ-A3 limit annual emissions of SO2 and PM10 from the combined-cycle and simple-cycle turbines and the auxiliary boiler.¹¹⁶</p>
SCAQMD Regulation XVII: Prevention of Significant Deterioration	<p>Prevention of Significant Deterioration (PSD). Establishes requirements for preconstruction review to ensure that the air quality in attainment does not significantly deteriorate and maintains a margin for future growth. Requirements for PSD review include use of BACT, modeling, and impact analysis. SCAQMD has partial delegation of PSD authority from the U.S. EPA depending on the calculation methodology and plant wide applicability limits.</p> <p>Rule 1701, 1702, 1706 – Applicability. Establishes applicability requirements for PSD.</p> <p>Rule 1703 – Top Down BACT, Certificate of Compliance, Copy of Application, Analysis. Establishes process to perform Top-Down BACT</p>	<p>The PSD program has been established to protect the deterioration of air quality in areas that already meet the primary NAAQS. The SCAQMD is partially delegated to issue initial PSD permits and for PSD permit modifications. AES has opted to apply for a PSD permit from the SCAQMD. The South Coast Air Basin is in attainment for NO2, SO2, CO, and PM10 NAAQS. Therefore, the PSD regulation applies to NOx, SOx, CO, and PM10 emissions.</p> <p>Compliant. Rule 1701, 1702, 1706: The AEC will result in net significant increases for NOx and PM10, but not CO and SO2. Therefore, CO and SO2 are not subject to PSD</p>

¹¹⁵ Ex. 2014, pp. 4.7-89 4.7-90.

¹¹⁶ Ex. 2014, p. 4.7-91.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
	analysis, requires certification of compliance and distribution to affected agencies and establishes procedures for analysis.	<p>requirements other than BACT.¹¹⁷</p> <p><u>Compliant. Rule 1703:</u> A certified letter of compliance was submitted by AES stating that all major stationary sources owned and operated by AES in California subject to emission limitations are in compliance or on schedule for compliance with all applicable standards under the Clean Air Act. AES submitted permit applications to the SCAQMD for the AEC on 10/23/2015. The SCAQMD deemed the AEC permit applications complete on 1/14/2016. Air impacts analysis including modeling performed for CO, NO₂, and PM₁₀ indicated the following:</p> <ol style="list-style-type: none"> 1. Pre-construction monitoring is not required for the AEC since the CO, NO₂ and PM₁₀ impacts would not exceed the monitoring thresholds. 2. SCAQMD updated the background concentrations to include 2014 data. 3. Dispersion modeling demonstrated CO₂, NO₂ and PM₁₀ will be in compliance with the primary NAAQS and CAAQS. 4. The maximum impacts for annual NO₂, 1-hr and 8-hr CO, and 24-hr PM₁₀ are below the respective Class II significant impact levels (SILs). 5. The federal 1-hour NO₂ average impact for the proposed new units exceeds the Class II SIL of 7.52 µg/m³. Therefore, a cumulative impact analysis of AEC and competing

¹¹⁷ Ex. 2014, p. 4.7-92.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
		<p>sources was required. The cumulative impact analysis demonstrated the maximum contribution to the modeled exceedance was less than the 1-hr NO₂ SIL. Therefore the impacts are considered less than significant.</p> <p>6. A Class 1 area impact analysis demonstrated that the AEC would not adversely affect air quality-related values and will not cause or contribute to an exceedance of the Class I SIL.</p> <p>7. A Class 1 increment impact analysis evaluated potential impacts to nearby Class 1 areas. The nearest Class I area is approximately 53 kilometers away from the AEC site. Impacts at this distance are below the applicable SIL.</p> <p>8. The AEC facility would be built on an existing power plant site to replace existing electrical generating equipment. The project is not expected to induce growth or result in impacts to soils and vegetation.</p> <p>9. AES evaluated wet and dry nitrogen deposition from depositional nitrogen emissions from AEC using AERMOD. The annual deposition is considered to be less than critical loads.</p> <p>10. Dispersion modeling for normal operation demonstrated compliance with secondary NAAQS.</p> <p>11. The visibility analysis used VISCREEN Tier 1 modeling to demonstrate each Class II area did not exceed the</p>

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
		criteria for color contrast or plume contrast. ¹¹⁸
SCAQMD Regulation XX: Regional Clean Air Incentives Market (RECLAIM)	<p>RECLAIM is designed to allow facilities flexibility in achieving emission reduction requirements for NOx and SOx through controls, equipment modifications, reformulated products, operational changes, shutdowns, other reasonable mitigation measures or the purchase of excess emission reductions.</p> <p>Rule 2005 – New Source review for RECLAIM. BACT is required for increases of any nonattainment air contaminant, ozone-depleting compound or ammonia. Major sources must also verify that all stationary sources in jurisdiction of the project are in compliance with the CAA. Alternative analysis, compliance through CEQA, visibility protection, public notice, compliance –including compliance with state and federal NSR are all included in the RECLAIM analysis.</p> <p>Rule 2012 – Requirements for Monitoring, Reporting, and Recordkeeping for Oxides of Nitrogen (NOx) Emissions. Outlines the specific monitoring and reporting requirements for NOx.</p>	<p>Compliant. Rule 2005: This regulation applies only to NOx emissions for the AEC because the owner is only intending to obtain NOx RTCs. As previously discussed, the proposed BACT is consistent with the SCAQMD BACT analysis. The evidence demonstrates the AEC NOx emission sources will not cause a violation of the most stringent ambient air quality standards. SCAQMD determined AEC would only have to hold offsets for the first year of operation for NOx-emitting equipment since RTC allocations would be less than the initial allocation when AES Corporation purchased the AGS. Condition of Certification AQ-I1 requires each CCGT to hold 108,377 pounds of RTCs the first year. Condition AQ-I2 requires each SCGT to hold 68,575 pounds of RTCs the first year. Condition of Certification AQ-I3 requires the auxiliary boiler to hold 1,351 pounds of RTCs the first year from the annual emissions calculations.</p> <p>Compliant. Rule 2012: The combined-cycle turbines, simple-cycle turbines and auxiliary boiler will be classified as major sources of NOx for RECLAIM purposes. The AEC is required to use non-resettable fuel meters to record fuel usage and a NOx CEMS. The AEC will be required to install, operate, and maintain all recording systems within 12 months after initial startup. CEMS equipment is proposed for the combined-cycle turbines, simple-cycle turbines and auxiliary boiler. Conditions of</p>

¹¹⁸ Ex. 2014, pp. 4.7-93 4.7-94.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
		certification would require the CEMS would to be installed within 12 months from the date of installation of the turbines. Thus, the operation of the new turbines would be in compliance with Rule 2012. ¹¹⁹
SCAQMD Regulation XXX: Title V Permits	The Title V federal program is the air pollution control permit system required by the CAA as amended in 1990. Regulation XXX defines the permit application and issuance as well as compliance requirements associated with the program. Any new or modified major source which qualifies as a Title V facility must obtain a Title V permit prior to construction, operation or modification of that source. Regulation XXX also integrates the Title V permit with the RECLAIM program such that a project cannot proceed without both.	Compliant. The AEC is considered as a significant permit revision to the RECLAIM/Title V permit for the AGS facility. A proposed Title V permit incorporating permit revisions will be submitted to U.S EPA for a 45-day review. All public participation procedures are required be followed prior to the issuance of the permit. ¹²⁰
SCAQMD Regulation XXXI Acid Rain Permits	Title IV of the federal Clean Air Act provides for the issuance of acid rain permits for qualifying facilities. Regulation XXXI integrates the Title V program with the RECLAIM program. Regulation XXXI requires a subject facility to obtain emission allowances for SO _x emissions as well as monitoring SO _x , NO _x , and CO ₂ emissions from the facility.	Compliant. See discussion under Title 40 CFR Part 72, above, and Condition of Certification AQ-F3 . ¹²¹

Based on the evidence, we find that construction and operation of the AEC project will comply with all applicable LORS regarding air quality impacts.

AGENCY AND PUBLIC COMMENT

Bhaskar Chandan,¹²² Air Quality Analysis and Compliance Supervisor for the SCAQMD, commented regarding the startup time limits. For the combined cycle, the limit is 30 minutes for non-cold starts and 60 minutes for cold start, which is the

¹¹⁹ Ex. 2014, pp. 4.7-94 4.7-96.

¹²⁰ Ex. 2014, p. 4.7-96.

¹²¹ Ex. 2014, p. 4.7-125.

¹²² 12/20/16 RT 110:21 – 116:9.

maximum allowed time to comply with the air quality limits in the permit. For the simple cycle, there is a 30-minute time limit for the startup.¹²³

Response to Comments: These comments simply restate some of the content of Exhibit 1608.

Lenny Arkenstahl,¹²⁴ CEO and founder of the Los Cerritos Wetlands Stewards, and **Neal Lauzon**, of IBEW Local 441, spoke in support of the AEC and commented that the project will reduce air pollution and improve air quality. **Keith Simmons**,¹²⁵ President of the Los Cerritos Wetlands Land Trust, commented that the air emissions falling on the wetlands are a constant source of habitat degradation that impairs restoration. That comment is addressed in the **BIOLOGICAL RESOURCES** section of this Decision.

Melinda Cotton,¹²⁶ a 33 year resident of Belmont Shore, commented on “the fumes, the emissions that we don’t know what they are, so we’re definitely impacted by that.” She asked that the Energy Commission look to renewables for the “sake of air quality, the environment, the critters in the rivers, and for all of us” and to not “oversize” the project.

James Gallo,¹²⁷ a Long Beach resident, commented that the AEC doesn’t really seem to serve much benefit to the City of Long Beach in regards to protecting the environment. He believed that better alternatives are available. He also asked about how to determine significance.

Isabelle Teraoka,¹²⁸ commented in opposition to the project on several grounds: “1) investing in continuing to burn fossil fuels will have significant environmental impacts... burning fossil fuels brings us closer to dangerous tipping points towards runaway climate change with its attendant slew of powerful storms, droughts, and sea level rise...2) It goes against what California has invested so much in with AB 32.”

Response to Comments: The purpose of the air quality analysis is to specifically identify and quantify the emissions that the AEC will produce to determine whether the emissions will cause a significant impact, based upon the evidence presented in the evidentiary hearings. The Environmental Analysis section, above, fully describes the thresholds of significance, the air quality impacts from the construction and operation of the AEC, and the mitigation that will be required for the project to proceed.

¹²³ Ex. 1608 p. 22 – 23.

¹²⁴ 11/15/16 RT.132:12 – 132:13.

¹²⁵ *Id.*

¹²⁶ 12/20/16 RT 116:15 – 119:22.

¹²⁷ 12/20/16 RT 120:1 – 123:16.

¹²⁸ TN 216549.

We conclude that, with the implementation of the mitigation required in the conditions of certification, the AEC project will not cause significant adverse impacts to air quality, and will comply with all laws. We considered renewables in the **ALTERNATIVES** section of this Decision. However, the scope of this Decision, both in terms of the technology chosen by the Applicant and the total electrical generating capacity of the project, are determined by the application. The Applicant has control over its choice of the location and design of its power plant. The Energy Commission analyzes the application to ensure that it complies with CEQA and LORS, and if it does, may then certify (license) the project to be built.

Laki Tisopulos, Deputy Executive Officer of Engineering and Permitting for the South Coast Air Quality Management District commented that “the SCAQMD concluded that no changes to the FDOC were required as a result of the comments received during the PDOC re-notice period... The SCAQMD further acknowledges the receipt of CEC's Staff Comments on the Alamitos Energy Center Presiding Member's Proposed Decision (docketed on February 23, 2017, TN# 216213) and agrees with the recommended edits to the Air Quality section of the PMPD... “This completes our pre-construction review of the proposed project and issuance of the Title V Facility Permit can now be completed. We await the CEC's final action on the project, prior to proceeding with issuing the Title V Facility Permit as appropriate.”¹²⁹

FINDINGS OF FACT

Based on the evidence, we make the following findings.

1. The Alamitos Energy Center project is located in the South Coast Air Basin and is under the jurisdiction of the South Coast Air Quality Management District.
2. The South Coast Air Quality Management District released its Final Determination of Compliance on November 18, 2016, stating that the project will comply with applicable Air District rules, which incorporate state and federal requirements.
3. The Alamitos Energy Center project area is designated nonattainment for the federal and state ozone and PM2.5 standards and State PM10 ambient air quality standards, partial nonattainment for the federal lead standards, and attainment for the federal and state CO, NO₂, and SO₂ standards and the federal PM10 standards.
4. The Alamitos Energy Center will not create significant impacts based on the ambient lead standards.

¹²⁹ TN 216919.

5. The Alamos Energy Center's unmitigated vehicle/equipment diesel exhaust and fugitive dust generated during construction will exceed daily significance thresholds for ozone, PM₁₀, and PM_{2.5}, and constitute potentially significant impacts under the California Environmental Quality Act.
6. The mitigation measures contained in Conditions of Certification **AQ-SC1** through **AQ-SC-5** will reduce the Alamos Energy Center's construction-related air quality impacts to insignificant levels under the California Environmental Quality Act.
7. The South Coast Air Quality Management District requires the Alamos Energy Center to mitigate stationary source NO_x, VOC, SO₂, and PM₁₀/PM_{2.5} emissions by employing Best Available Control Technology.
8. As certified by the South Coast Air Quality Management District, the project Applicant has identified sufficient emissions offsets for this project and those offsets will be obtained as required by the South Coast Air Quality Management District's rules.
9. Application of Best Available Control Technology and other measures specified in the Conditions of Certification will reduce potential air quality impacts from the operation of Alamos Energy Center to insignificant levels.
10. With the implementation of the Conditions of Certification, the Alamos Energy Center will neither cause new violations of any CO, NO₂, or SO₂ ambient air quality standard nor contribute to existing violations for these pollutants.
11. The direct CO, NO₂, and SO₂ impacts of the Alamos Energy Center are less than significant.
12. Although the Alamos Energy Center's NO_x and VOC emissions will contribute to existing violations of state and federal ozone ambient air quality standards, the Reclaim Trading Credits, VOC offsets from South Coast Air Quality Management District's internal bank, and VOC offsets acquired by the project owner will mitigate the ozone impact to less than a significant level.
13. Also, although the PM₁₀ and PM_{2.5} emissions and the PM₁₀/PM_{2.5} precursor emissions from the Alamos Energy Center will contribute to the existing violations of PM₁₀ and PM_{2.5} ambient air quality standards, the South Coast Air Quality Management District will offset the PM₁₀ emissions from its internal bank to mitigate the PM₁₀/PM_{2.5} impacts of the combustion gas turbines to a less than significant level.
14. SO_x emissions from the Alamos Energy Center are considered precursor emissions to PM₁₀/PM_{2.5} and could contribute to the existing violations of PM₁₀/PM_{2.5} ambient air quality standards.

15. SOx offsets from South Coast Air Quality Management District's internal bank, and SOx offsets acquired by the project owner, will mitigate the PM10/PM2.5 impacts to less than a significant level.
16. The record contains an adequate analysis of the Alamos Energy Center's potential contributions to cumulative air quality impacts.
17. There is no evidence that project-related air emissions will be cumulatively considerable.
18. The Alamos Energy Center will comply with federal Prevention of Significant Deterioration permit requirements for NOx and PM10.

CONCLUSIONS OF LAW

1. Implementation of the mitigation measures described in the record and contained in the Conditions of Certification set forth in the pertinent portions of **Appendix A** of this Decision, are sufficient to ensure that Alamos Energy Center will conform with all applicable laws, ordinances, regulations, and standards relating to air quality.
2. Implementation of the mitigation measures described in the record and contained in the Conditions of Certification ensures that the Alamos Energy Center will not result in significant direct, indirect, or cumulative air quality impacts.

C. PUBLIC HEALTH

INTRODUCTION

This section supplements the previous discussion on air quality and considers the potential public health effects from project emissions of toxic air contaminants (TACs). Here we review the evidence regarding whether such emissions will result in significant public health impacts or violate laws, ordinances, regulations, or standards for public health protection.¹

Evidence on the topic of public health is contained in Exhibits 1001, 1014, 1026, 1034, 1041, 1044, 1047, 1056, 1068, 1070, 1419, 1462, 1472, 1500-1508, 1600-1610, 2000, 2014, 3001, 3002, 3006, 3024, 3031, 3042-3048, 3059, 3061, 3069, 3072, 3073, 3076-3078, 3082 and 3083.²

SETTING

The Alamitos Energy Center (AEC) site is located in the City of Long Beach, California, within the South Coast Air Basin (SCAB) and the South Coast Air Quality Management District (SCAQMD). Approximately 584,644 residents live within a 6-mile radius of AEC, and the sensitive receptors within a 6-mile radius of the project site include:

- 651 preschool/daycare centers;
- 21 nursing homes;
- 177 schools;
- 739 hospitals, clinics, and/or pharmacies;
- 8 colleges;
- 1 arena; and

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. 2014, p. 4.8-1.)

² 12/20/16 RT 37:3-63:24; 91:14 – 92:7.

- 2 prisons.³

Sensitive receptors, such as infants, the aged, and people with specific illnesses or diseases, are the subpopulations which are more sensitive to the effects of toxic substance exposure. The nearest sensitive receptor is the Rosie the Riveter Charter High School, located on the Alamos Generating Station (AGS) site, approximately 971 feet from the nearest proposed stack location. The second closest sensitive receptor is Kettering Elementary School, which is approximately 2,297 feet northwest of the nearest proposed stack location. Apart from the Rosie the Riveter Charter High School and Kettering Elementary School, there are no other schools within approximately 0.5 mile of the AEC project site. The nearest residents are located approximately 1,165 feet west of the proposed stack locations along E. Mariquita Street and approximately 1,329 feet east of the proposed stack locations along Nassau Drive. The nearest businesses are located approximately 525 feet east of the AEC site.⁴

PROJECT DESCRIPTION

For more information on the site and its related project description, please see the **PROJECT DESCRIPTION** section of this Decision.

ENVIRONMENTAL ANALYSIS

Thresholds of Significance

The construction and operation of AEC will result in routine emissions of TACs, categorized as noncriteria pollutants (see **Public Health Table 1**) for which no ambient air quality standards have been established. 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 TACs.⁵

The risk assessment consists of the following steps:

- Identify the types and amounts of hazardous substances that the AEC could emit into the environment;
- Estimate worst-case concentrations of project emissions in the environment using dispersion modeling;

³ Ex. 2014, p. 4.8-5.

⁴ *Id.*

⁵ Ex. 2014, p. 4.8-8.

- 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.⁶

Typically, the initial health risk analysis is performed at a “screening level,” which is designed to conservatively estimate potential health risks. 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 air quality computer modeling 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 over a 70-year lifetime; 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).⁷

The risk assessment for the AEC 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 (8-30 years⁸) to lower concentrations of pollutants. For carcinogenic

⁶ Ex. 2014, pp. 4.8-8 - 4.8-9.

⁷ Ex. 2014, pp. 4.8-10.

⁸ Long-term exposure used to refer to an exposure duration of 70 years. However, in 2015 Guidance, the California Environmental Protection Agency (Cal/EPA) Office of Environmental Health Hazard Assessment (OEHHA) recommends that an exposure duration (residency time) of

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.⁹

The analysis for noncancer 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 reported in medical and toxicological literature, and include margins of safety. Energy Commission staff (Staff) assessed the noncancer health effects by calculating a hazard index, which is a ratio obtained by comparing exposure from facility emissions to the REL for that pollutant. 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.¹⁰

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. 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.”¹¹ This risk level is equivalent to a cancer risk of 10 in one million, or 10×10^{-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.¹²

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

30 years be used to estimate individual cancer risk for the maximally exposed individual resident (MEIR). In addition, for the maximally exposed individual worker (MEIW), OEHHA now recommends using an exposure duration of 25 years to estimate individual cancer risk for off-site workers. (Ex. 2014, p. 4.8-24).

⁹ Ex. 2014, p. 4.8-10.

¹⁰ Ex. 2014, p. 4.8-11.

¹¹ Cal. Code Regs., tit. 22, § 12703(b).

¹² Ex. 2014, pp. 4.8-11 - 4.8-12.

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, Staff would not recommend approval of the project.¹³

Impact Assessment and Mitigation

Meteorological conditions, including wind speed, wind direction, and atmospheric stability, affect the extent to which pollutants are dispersed into the air and the direction of pollutant transport. This, in turn, affects the level of public exposure to emitted pollutants along with the associated health risks. The **AIR QUALITY** section of this Decision presents a more detailed description of meteorological data for the area.¹⁴

By examining average toxic concentration levels from representative air monitoring sites, together with cancer risk factors specific to each carcinogenic contaminant, a lifetime cancer risk can be calculated to provide a background risk level for inhalation of ambient air.¹⁵

From 2008 to 2012, the cancer incidence rates in California are 48.56 in 1 million for males and 39.48 for females. Also, from 2008 to 2012, the cancer death rates for California are 18.34 in 1 million for males and 13.53 in 1 million for females.¹⁶

According to the County Health Status Profiles 2015, the death rate due to all cancers, from 2011-2013, is 14.12 in 1 million for Los Angeles County, slightly lower than the cancer death rate (15.09 in 1 million) for California. The death rate due to lung cancers, from 2011-2013, is 2.98 in 1 million for Los Angeles County, slightly lower than the cancer death rate (3.36 in 1 million) for California. Lung cancer was the most common form of cancer death in Los Angeles County (2,908 deaths; mortality rate 3.1 per 1,000,000 population).¹⁷

The asthma diagnosis rates in Los Angeles County are lower than the average rates in California for both adults (age 18 and over) and children (ages 1-17). The

¹³ Ex. 2014, p. 4.8-13.

¹⁴ Ex. 2014, p. 4.8-6.

¹⁵ *Id.*

¹⁶ *Id.*

¹⁷ Ex. 2014, p. 4.8-7.

percentage of adults in Los Angeles County diagnosed with asthma was reported as 6.6 percent in 2005-2007, compared to 7.7 percent for the general California population. Rates for children for the same 2005-2007 period were reported as 9.3 percent in Los Angeles County compared to 10.1 percent for the state in general.¹⁸

Data show a downward trend in TAC annual average concentrations along with related cancer risks in the SCAB. Studies showed that mobile sources, such as cars, trucks, trains, ships, and aircraft, represent the greatest contributors to estimated health risks in Los Angeles County. Overall, the general trend in risk exposure has been decreasing with the estimated cancer risk from exposure to airborne toxics in Los Angeles County. The risk reduced from 1,047 per million in 1998 to 951 per million in 2005 to 415 per million in 2012. SCAB data followed the same trend, showing that TACs decreased from 931 per million in 1998 to 853 per million in 2005, to 367 per million in 2012.¹⁹

Construction Impacts

The Applicant anticipates that construction and site preparation activities at the AEC site will last approximately 57 months, from commencing in 2017 and ending in late 2021. The project will commence construction with the removal of former AGS Unit 7's building and ancillary equipment, fuel storage tank, tank berms, small maintenance shops and two waste water retention basins to make room for construction and laydown area for the AEC combined-cycle gas turbine block (CCGT or Block 1). Construction of the AEC simple-cycle gas turbine block (SCGT or Block 2) is scheduled to proceed after construction of Block 1. The potential construction/demolition risks are normally associated with exposure to asbestos, fugitive dust, and combustion emissions (i.e., diesel exhaust).²⁰

The evidence indicates that demolition of AGS Unit 7 could generate approximately 150 tons of asbestos waste. Exposure to asbestos and asbestos containing materials (ACM) increases workers' and residences' risk of developing lung diseases, including asbestosis, lung cancer, and mesothelioma.²¹

To reduce the potential risk associated with the removal of asbestos and ACM, the Applicant is required to comply with SCAQMD Rule 1403, which requires the

¹⁸ Ex. 2014, p. 4.8-7.

¹⁹ Ex. 2014, pp. 4.8-7 – 4.8-8.

²⁰ Ex. 2014, pp. 4.8-12 - 4.8-14.

²¹ Ex. 2014, p. 4.8-14.

notification and special handling of ACM during demolition activities. SCAQMD Rule 1403 mandates that the Applicant:

- Conduct a facility survey to identify and quantify the presence of all friable and non-friable Class I and Class II ACM prior to the start of demolition activities;
- Notify the SCAQMD and the Energy Commission compliance project manager (CPM) of the intent to conduct demolition activities in a district-approved format (e.g., submittal of a Rule 1403 Plan) prior to the start of any demolition activities;
- Employ one or more of the following methods for asbestos removal: High Efficiency Particulate Air Filtration, Glovebag or Mini-enclosures, Dray Removal, or an alternative approved method;
- Collect and store ACM in a leak-tight or wrapped container to avoid releasing ACM to the atmosphere;
- Require an onsite representative to complete the Asbestos Abatement Contractor/Supervisor course pursuant to the Asbestos Hazard Emergency Response Act and Provision of Title 40, Code of Federal Regulations, Parts 61.145 to 61.147, 61.152, and Part 763, and be present during all ACM demolition or handling procedures; and
- Dispose of ACM wastes at a licensed waste disposal facility; ACM wastes would be hauled from the site by an appropriately licensed ACM waste transporter.²²

Small quantities of other hazardous wastes could also be generated during construction or demolition phases of the project. The mitigation measures needed to reduce the impacts of asbestos, ACM and other hazardous wastes from the construction or demolition phases of the project are covered in the **WASTE MANAGEMENT** section of this Decision. Condition of Certification **WASTE-3** requires the project owner to submit the SCAQMD Asbestos Demolition Notification Form to SCAQMD and the Energy Commission CPM for review and approval prior to removal and disposal of asbestos. After receiving approval, the project owner must remove all ACM from the site prior to

²² Ex. 2014, pp. 4.8-13 thru 4.8-14.

demolition. This program ensures there will be no release of asbestos that could impact public health and safety.²³

We find that compliance with SCAQMD Rule 1403 and Condition of Certification **WASTE-3** will also reduce the potential impacts associated with the removal of asbestos and hazardous soil-borne materials during construction and demolition below the level of significance. If any unexpected contamination is encountered during construction, then we find that compliance with Conditions of Certification **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.²⁴

Fugitive dust²⁵ emissions during construction and demolition of the proposed project could occur from dust entrained during site preparation and grading/excavation at the construction site, dust entrained during onsite movement of construction vehicles on unpaved surfaces; and wind erosion of areas disturbed during construction activities.²⁶

The effects of fugitive dust on public health are covered in the **AIR QUALITY** section of this Decision, including Conditions of Certification **AQ-SC3** (Construction Fugitive Dust Control) and **AQ-SC4** (Dust Plume Response Requirement) to keep fugitive dust plumes from leaving the project boundary. As long as the dust plumes are prevented from leaving the project site, there will be no significant concern of fugitive dust adversely affecting public health.²⁷

Diesel emissions will occur from trucks (including water trucks, delivery trucks, employee commute vehicles and heavy equipment trucks such as graders, cranes, etc.), as well as welding machines, electric generators, air compressors, and water pumps, during construction and demolition activities. A screening Health Risk Assessment (HRA) for diesel particulate matter was conducted to assess the potential impacts associated with diesel emissions during the construction and demolition activities (e.g., Unit 7) at AEC. The construction HRA

²³ Ex. 2014, p. 4.8-15.

²⁴ Ex. 2014, p. 4.8-15.

²⁵ Fugitive dust is defined as dust particles that are introduced into the air through certain activities such as soil cultivation, vehicles operating on open fields, or dirt roadways. (Ex. 2014, p. 4.8-15).

²⁶ Ex. 2014, pp. 4.8-15 – 4.8-16.

²⁷ Ex. 2014, p. 4.8-16.

estimated the rolling cancer risks during a 30-year exposure duration for residential exposure and a 10-year exposure duration (from age 16 to 25) for worker exposure, aligned with the expected construction duration.²⁸

The predicted incremental increases in cancer risk at the Point of Maximum Impact (PMI), Maximally Exposed Individual Resident (MEIR), Maximally Exposed Individual Worker (MEIW), and maximum exposed sensitive receptor associated with construction/demolition activities are 4.9 in one million, 0.89 in one million, 0.16 in one million and 1.19 in one million, respectively. The predicted chronic health index at the PMI, MEIR, MEIW, and maximum exposed sensitive receptor are 0.0026, 0.00047, 0.0026, and 0.00064, respectively.²⁹

Based on the results of HRA in evidence, and considering that the potential exposure of diesel particulate matter would be sporadic and of limited duration, and the predicted incremental increase in cancer risk at the MEIR and MEIW and chronic health index at the PMI, MEIR, and MEIW are less than the significance thresholds of 10 in one million and 1.0, respectively, the impacts associated with the diesel particulate matter from finite construction activities would be less than significant. We find that Condition of Certification of **AQ-SC5** (Diesel-Fueled Engine Control) in the **AIR QUALITY** section of this Decision will ensure that the cancer related impacts and non-cancer related impacts of diesel exhaust emissions for the public and off-site workers are mitigated during construction/demolition to a point where they are not significant.³⁰

Operation Impacts and Mitigation

The AEC is proposed as a natural gas-fired, combined-cycle and simple-cycle, air-cooled, nominal 1,040 MW, electric generating facility. Pollutants that could potentially be emitted are listed in **Public Health Table 1**, including both criteria and non-criteria pollutants. Criteria pollutant emissions and impacts are examined in the **AIR QUALITY** section of this Decision. Since the facility would use dry cooling, there will be no emissions of toxic metals, particulate matter, or volatile organic compounds (VOCs) from cooling tower mist or drift, and no health risk from the potential presence of the Legionella bacterium responsible for Legionnaires' disease.³¹

²⁸ Ex. 2014, p. 4.8-17.

²⁹ *Id.*

³⁰ Ex. 2014, pp. 4.8-17 – 4.8-18.

³¹ Ex. 2014, p. 4.8-19.

Public Health Table 1
Main Pollutants Emitted from the Proposed Project

Criteria Pollutants	Non-criteria Pollutants
Carbon monoxide (CO)	Acetaldehyde
Oxides of nitrogen (NO _x)	Acrolein
Particulate matter (PM10 and PM2.5)	Ammonia
Oxides of sulfur (SO ₂)	Benzene
Volatile Organic Compounds (VOCs)	1,3-Butadiene
	Ethyl Benzene
	Formaldehyde
	Hexane
	Naphthalene
Criteria Pollutants	Non-criteria Pollutants
	Polycyclic Aromatic Hydrocarbons (PAHs)
	Propylene Oxide
	Toluene
	Xylene

(Ex. 2014, p. 4.8-20).

Numerous health effects have been linked to exposure to TACs, including development of asthma, heart disease, Sudden Infant Death Syndrome, respiratory infections in children, lung cancer, and breast cancer. **Public Health Table 2** and **Public Health Table 3** list each pollutant. **Public Health Table 2** shows the exposure routes of TACs and how they would contribute to the total risk obtained from the risk analysis. The applicable exposure pathways for the

toxic emissions include inhalation, home grown produce, dermal (through the skin) absorption, soil ingestion, and mother's milk.³²

Public Health Table 2
Types of Health Impacts and Exposure Routes Attributed to Toxic Emissions

Substance	Oral Cancer	Oral Noncancer	Inhalation Cancer	Noncancer (Chronic)	Noncancer (Acute)
Acetaldehyde			✓	✓	✓
Acrolein				✓	✓
Ammonia				✓	✓
Benzene			✓	✓	✓
1,3-Butadiene			✓	✓	
Ethyl Benzene			✓	✓	
Substance	Oral Cancer	Oral Noncancer	Inhalation Cancer	Noncancer (Chronic)	Noncancer (Acute)
Formaldehyde			✓	✓	✓
Hexane				✓	
Napthalene		✓	✓	✓	
Polycyclic Aromatic Hydrocarbons (PAHs)	✓		✓		
Propylene Oxide			✓	✓	✓
Toluene				✓	✓
Xylene				✓	✓

Source: OEHHA / ARB 2016b and CH2 2016s, Table 5.9-1 and Table 5.9-3 (Ex. 2014, p. 4.8-20).

Public Health Table 3 lists the toxicity values used to quantify the cancer and noncancer health risks from the project's combustion-related pollutants. RELs are used to calculate short-term and long-term noncancer health effects, while

³² Ex. 2014, p. 4.8-10.

the cancer potency factors are used to calculate the lifetime risk of developing cancer.³³

**Public Health Table 3
Toxicity Values Used to Characterize Health Risks**

Toxic Air Contaminant	Inhalation Cancer Potency Factor (mg/kg-d)⁻¹	Chronic Inhalation REL (µg/m³)	Acute Inhalation REL (µg/m³)
Acetaldehyde	0.010	140	470 (1-hr) 300 (8-hr)
Acrolein	—	0.35	2.5 (1-hr) 0.7 (8-hr)
Ammonia	—	200	3,200
Benzene	0.10	60	1,300
1,3-Butadiene	0.60	20	—
Ethyl Benzene	0.0087	2,000	—
Toxic Air Contaminant	Inhalation Cancer Potency Factor (mg/kg-d)⁻¹	Chronic Inhalation REL (µg/m³)	Acute Inhalation REL (µg/m³)
Formaldehyde	0.021	9	55 (1-hr) 9 (8-hr)
Hexane	—	7000	—
Napthalene	0.12	9.0	—
Polycyclic Aromatic Hydrocarbons (PAHs)	3.9	—	—
Propylene Oxide	0.013	3	3100
Toluene	—	300	37,000
Xylene	—	700	22,000

Sources: ARB 2016b and CH2 2016s, Table 5.9-3 (Ex. 2014, p. 4.8-21).

The health risk from exposure to each project-related pollutant is assessed using the “worst case” emission rates and impacts. Maximum hourly emissions are used to calculate acute (one-hour) noncancer health effects, while estimates of

³³ Ex. 2014, p. 4.8-21.

maximum emissions on an annual basis are used to calculate cancer and chronic (long-term) noncancer health effects.³⁴

The Applicant's calculations 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 one million.³⁵ Staff conducted an independent risk assessment that included emission factors during start-up, shut down, commissioning, and normal operations of the AEC. The evidence details Staff's modeling methodology and assumptions.³⁶

As shown below in **Public Health Table 4**, total worst-case individual cancer risk for AEC was 1.44 in one million at the PMI. The cancer risk value at PMI is below the significance level, 10 in one million, using either the Applicant's or Staff's cancer risk assessment, indicating no significant adverse cancer risk. Further, both acute and chronic hazard indices (HI) are less than 1.0, indicating that no short- or long-term adverse health effects are expected. The cancer risk for the maximally exposed individual in a residential setting (MEIR) is 1.11, which is below the significance level. The receptor location for the MEIR is approximately 0.33 miles east of the project boundary. The maximum resident chronic HI and acute HI are 0.0028 and 0.018, respectively. They are both less than 1.0, indicating that no short or long-term adverse health effects are expected at these residences. The cancer risk for the maximally exposed individual worker (MEIW) is 0.052 in 1 million which is also below the significance level. MEIW is located on the east side of the project's boundary. The highest cancer risk at a sensitive receptor (Rosie The Riveter Charter High School) is 1.03 in one million, for which the chronic HI is 0.0026 and the acute HI is 0.017. All risks are below the significance level.³⁷

³⁴ Ex. 2014, pp. 4.8-11 – 4.8-12.

³⁵ Ex. 1500, p 5.9-13.

³⁶ Ex. 2014, p. 4.8-22.

³⁷ Ex. 2014, pp. 4.8-23 4.8-24.

Public Health Table 4
Cancer Risk and Chronic Hazard from AEC Operations

Receptor Location	Cancer Risk (per million)	Chronic HI ^d	Acute HI ^d
PMI ^a	1.44	0.0036	0.019
Residence MEIR ^b	1.11	0.0028	0.018
Worker MEIW ^c	0.052	0.0036	0.019
Highest Value at Sensitive Receptor	1.03	0.0026	0.017
Significance level	10	1	1
Significant?	No	No	No

Source: CH2 2016s, Table 5.9-5 (Ex. 2014, p. 4.8-25).

^a PMI = Point of Maximum Impact

^b MEIR = MEI of residential receptors. Location of the residence of the highest risk with a 30-year residential scenario.

^c MEIW = MEI for offsite workers. Occupational exposure patterns assuming standard work schedule, i.e., exposure of 8 hours/day, 5 days/week, 49 weeks/year for 25 years.

^d HI = Hazard Index

The cancer and noncancer risks from AEC operation are all below their respective significance levels. This means that no health impacts will occur within all segments of the surrounding population. Therefore, we accept Staff's recommendation and find that there is no need for conditions of certification to protect public health.³⁸

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 (1) past projects; (2) other current projects; and (3) probable future projects.³⁹

The maximum cancer risk and non-cancer HI (both acute and chronic) for operations emissions from the AEC estimated independently by the Applicant, Staff, and the SCAQMD are all below the level of significance. While air quality cumulative impacts could occur with sources within a 6-mile radius, cumulative public health impacts are usually not significant unless the emitting sources are

³⁸ Ex. 2014, p. 4.8-24.

³⁹ Cal. Code Regs., tit. 14, § 15130.

extremely close to each other, within a few blocks, not miles. All identified projects are at least four miles from AEC. Therefore, the evidence establishes that the AEC, even when combined with these projects, will not contribute to cumulative impacts in the area of public health.⁴⁰

The one project located close to AEC would be the potential demolition of AGS Units 1-6. If the demolition of these AGS units occurs, it would take place after the AEC is operating.⁴¹ While the precise methodology of demolition is unknown, implosion is one possible means which has the potential to emit dust and debris. But there are no dust-generating activities associated with operation of AEC. Therefore, the operation of AEC with the demolition of AGS Units 1-6 would not result in cumulative impact to public health. Furthermore, there is no diesel-fueled equipment as part of AEC operations, only natural gas, and natural gas has hardly any particulate matter or hazardous air pollutant emissions. The only concern would be ACM during demolition of buildings containing asbestos. Again, the operation of AEC with the demolition of AGS would not result in cumulative impact to public health because there are no asbestos-generating activities associated with operation of AEC.⁴²

Moreover, as previously noted, the maximum impact location would be the spot where pollutant concentrations for the AEC project would theoretically be highest. Even at this hypothetical location, the evidence does not indicate any significant change in lifetime risk to any person, given the calculated incremental cancer risk of 1.44 in one million, which the record shows as not contributing significantly to the previously noted county-wide population-weighted risks of Multiple Air Toxics Exposure Study IV (MATES IV), 415 per million for Los Angeles County and 367 per million for SCAB. Modeled facility-related risks would be much lower for more distant locations. Given the previously noted conservatism in the calculation method used, the actual risks would likely be much smaller. Therefore, we do not consider the incremental risk estimate from AEC's operation as suggesting a potentially significant contribution to the area's overall or cumulative cancer risk that includes the respective risks from the background pollutants from all existing area sources.⁴³

⁴⁰ Ex. 2014, p. 4.8-25.

⁴¹ Ex. 3034.

⁴² Ex. 2014, pp. 4.8-25 – 4.8-26.

⁴³ Ex. 2014, p. 4.8-26.

COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

**Public Health Table 5
Laws, Ordinances, Regulations, and Standards**

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION / CONCLUSIONS
FEDERAL		
Clean Air Act of 1970, section 112 (Title 42, U.S. Code section 7412)	Addresses emissions of hazardous air pollutants (HAPs). The Clean Air Act requires new sources that emit more than 10 tons per year (tpy) of any specified HAP or more than 25 tpy of any combination of HAPs to apply Maximum Achievable Control. Technology (MACT).	Compliant. The total combined formaldehyde emissions from all sources is 5.08 tpy, which is less than 10 tpy. The total combined HAPs from all sources is 11.31 tpy, which is less than 25 tpy. ⁴⁴
40 Code of Federal Regulations (CFR) Part 63, Subpart YYYY, "National Emission Standard for Hazardous Air Pollutants for Stationary Combustion Turbines"	Establishes national emission limitations and operating limitations for HAP emissions from stationary combustion turbines located at major sources of HAP emissions, and requirements to demonstrate initial and continuous compliance with the emission and operating limitations.	Compliant. The total combined formaldehyde emissions from all sources is 5.08 tpy, which is less than 10 tpy. The total combined HAPs from all sources is 11.31 tpy, which is less than 25 tpy. Therefore, this subpart is not applicable because AEC would not be a major source for HAPs emissions. ⁴⁵
STATE		
California Safe Drinking Water and Toxic Enforcement Act of 1986, Health and Safety Code section 25249.5 et seq. (Proposition 65, 1986)	Establishes thresholds of exposure to carcinogenic substances above which Proposition 65 exposure warnings are required.	Compliant. An incremental cancer risk greater than 10 in 1 million from a project should be regarded as suggesting a potentially significant carcinogenic impact on public health. The Proposition 65 significance level applies separately to each cancer-causing substance, whereas Staff determines significance based on the total risk from all the cancer-

⁴⁴ Ex. 2014, p. 4.8-2.

⁴⁵ *Id.*

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION / CONCLUSIONS
		causing pollutants to which the individual might be exposed in the given case. Thus, the manner in which the significance level is applied by Staff is more conservative (health-protective) than the manner applied by Proposition 65. The significant risk level of 10 in 1 million is also consistent with the level of significance adopted by many California air districts. In general, these air districts would not approve a project with a cancer risk estimate more than 10 in 1 million. ⁴⁶
California Health and Safety Code, Division 20, Article 2, Chapter 6.95, Sections 25531 to 25543.3, "Hazardous Materials Management"); California Code of Regulations Title 19 (Public Safety), Division 2 (California Governor's Office of Emergency Services), Chapter 4.5 (California Accidental Release Prevention [CalARP] Program Detailed Analysis)	Requires facilities storing or handling significant amounts of acutely hazardous materials to prepare and submit Risk Management Plans.	Compliant. HAZARDOUS MATERIALS Condition of Certification HAZ-2 requires that a Risk Management Plan be submitted and approved prior to the delivery of aqueous ammonia. Condition of Certification HAZ-3 requires the development of a safety management plan for the delivery of all liquid hazardous materials, including aqueous ammonia. ⁴⁷
California Health and Safety Code section 41700	States that "a person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or	Compliant. Aqueous ammonia (19 percent ammonia in aqueous solution) would be used to control oxides of nitrogen (NOx) emissions through selective catalytic reduction. Aqueous ammonia provides important benefits to the

⁴⁶ Ex. 2014, p. 4.8-13.

⁴⁷ Ex. 2014, pp. 4.4-17 - 4.4-19.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION / CONCLUSIONS
	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."	operation of the facility and public because it reduces air pollution (see the AIR QUALITY section of this Decision for more information). Aqueous ammonia is the safest form of ammonia to use in the reduction of NOx air pollution because spills are easy to contain, reducing potential environmental and public health impacts. ⁴⁸
California Health and Safety Code Section 44300 et seq., The Air Toxics "Hot Spots" Information and Assessment Act of 1987	Requires participation in the inventory and reporting program at the local air pollution control district level. These sections require that, based on results of a health risk assessment (HRA) conducted per California Air Resources Board, Office of Environmental Health Hazard Assessment guidelines, toxic contaminants do not exceed acceptable levels.	Compliant. The maximum cancer risk and non-cancer hazard index (both acute and chronic) for operations emissions from the AEC estimated independently by the Applicant, Staff, and the SCAQMD are all within acceptable levels. ⁴⁹
California Public Resources Code section 25523(a)); Title 20 California Code of Regulations sections 2301–2309 and Division 2 Chapter 5, Article 1; California Health and Safety Code section 39650 et seq.	Require a quantitative health risk assessment for new or modified sources, including power plants that emit one or more toxic air contaminants (TACs).	Compliant. A quantitative health risk assessment was conducted for AEC by Staff and Applicant. ⁵⁰
LOCAL		
South Coast Air Quality Management District (SCAQMD) Rule 1401 (New Source Review of Toxic Air Contaminants)	Specifies limits for maximum individual cancer risk (MICR), cancer burden, and noncancer acute and chronic hazard index (HI) from new permit units, relocations, or modifications to existing permit units which emit TACs.	Compliant. The MICR, cancer burden, and noncancer acute and chronic HI are all below proscribed limits. ⁵¹

⁴⁸ Ex. 2014, pp. 4.4-1; 4.4-17 - 4.4-19.

⁴⁹ Ex. 2014, p. 4.8-3.

⁵⁰ *Id.*

⁵¹ *Id.*

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION / CONCLUSIONS
SCAQMD Rule 1403 (Asbestos Emissions from Demolition/Renovation Activities)	Specifies work practice requirements to limit asbestos emissions from building demolition and renovation activities, including the removal and associated disturbance of asbestos-containing materials.	Compliant. To reduce the potential risk associated with the removal of asbestos and ACM, the Applicant would comply with all requirements outlined in SCAQMD Rule 1403, which requires the notification and special handling of ACM during demolition activities. See the Construction Impacts section above for details of the Applicant's compliance. ⁵²
SCAQMD Rule 212(c)(3) (Standards for Approving Permits and Issuing Public Notice)	Requires public notification if the MICR, based on Rule 1401, exceeds one in 1 million (1×10^{-6}), due to a project's proposed construction, modification, or relocation for facilities with more than one permitted source, unless the applicant can show the total facility-wide MICR is below 10 in 1 million (10×10^{-6}).	Compliant. Both the MICR and the total facility-wide MICR for the AEC are below proscribed limits. ⁵³

Staff's health risk analysis for the AEC found no potentially significant adverse impacts for any receptors, including sensitive receptors. In arriving at this conclusion, Staff testified that its analysis complies with all directives and guidelines from the California Environmental Protection Agency Office of Environmental Health Hazard Assessment and the California Air Resources Board. In addition, Staff's assessment takes into account the most sensitive individuals in the population. Using extremely conservative (health-protective) exposure and toxicity assumptions, Staff's analysis demonstrates that members of the public potentially exposed to TACs of this project, including sensitive receptors such as the elderly, infants, and people with pre-existing medical conditions, would not experience any acute or chronic significant health risk or any significant cancer risk as a result of that exposure.⁵⁴

Staff incorporated every conservative assumption called for by state and federal agencies responsible for establishing methods for analyzing public health impacts. The results of that analysis indicate that there will be no direct or cumulative significant public health impact on any population in the area. The

⁵² Ex. 2014, pp. 4.8-4; 4.8-15.

⁵³ Ex. 2014, pp. 4.8-4.

⁵⁴ Ex. 2014, pp. 4.8-26.

evidentiary record shows that construction and operation of the AEC will comply with all applicable LORS regarding long-term and short-term project impacts in the area of public health.⁵⁵

The evidence further shows that the Applicant, Staff, and the South Coast Air Quality Management District each performed independent screening level risk assessments. Each concluded that no significant public health effects are expected from project construction or operation.⁵⁶

AGENCY AND PUBLIC COMMENTS

No comments were received in the area of public health.

FINDINGS OF FACT

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

1. Construction and operation of the Alamitos Energy Center 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 Alamitos Energy Center construction equipment is short-term and will not result in long-term carcinogenic or non-carcinogenic health effects.
3. Exposure to Alamitos Energy Center 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 at the Alamitos Energy Center will be mitigated to insignificant levels by implementing Conditions of Certification **AQ-SC3** and **AQ-SC4** 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.

⁵⁵ Ex. 2014, pp. 4.8-26.

⁵⁶ Exs. 1608; 1500; 2014.

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 Alamitos Energy Center's potential health effects due to emissions of toxic air contaminants were conducted by the Applicant, Staff, and the South Coast Air Quality Management 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. Compliance with South Coast Air Quality Management District Rule 1403, will reduce the potential impacts associated with asbestos removal during demolition of what remains of Alamitos Generating Station Unit 7, below a significant level.
11. Cumulative impacts from non-criteria (i.e., toxic) pollutants were analyzed in accordance with the provisions of California Environmental Quality Act and are not found to be significant.
12. Operation of the Alamitos Energy Center will not cause a cumulatively significant health effect.
13. Cumulative public health impacts from noncriteria pollutant emissions can be significant only if other emissions sources are close enough to the Alamitos 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.

CONCLUSIONS OF LAW

We therefore conclude that:

1. Emissions of noncriteria pollutants from the construction and operation of the Alamitos Energy Center do not pose a significant direct, indirect, or cumulative adverse public health risk.

2. The Alamitos Energy Center will comply with the applicable laws, ordinances, regulations, and standards specified in the Public Health section of **Appendix A**.

D. WORKER SAFETY AND FIRE PROTECTION

INTRODUCTION

This section of the Decision focuses on whether the Alamitos Energy Center's (AEC) proposed health and safety plans are in compliance with all applicable laws, ordinances, regulations, and standards (LORS) and thus adequate to protect industrial workers. We also address the availability and adequacy of fire protection and emergency response services.

This topic was uncontested. Evidence on the topic of worker safety and fire protection is contained in Exhibits 1016, 1032, 1041, 1070, 1500, 1054, 1056, 1070, 1426, 1500-1508, 2000, 2012, 3025, and 3043-3047.¹

SETTING

The AEC facility will be located in the City of Long Beach within an industrial area that is currently within the service area of the Long Beach Fire Department (LBFD). There are a total of 23 fire stations within the City of Long Beach. The closest station to the AEC site is Station #22 of the LBFD located at 6340 Atherton Street, approximately 1.5 miles away. The total response time from the moment a call is made to the point of arrival at the site is approximately 3-5 minutes. The next closest station is Station #14, located at 5200 Eliot Avenue, about 2 miles away, with a response time of approximately 5 minutes.²

The first responders to a hazardous materials incident would be from Station #22 of the LBFD. If needed, a full hazardous material response would be provided by the LBFD Hazardous Materials Response Team (LBFD-HMRT) located at LBFD Station #19, located at 3559 Clark Avenue, approximately 5.0 miles away. The LBFD-HMRT is capable of handling any hazardous materials-related incident at the AEC facility and would have a response time of around 10 minutes. The LBFD could also call upon mutual aid agreements with the Los Angeles County Fire Department and the Orange County Fire Authority.³

In addition to construction and operations worker safety issues, the potential exists for exposure to contaminated soil during site preparation. The Phase I Environmental Site Assessment (ESA) conducted for this site in 2015 concluded that the areas beneath existing structures may have environmental conditions that would require remediation

¹ 11/15/16 RT 26:10 – 32:15.

² Ex. 2000, p. 4.14-2.

³ Ex. 2000, p. 4.14-3.

and that this should be assessed during the time these structures are removed. To address the possibility that soil contamination would be encountered during construction of AEC, Conditions of Certification **WASTE-3** and **WASTE-4** require a registered professional engineer or geologist to be available during soil excavation and grading to ensure proper handling and disposal of contaminated soil. If any contaminated soil were identified, then the proper personal protective equipment (PPE) would be provided by the project owner as needed. See the **WASTE MANAGEMENT** section of this Decision for a more detailed analysis of waste management.⁴

PROJECT DESCRIPTION

For general project description, including location of the facility and the equipment to be installed, please see the **PROJECT DESCRIPTION** section of this Decision.

ENVIRONMENTAL ANALYSIS

Thresholds of Significance

Two issues are assessed in **WORKER SAFETY AND FIRE PROTECTION**:

1. The potential for impacts on the safety of workers during site preparation, construction, and operations activities, and
2. Availability of and potential impacts on fire prevention/protection, emergency medical response, and hazardous materials spill response services during site preparation, construction, and operations of the facility.

Worker safety issues are thoroughly addressed by California Occupational Safety and Health Administration (Cal/OSHA) regulations. If all LORS are followed, workers will be adequately protected. Therefore, to meet the standard for review and determination of significant impacts on workers, the analysis must evaluate whether or not the Applicant has demonstrated a dedication to implementing all pertinent and relevant Cal/OSHA requirements.⁵

Regarding fire prevention matters, we evaluate the on-site fire-fighting systems proposed by the Applicant and the time needed for off-site local fire departments to respond to a fire, medical, or hazardous material emergency at the AEC power plant site. The evidence evaluates the local fire department capabilities and response time in each area and determines if they are adequately trained, manned, and equipped to respond to the needs of a power plant. We then determine if the presence of the power

⁴ Ex. 2000, p. 4.14-3.

⁵ *Id.*

plant would cause a significant impact on the local fire department. If so, the Applicant must mitigate this impact by providing increased resources to the fire department.⁶

IMPACT ASSESSMENT AND MITIGATION

Worker Safety

Industrial environments are potentially dangerous during construction and operation. The AEC encompasses construction and operation of a natural gas-fired facility. Workers will be exposed to hazards typical of construction and operation of a gas-fired combined-cycle facility, including exposure to loud noises, moving equipment, trenches, and confined space entry and egress problems. The workers may experience falls, trips, burns, lacerations, and numerous other injuries. They have the potential to be exposed to falling equipment or structures, chemical spills, hazardous waste, fires, explosions, and electrical sparks and electrocution. AEC must therefore have well-defined policies and procedures, training, and hazard recognition and control to minimize such hazards and to protect workers.⁷

The evidence details the type and content of various plans that 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 and approved 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 Protection System Impairment Program,” and other general safety procedures will be prepared for both the construction and operation phases of the project.⁸

We impose Conditions of Certification **WORKER SAFETY-1** and **-2** to ensure that these measures will be developed and implemented.

Occupational Safety and Health Administration (OSHA) and Cal/OSHA do not require that an employer hire or provide for a Construction Safety Officer. However, both OSHA and Cal/OSHA standards require 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

⁶ Ex. 2000, p. 4.14-4.

⁷ *Id.*

⁸ Ex. 2000, pp. 4.14-4 – 4.14-8.

power plant construction, we impose Condition of Certification **WORKER SAFETY-3** to require 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.⁹

As discussed above, the hazards associated with the construction industry are well documented. Accidents, fires, and a worker death have occurred at Energy Commission-certified power plants due to the failure to recognize and control safety hazards and the inability to adequately supervise compliance with occupational safety and health regulations. Safety problems were documented by Energy Commission staff (Staff) in safety audits conducted in 2005 at several power plants under construction.¹⁰

In order to reduce and/or eliminate these hazards, a professional Safety Monitor is needed on site to track compliance with Cal/OSHA regulations and periodically audit safety compliance during construction, commissioning, and the transition to operational status. We impose Condition of Certification **WORKER SAFETY-4** to require the appointment and qualification of a Safety Monitor to coordinate and implement the Construction and Operation Safety and Health Programs, as well as investigate any safety-related incidents and emergency responses.

Fire Hazards

Fire Facilities

Construction and operation of AEC 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, flammable liquids, explosions, and overheated equipment, may cause small fires. Major structural fires in areas without automatic fire detection and suppression systems are unlikely to develop at power plants. Fires and explosions of natural gas or other flammable gasses or liquids are rare. Compliance with all LORS will be adequate to assure protection from all fire hazards.¹¹

AEC will rely on both on-site and local fire protection services. In fact, the on-site fire protection system provides the first line of defense for such occurrences. The Construction Fire Prevention Plan (Condition of Certification **WORKER SAFETY-1**)

⁹ Ex. 2000, pp. 4.14-10 – 4.14-11.

¹⁰ *Id.*

¹¹ Ex. 2000, p. 4.14-11.

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.¹²

Construction

During construction, portable fire extinguishers will be placed throughout the site at appropriate intervals and periodically maintained, and safety procedures and training will be implemented according to the guidelines of the Construction Fire Prevention Plan. In addition, the AEC site is within the boundary of the existing Alamitos Generating Station (AGS), which has an existing hydrant system that could provide extra protection during construction.¹³

Operation

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 now required under Condition of Certification **WORKER SAFETY-7**), and all Cal/OSHA requirements. Fire suppression elements will include both fixed and portable fire extinguishing systems. The fire protection system will be comprised of the existing fire loop and the extension to cover the new AEC structures. Any new fire hydrants connected to the new loop will be installed per NFPA requirements. The primary fire water will be supplied from the existing Long Beach Water Department pipeline interconnection that enters the site along Studebaker Road. The secondary source will be supplied from a new 600,000 gallon onsite fire/service water tank. Two new electric pumps will be installed to serve the AEC. Each fire pump will be connected to an independent electrical supply.¹⁴

The fire protection system will have fire detection sensors and monitoring equipment that will 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 will be located throughout the facility at code-approved intervals. These systems are standard requirements by the NFPA and the Uniform Fire Code, and Staff testified that they will ensure adequate fire protection.¹⁵

¹² Ex. 2000, p. 4.14-11.

¹³ Ex. 2000, p. 4.14-12.

¹⁴ *Id.*

¹⁵ Ex. 2000, p. 4.14-13.

Access

LBFD requested that a secondary emergency access be provided to allow for fire department vehicles and personnel to access the site should the main gate be blocked for any reason. The site has an existing emergency secondary access but it does not currently meet local ordinances for an emergency access road. Therefore, to ensure adequate emergency access to the site by the fire department, Condition of Certification **WORKER SAFETY-6** requires the project owner to identify, provide, and maintain for the lifetime of the project, a secondary access to the site that meets the requirements of the Long Beach Municipal Code for emergency response vehicles.¹⁶

Natural Gas Compressor Enclosure Fire Protection Systems

The natural gas compressors for the AEC will be enclosed to mitigate for noise impacts. Two natural gas compressor enclosures will be located at the east end of the facility.¹⁷ There is the potential for explosion if leakage of natural gas were to occur inside the enclosures. Condition of Certification **WORKER SAFETY-8** treats the compressor enclosure as an industrial enclosure and requires compliance with 49 CFR §§192.163 through 192.173 and §§192.731 through 192.736 which describe fire protection measures. These requirements mandate a system of continuous measurement of natural gas levels in the enclosure with a mechanism for automatic ventilation if the concentrations of natural gas approach a small fraction of the combustible limit. 49 CFR §192 also mandates the ability to shut off the supply of natural gas from the transmission pipeline through double block and bleed valves and to vent internal gas piping to a safe outside location in the event of a fuel release large enough to create a hazard. This requirement provides a means of controlling a release of fuel that exceeds the capability of the forced draft protections to control for combustible conditions. The evidence indicates that this approach provides the most effective fire and explosion mitigation and provides the most effective protection of both workers and the public.¹⁸

Emergency Medical Services Response

Staff conducted a statewide survey to determine the frequency of Emergency Medical Services (EMS) response and off-site fire-fighter response for natural gas-fired power plants in California. The evidence shows that incidents at power plants that require fire or EMS response are infrequent and represent an insignificant impact on local, urban fire departments. Most EMS calls to gas-fired power plants are for cardiac emergencies

¹⁶ Ex. 2000, p. 4.14-13.

¹⁷ Ex. 1500, Figure 2.1.2.

¹⁸ Ex. 2000, pp. 4.14-13 – 4.14-14.

that are non-work-related incidents, including those involving visitors. The need for prompt response within a few minutes is well documented in the medical literature. The evidence indicates that the quickest medical intervention can only be achieved with the use of an on-site automatic external defibrillator (AED); the response from an off-site provider would take longer regardless of the provider location. Many private and public locations (e.g., airports, factories, government buildings) maintain on-site cardiac defibrillation devices.¹⁹

We impose Condition of Certification **WORKER SAFETY-5**, requiring the project owner to maintain a portable AED at the AEC site and to train all operational power plant employees in its use, and to train a representative number of workers on site during construction and commissioning.²⁰

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 (1) past projects; (2) other current projects; and (3) probable future projects.²¹

Staff reviewed the potential for the construction and operation of the AEC combined with existing and expected industrial facilities to impact the fire and emergency service capabilities of the and found that there was no significant potential for cumulative impacts to occur.²²

Based upon the evidentiary record, it appears that while it is *possible* that during a major earthquake (or other major event) response to the power plant could impact the LBFD, the *likelihood* of that happening is less than significant. Therefore, the AEC project will not have a significant incremental or cumulatively considerable impact on the LBFD's ability to respond to a fire or other emergency, therefore, no mitigation is required.²³

In summary, we find that the AEC's Project Construction Safety and Health Program and a Project Operations and Maintenance Safety and Health Program required by Conditions of Certification **WORKER SAFETY-1**, and **-2** and the requirements of Conditions of Certification **WORKER SAFETY-3** through **-8**, incorporate sufficient

¹⁹ Ex. 2000, p. 4.14-14.

²⁰ *Id.*

²¹ Cal. Code Regs., tit. 14, § 15130.

²² Ex. 2000, p. 4.14-15.

²³ *Id.*

measures to ensure adequate levels of industrial safety such that the AEC will not present a significant impact on the local fire department.

COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

Implementation of various federal, state, and local LORS regulate worker safety and fire protection. Industrial workers at the facility operate equipment and handle hazardous materials daily and may face hazards that can result in accidents and serious injury. Protection measures are employed to eliminate or reduce these hazards or to minimize the risk through special training, protective equipment, and procedural controls. Implementation of these LORS suffices to reduce these hazards to minimal levels. 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.²⁴

Worker Safety and Fire Protection Table 1 contains a list of the LORS applicable to the construction and operation of the AEC, as well as the LORS related to the provision of fire protection and emergency response services.

**Worker Safety and Fire Protection Table 1
Laws, Ordinances, Regulations, and Standards**

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
FEDERAL		
Title 29 U.S. Code (USC) section 651 et seq. (Occupational Safety and Health Act of 1970)	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 U.S.C. § 651 et seq.)	Compliant. Conditions of Certification WORKER SAFETY-1 through -8 , incorporate sufficient measures to ensure adequate levels of industrial safety. Specifically, Condition WORKER SAFETY-3 requires the Construction Safety Supervisor to assure compliance with Cal/OSHA, the Project Construction Health and Safety Program, and all the plans identified in Conditions of Certification WORKER SAFETY-1 and -2 . ²⁵
Title 29 Code of Federal Regulation (CFR) sections 1910.1 to 1910.1500,	Defines the procedures for promulgating regulations and conducting inspections to implement and enforce safety and	Compliant. Conditions of Certification WORKER SAFETY-1 through -8 , incorporate sufficient measures

²⁴ Ex. 2000, p. 4.14-1- 4.14.-2.

²⁵ Ex. 2000, pp. 4.14-16 – 4.14-20.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
"Occupational Safety and Health Administration Safety and Health Standards"	health procedures to protect workers, particularly in the industrial sector.	to ensure adequate levels of industrial safety. Specifically, Condition WORKER SAFETY-3 requires the Construction Safety Supervisor to assure compliance with Cal/OSHA, the Project Construction Health and Safety Program, and all the plans identified in Conditions of Certification WORKER SAFETY-1 and -2 . ²⁶
29 CFR section 1952.7, "California"	Provides 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.	Compliant. Conditions of Certification WORKER SAFETY-1 through -4 , incorporate sufficient measures to ensure adequate enforcement of industrial safety. Specifically, Condition WORKER SAFETY-3 requires the Construction Safety Supervisor to assure compliance with Cal/OSHA, the Project Construction Health and Safety Program, and all the plans identified in Conditions of Certification WORKER SAFETY-1 and -2 . ²⁷
STATE		
Title 8, California Code of Regulations, section 330 et seq. (Cal/OSHA regulations)	Requires 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.	Compliant. Conditions of Certification WORKER SAFETY-1 through -4 , incorporate sufficient measures to ensure adequate enforcement of industrial safety. Specifically, Condition WORKER SAFETY-3 requires the Construction Safety Supervisor to assure compliance with Cal/OSHA, the Project Construction Health and Safety Program, and all the plans identified in Conditions of Certification WORKER SAFETY-1 and -2 . ²⁸

²⁶ Ex. 2000, pp. 4.14-16 – 4.14-20.

²⁷ Ex. 2000, pp. 4.14-16 – 4.14-19.

²⁸ *Id.*

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
Title 24 of the California Code of Regulations	This title incorporates the current provisions of the California Building Standards Code.	Compliant. Condition of Certification GEN-1 in the FACILITY DESIGN section of this Decision, requires design, construction, and inspection of the project in accordance with the applicable edition of the California Building Standards Code (CBSC), also known as Title 24, California Code of Regulations, The applicable edition of the CBSC is currently the 2013 Triennial edition, but if the successor edition of this code (i.e., the 2016 Triennial Edition, effective January 1, 2017) is in effect when initial project engineering designs are submitted for the CBO's review, the successor edition becomes the applicable edition. ²⁹
California Health and Safety Code section 25500 et seq.	Presents Hazardous Materials Release Response Plans and Inventory requirements for threshold quantity of listed acutely hazardous materials at a facility.	Compliant. Condition of Certification HAZ-2 requires that a Risk Management Plan be submitted and approved. ³⁰
Health and Safety Code sections 25500 to 25541	Requires a Hazardous Material Business Plan detailing emergency response plans for hazardous materials emergency at a facility, because "[t]here is an increasing capacity to both minimize and respond to releases of toxic air contaminants and hazardous materials once they occur, and to formulate efficient plans to evacuate citizens if these discharges or releases cannot be contained. However, programs designed to prevent these accidents are the most effective way to protect the community health and safety and the environment. These programs should anticipate the circumstances that could result in their occurrence and require the	Compliant. Condition of Certification WORKER SAFETY-2 requires emergency response plans for hazardous materials emergency at a facility. There is a very small potential for ammonia concentrations of 75 ppm to reach just off-site to the north, south, east and west. Secondary containment exposure area will be limited to 50 square feet for both the 40,000 and 30,000 gallon tanks to ensure that the plume concentrations of 75 ppm do not migrate off site. This will not pose a significant risk to any off-site members of the public. However, the Rosie the Riveter school is located on the current

²⁹Ex. 2000, p. 5.1-6.

³⁰Ex. 2000, pp. 4.4-17 - 4.4-19.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
	taking of necessary precautionary and preemptive actions, consistent with the nature of the hazardous materials handled by the facility and the surrounding environment.” (Health & Safety Code § 25531, subd. (c).)	<p>Alamitos Generating Station site but is located outside the current security fence. Evidence indicated that the ammonia plume would have a small probability of extending over to the Rosie the Riveter school in the case of a catastrophic ammonia release. Condition of Certification HAZ-10 requires accidental ammonia release notification and response procedures to be communicated to Rosie the Riveter school. The notification requirement includes adding a procedural step to the AEC’s Emergency Action Plan (EAP) requiring that plant personnel notify the school immediately of a catastrophic aqueous ammonia spill. The plant must also provide a safety procedure to the school indicating what best-practice actions to take during a catastrophic release to avoid exposure of personnel to a potential air-borne plume. These two items will ensure the safety of any sensitive receptors located at the school in the very unlikely event of an accidental ammonia release. See Conditions of Certification HAZ-1, HAZ-2, HAZ-3, HAZ-7, HAZ-8 and HAZ-10 in the HAZARDOUS MATERIALS section of this Decision.³¹</p>
LOCAL		
City of Long Beach Municipal Code Title 18, Chapter 18.48, Fire Code	The City of Long Beach Fire Department currently enforces the 2013 version of the California Fire Code.	Compliant. The information in the Supplemental Application for Certification indicates that the project intends to meet the fire protection and suppression requirements of the 2013 California Fire Code, all applicable recommended NFPA standards (including Standard

³¹ Ex. 2000, pp. 4.4-9 – 4.4-24; 4.14-17 - 4.14-18.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
		850 addressing fire protection at electric generating plants), and all Cal/OSHA requirements. ³²
National Fire Protection Association (NFPA) 850, "Recommended Practice for Fire Protection for Electric Generating Plants and High Voltage Direct Current Converter Stations"	This industry standard addresses fire protection at electrical generating stations.	Compliant. The information in the AFC indicates that the project intends to meet the fire protection and suppression requirements of the 2013 (or the most current version at the time of construction and operation) California Fire Code, all applicable recommended NFPA standards (including Standard 850 addressing fire protection at electric generating plants), and all Cal/OSHA requirements. ³³
NFPA 56 (adopted 2012)	NFPA 56 is the "Standard for Fire and Explosion Prevention During Cleaning and Purging of Flammable Gas Piping Systems."	Compliant. The information in the AFC indicates that the project intends to meet the fire protection and suppression requirements of the 2013 (or the most current version at the time of construction and operation) 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. ³⁴

AGENCY AND PUBLIC COMMENTS

We received no public comments on the topic of worker safety and fire protection.

FINDINGS OF FACT

Based on the evidence, we make the following findings:

1. Industrial workers are exposed to potential health and safety hazards on a daily basis.

³² Ex. 2000, p.4.14-2; pp. 4.14-12 – 4.14-14.

³³ *Id.*

³⁴ *Id.*

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 Alamitos Energy Center will employ an on-site Safety Monitor during construction and operation.
4. The Alamitos Energy Center will include on-site fire protection and suppression systems as the first line of defense in the event of a fire.
5. The Long Beach Fire Department will provide fire protection and emergency response services to the Alamitos Energy Center and will be able to respond to the site within an acceptable time.
6. The Alamitos Energy Center will not have a significant direct, indirect, or cumulative impact on worker safety, fire protection and emergency services.
7. The Alamitos Energy Center will meet or exceed the requirements of the most recently adopted edition of the California Fire Code and applicable National Fire Protection Association standards.

CONCLUSIONS OF LAW

The Alamitos Energy Center will not create significant health and safety impacts to workers, and will comply with all applicable laws, ordinances, regulations, and standards.

E. HAZARDOUS MATERIALS MANAGEMENT

INTRODUCTION

This section considers whether the construction and operation of the Alamitos Energy Center (AEC) 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. This section also considers whether mitigation measures are necessary to ensure compliance with applicable laws, ordinances, regulations, and standards (LORS).

Evidence on the topic of hazardous materials management is contained in Exhibits 1014, 1032, 1041, 1054, 1056, 1070, 1415, 1470, 1500-1508, 2000, 2003, 2004, 2005, 2013, 3025, and 3043-3047.²

SETTING

The existing AEC site is located on a gently sloping coastal plain, and the topography of the site ranges approximately from 8 to 15 feet above mean sea level. The location of elevated terrain is often an important factor in assessing potential exposure. An emission plume resulting from an accidental release may impact high elevations before impacting lower elevations.³

Meteorological conditions, including wind speed, wind direction, and air temperature, affect both the extent to which accidentally released hazardous materials would be dispersed into the air and the direction in which they would be transported. This affects the potential magnitude and extent of public exposure and associated health risks. When wind speeds are low and the atmosphere stable, dispersion is severely reduced and can lead to increased localized public exposure.⁴ 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. Recorded wind speeds and directions are

¹ The **WORKER SAFETY AND FIRE PROTECTION** portion of this Decision addresses the protection of workers from such risks. (Ex. 2000, p. 4.4-1.)

² 11/15/16 RT 26:10 – 32:15; 78:18 – 105:11.

³ Ex. 2000, p. 4.4-5.

⁴ *Id.*

described in the **AIR QUALITY** section of the Supplemental Application for Certification (SAFC).⁵

The location of the population in the area surrounding a project site may also have a major bearing on health risk. The nearest sensitive receptor would be the Rosie the Riveter Charter High School, a privately owned and operated school located adjacent to the site entrance on the existing Alamitos Generating Station (AGS) site. The nearest school off site is the Kettering Elementary School, located 0.8 miles from the AGS entrance to the northwest of the site. The nearest residents are approximately 0.22 miles west of the site along E. Eliot Street, and additional residences are approximately 0.39 miles east of the site along El Dorado Drive.⁶

The location and setting of the AEC is described in more detail in the **PROJECT DESCRIPTION** section of this Decision.

PROJECT DESCRIPTION

The AEC is described in more detail in the **PROJECT DESCRIPTION** section of this Decision.

ENVIRONMENTAL ANALYSIS

Thresholds of Significance

The evidence identifies the method used to assess risks posed by hazardous materials. This method included the following steps:

1. A review of chemicals, the amounts proposed for on-site use, the manner by which they would be transported to the facility and facility storage tanks, plans for material storage on site, as well as a determination of the need and appropriateness of their use.
2. 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 assessment.
3. 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.

⁵ Exs. 1504, Appendix 5.5A; 2000, p. 4.4-4.

⁶ *Id.*

4. 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.
5. An analysis of the theoretical impacts on the public of a worst-case spill of hazardous materials even with the mitigation measures in place.⁷

Impact Assessment and Mitigation

During the construction phase of the project, the only hazardous materials proposed for use are paints, paint thinners, cleaners, solvents, sealants, gasoline, diesel fuel, motor oil, hydraulic fluid, lubricants, and welding gases. Any impact of spills or other releases of these materials would be limited to the site because of the small quantities involved, their infrequent use (and therefore reduced chances of release), and/or the temporary containment berms used by contractors. Petroleum hydrocarbon-based motor fuels, mineral oil, lube oil, and diesel fuels all have very low volatility and represent limited off-site hazards even in larger quantities.⁸

During operations, hazardous chemicals such as cleaning agents, lube oil, mineral insulating oil, and other various chemicals will be used and stored in relatively small amounts and represent limited off-site hazards because of their small quantities, low volatility, and/or low toxicity. The list of all chemicals proposed to be used and stored at AEC is attached to the Conditions of Certification as **Hazardous Materials Table 1**.⁹

The AEC will be limited to using, storing, and transporting only those hazardous materials listed in **Hazardous Materials Table 1** according to Condition of Certification **HAZ-1**. After removing from consideration those chemicals that pose no risk of an off-site impact, we review the remaining hazardous materials: natural gas and aqueous ammonia.¹⁰

We note that the Intervenor, Los Cerritos Wetlands Land Trust, submitted rebuttal testimony that disagreed with the Applicant's assertions regarding "hazardous materials" but the testimony focused on waste management rather

⁷ Ex. 2000, p. 4.4-6.

⁸ Ex. 2000, p. 4.4-7.

⁹ *Id.*

¹⁰ *Id.*

than hazardous materials management.¹¹ Therefore, we address that testimony in the **WASTE MANAGEMENT** section of this Decision.

Natural Gas

Project operations will involve the handling (but not storage) of large quantities of natural gas. Natural gas will be delivered by Southern California Gas (SoCalGas) via the existing onsite gas pipelines that serve the currently operating AGS. The pipelines and onsite metering station will continue to be owned and operated by SoCalGas. A new gas metering station constructed in the northeastern corner of the site will serve the AEC. The existing SoCalGas metering station will remain in service during AEC construction but the Applicant plans to demolish it after AGS Units 1-6 are decommissioned.¹²

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, Condition of Certification **HAZ-9** prohibits the use of flammable gas blows for pipe cleaning at the facility, thereby precluding the presence of an explosive mixture. Energy Commission staff (Staff) testified that existing LORS are sufficient to ensure minimal risks of pipeline failure. Additionally, the new gas metering station which is located entirely on-site will greatly reduce the risk of impacts to the public from a rupture or failure.¹³

Aqueous Ammonia

Aqueous ammonia will be used to control oxides of nitrogen (NOX) emissions resulting from natural gas combustion. AEC will have two 19-percent aqueous ammonia aboveground horizontal storage tanks on site for the four simple-cycle generator turbines and two combined-cycle generator turbines. The AEC will use a 30,000 gallon tank for the simple-cycle power block and a 40,000 gallon tank

¹¹ Ex. 3004, Section 2.

¹² Ex. 2000, p. 4.4-8.

¹³ Ex. 2000, p. 4.4-8.

for the combined-cycle power block. The two aboveground storage tanks are separated from each other and would not suffer from a common cause failure.¹⁴

The evidence indicates 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. 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.¹⁵

Several benchmark exposure levels were used to assess the potential off-site impacts associated with an accidental release of aqueous ammonia. These include:

1. the lowest concentration posing a risk of lethality, 2,000 parts per million (ppm);
2. the concentration immediately dangerous to life and health, a level of 300 ppm;
3. the emergency response planning guideline level 2 of 150 ppm; and
4. the level of 75 ppm, considered by Staff to be without serious adverse effects on the public for a one-time exposure.

If the potential exposure associated with a potential release exceeds 75 ppm at any public receptor, we would assume that the potential release poses a risk of significant impact. The evidentiary record contains a detailed discussion of the exposure criteria considered by Staff, as well as their applicability to different populations and exposure-specific conditions.¹⁶

The Applicant performed an off-site consequence analysis for a worst-case accidental release of aqueous ammonia. This involved the failure and complete discharge of the larger of the two aboveground storage tanks. The evidence cites the modeling parameters used. The Applicant's analysis showed that no aqueous ammonia concentrations exceeding 75 ppm would occur off-site. Staff conducted an independent analysis and concluded that there was a very small potential of aqueous ammonia concentrations of 75 ppm to reach just off-site to the north, south, east and west. Staff recommended that the secondary containment exposure area be limited to 50 square feet for both of the aboveground storage

¹⁴ Ex. 2000, p. 4.4-9.

¹⁵ *Id.*

¹⁶ Ex. 2000, Appendix A; p. 4.4-9.

tanks to ensure that the plume concentrations of 75 ppm would not migrate off-site and would not pose a significant risk to any off-site members of the public. Condition of Certification **HAZ-4** ensures that the aqueous ammonia secondary containment structure includes essential design elements to prevent a worst-case spill from producing significant off-site impacts.¹⁷

The Rosie the Riveter Charter High School sits just outside the AGS security fence which also encloses the AEC site. Staff's modeling indicated a small possibility that a catastrophic aqueous ammonia release could extend to the Rosie the Riveter Charter High School. Condition of Certification **HAZ-10** requires an accidental aqueous ammonia release notification and response procedure be communicated to Rosie the Riveter Charter High School. The notification requirement requires plant personnel to notify the school immediately of a catastrophic aqueous ammonia spill. AEC will provide a safety procedure to the school indicating what best-practice actions to take during a catastrophic release to avoid exposure to a potential air-borne plume. These two items ensure the safety of the sensitive receptors located at the school in the very unlikely event of an accidental aqueous ammonia release.¹⁸

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.¹⁹

The engineered safety features which will be used at the AEC 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;

¹⁷ Ex. 2000, p. 4.4-10.

¹⁸ *Id.*

¹⁹ Ex. 2000, p. 4.4-11.

- Physical separation of stored chemicals in isolated containment areas with a non-combustible partition 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.²⁰

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 including prevention of accidental releases and responses to an accidental release of aqueous ammonia), and **HAZ-3** (development of a safety management plan).²¹

Worker training programs, process safety management programs, and compliance with all applicable health and safety LORS 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

²⁰ Ex. 2000, p. 4.4-11.

²¹ *Id.*

- Emergency response actions including facility evacuation, hazardous material spill clean-up, and fire prevention.²²

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.²³

The first responders to a hazardous materials incident at AEC would be from Station #22 of the Long Beach Fire Department (LBFD). If needed, a full hazardous materials response would be provided by either LBFD Station #19 or Station #24. The evidence shows that the LBFD response team would be capable of responding to a hazardous materials emergency call from the AEC. Additional information on worker training, safety procedures, and first responders is included in the **Worker Safety and Fire Protection** section. 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.²⁴

Transportation Risk Reduction

The evidence shows that transport of aqueous ammonia poses the predominant risk to off-site receptors. Aqueous 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 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.²⁵

Aqueous ammonia will be delivered to the facility in U.S. Department of Transportation (DOT)-certified vehicles with design capacities of 7,000 gallons. These high-integrity vehicles are designed to DOT Code MC307/DOT 407 and are suitable for hauling caustic materials such as aqueous ammonia. Condition of Certification **HAZ-5** requires that only tankers that meet or exceed these

²² Ex. 2000, pp. 4.4-11 – 4.4-12.

²³ Ex. 2000, p. 4.4-12.

²⁴ *Id.*

²⁵ Ex. 2000, p. 4.4-13.

specifications will be used for aqueous ammonia deliveries.²⁶ Condition of Certification **TRANS-4** ensures that the project owner contracts with licensed hazardous materials and waste hauler companies that comply with all applicable regulations.²⁷

California Highway Patrol approved the route to the site from Interstate 405 (I-405) to State Route 22 (SR 22/7th Street), west along 7th Street, and then south on Studebaker Road to the AEC entrance.²⁸ Condition of Certification **HAZ-6** restricts hazardous materials deliveries to this route. Operation of the AEC will require about six aqueous ammonia deliveries per month. Each delivery would travel approximately 0.97 mile from I-405 to the facility. This results in a maximum of 5.85 miles of tanker truck travel in the project area per month during peak operation (with a full load) and an average of approximately 70 miles of tanker truck travel per year.²⁹

Data show that the actual risk of a truck accident rate for the transportation of materials in the U.S. is between 0.64 and 13.92 per 1,000,000 miles traveled on well-designed roads and highways. Staff's transportation risk assessment model shows that there is a risk of a release of hazardous materials of one in 1,333,333 for one trip from I-405 and a total annual risk of about one in 18,000 for 72 deliveries over a year. We find that, 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.³⁰

Seismic Issues

The evidentiary record contains an analysis of the risk of failure of a hazardous materials storage tank, secondary containment systems and electrically controlled valves and pumps. The analysis reviewed the codes and standards applicable to the design and construction of storage tanks and containment areas to withstand a large earthquake. The AEC facility will be designed and constructed to comply with the most recent California Building Standards Code (2013 or later), including seismic standards. The evidence indicates that tank

²⁶ Ex. 2000, p. 4.4-13.

²⁷ *Id.*

²⁸ Ex. 2000, p. 4.4-14.

²⁹ Ex. 2000, p. 4.4-14.

³⁰ *Id.*

failures during seismic events are not probable and do not represent a significant risk to the public.³¹

Site Security

The hazardous materials used by the AEC are listed by several federal agencies (i.e. U.S. Environmental Protection Agency, U.S. Department of Homeland Security, U.S. Department of Energy) in vulnerability assessments requiring special site security measures to prevent unauthorized access. The evidence 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.³²

Perimeter security measures include fencing, security guards, security alarms, breach detectors, motion detectors, video or camera systems, and site access procedures for employees and vendors. The Applicant 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.³³

Site access for vendors will be strictly controlled. Consistent with current state and federal regulations governing the transport of hazardous materials, the project owner is required, through the use of contractual language with vendors, to ensure that vendors supplying hazardous materials strictly adhere to the 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. Department of Energy, or the North American Electric Reliability Corporation after consultation with appropriate law enforcement agencies and the project owner. Conditions of Certification **HAZ-7** and **HAZ-8** embody these requirements for both the construction and operation phases.³⁴

³¹ Ex. 2000, p. 4.4-15.

³² *Id.*

³³ Ex. 2000, pp. 4.4-16 – 4.4-17.

³⁴ Ex. 2000, p. 4.4-16.

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 (1) past projects; (2) other current projects; and (3) probable future projects.³⁵

The evidence contains an analysis of potential cumulative impacts. For present purposes, a significant cumulative impact is the simultaneous uncontrolled release of hazardous materials from multiple locations in a form (gas or liquid) that could cause a significant impact. The evidence shows that the chances of one uncontrolled release occurring are remote. The chance of two or more occurring simultaneously, with resulting airborne plumes comingling to create a significant impact, is even more remote. Staff believes the risk to the public is insignificant.³⁶

The evidence demonstrates that the AEC poses a minimal risk of creating off-site impacts from an accidental release. The evidence establishes that it is highly unlikely that accidental aqueous ammonia releases from the AEC and another nearby project would occur simultaneously. We therefore find that the AEC facility will not cause or contribute a cumulatively considerable impact.³⁷

COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

The following federal, state, and local laws and policies apply to the protection of public health and hazardous materials management. The record examines the project's compliance with these requirements.

³⁵ Cal. Code Regs., tit. 14, § 15130.

³⁶ Ex. 2000, p. 4.4-17.

³⁷ *Id.*

Hazardous Materials Management Table 3 Laws, Ordinances, Regulations, and Standards³⁸

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
FEDERAL		
The Superfund Amendments and Reauthorization Act of 1986 (42 U.S.C. section 9601 et seq.), amending the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 U.S.C. sections 9601-9675.)	Related to the Emergency Planning and Community Right To Know Act (also known as SARA Title III) (42 U.S.C. §§ 11001 - 11050.)	Compliant. The requirements of SARA Title III are reflected in the California Health and Safety Code, sections 25531 et seq. and 25545. See Conditions of Certification HAZ-1, HAZ-2, HAZ-3, HAZ-7, HAZ-8 and HAZ-10. ³⁹
The Clean Air Act Amendments (CAA) of 1990 (42 U.S.C. section 7401 et seq., as amended)	Establishes 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 requirements of the CAA are reflected in the California Health and Safety Code, section 25531, et seq.	Compliant. See Conditions of Certification HAZ-1, HAZ-2, HAZ-3, HAZ-7, HAZ-8 and HAZ-10. ⁴⁰
The CAA section on risk management plans (42 U.S.C. section 7412(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.	Compliant. See Conditions of Certification HAZ-1, HAZ-2, HAZ-3, HAZ-7, HAZ-8 and HAZ-10. ⁴¹
Title 49, Code of Federal Regulations, part 172.800	The U.S. Department of Transportation (DOT) requirement that suppliers of hazardous materials prepare and implement security plans. These requirements are reflected in the California Health and Safety Code, section 25531, et seq	Compliant. See Conditions of Certification HAZ-5 and HAZ-6. ⁴²
Title 49, Code of Federal Regulations, part 1572, subparts A	Requires suppliers of hazardous materials to ensure that all their hazardous materials drivers are in compliance with personnel background security checks. These requirements are reflected	Compliant. See Conditions of Certification HAZ-5 and HAZ-6. ⁴³

³⁸ Ex. 2000, pp. 4.4-2 – 4.4-3.

³⁹ Ex. 2000, pp. 4.4-17 - 4.4-24.

⁴⁰ *Id.*

⁴¹ *Id.*

⁴² *Id.*

⁴³ Ex. 2000, pp. 4.4-17 - 4.4-18.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
and B;	in the California Health and Safety Code, section 25531, et seq	
Title 40, Code of Federal Regulations, part 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 counter measures plan to be prepared for facilities that store oil that could leak into navigable waters.	Compliant. See the SOIL and WATER section of this Decision. ⁴⁴
Title 49, Code of Federal Regulations, part 190	Outlines gas pipeline safety program procedures.	Compliant. See California Public Utilities Commission General Order 112-F and 58-A, below. ⁴⁵
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.	Compliant. See California Public Utilities Commission General Order 112-F and 58-A, below. ⁴⁶
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.	Compliant. See California Public Utilities Commission General Order 112-F and 58-A, below. ⁴⁷
Title 6, Code of Federal Regulations, part 27	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.	Compliant. In order to ensure that neither this project nor a shipment of hazardous material is the target of unauthorized access, Conditions of Certification HAZ-7 and HAZ-8 address both construction security and operation security plans. These plans would require implementation of site security measures consistent with this regulation. ⁴⁸

⁴⁴ Ex. 2000, pp.4.9-1 - 4.9-30.

⁴⁵ Ex. 2000, pp. 4.4-8; 4.4-17 - 4.4-18.

⁴⁶ Ex. 2000, pp. 4.4-8; 4.4-13; 4.4-17 - 4.4-18.

⁴⁷ Ex. 2000, pp. 4.4-8; 4.4-13 – 4.4-14; 4.4-17 - 4.4-18.

⁴⁸ Ex. 2000, pp. 4.4-15 - 4.4-18.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
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.	Compliant. See Conditions of Certification HAZ-1, HAZ-2, HAZ-3, HAZ-7, HAZ-8 and HAZ-10 . See also the WORKER SAFETY and FIRE PROTECTION section of this Decision. ⁴⁹
California Health and Safety Code, sections 25531 to 25543.3	The California Accidental Release Program (CalARP) requires the preparation of a RMP and off-site consequence analysis and submittal to the local Certified Unified Program Agency for approval.	Compliant. Condition of Certification HAZ-2 requires that a RMP be submitted and approved prior to the delivery of aqueous ammonia. Condition of Certification HAZ-3 requires the development of a safety management plan for the delivery of all liquid hazardous materials, including aqueous ammonia. ⁵⁰
California Health and Safety Code, section 41700	Provides that “a person shall not 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.”	Compliant. Aqueous ammonia (19 percent ammonia in aqueous solution) would be used to control oxides of nitrogen (NOx) emissions through selective catalytic reduction. Aqueous ammonia provides important benefits to the operation of the facility and public because it reduces air pollution (see the AIR QUALITY section of this Decision for more information). Aqueous ammonia is the safest form of ammonia to use in the reduction of NOx air pollution because spills are easy to contain, reducing potential environmental and public health impacts. ⁵¹
Title 19, California Code of Regulations, Division 2, Chapter 4.5, “California Accidental Release Prevention (CalARP) Program Detailed Analysis”	Sets forth the list of regulated substances and thresholds, the requirements for owners and operators of stationary sources concerning the prevention of accidental releases, the accidental release prevention programs approved under Section 112 of the federal Clean Air Act (CAA) Amendments of 1990 and mandated under the CalARP Program, and how the CalARP Program relates to the state’s Unified Program.	Compliant. There is a very small potential of aqueous ammonia concentrations of 75 ppm to reach just off-site to the north, south, east and west. Secondary containment exposure area will be limited to 50 square feet for both the 40,000 and 30,000 gallon tanks to ensure that the plume concentrations of 75 ppm do not migrate off site. This would not pose a significant risk to any off-site members of the public.

⁴⁹ Ex. 2000, pp. 4.4-17 - 4.4-24; 4.14-1 – 4.14-20.

⁵⁰ Ex. 2000, pp. 4.4-17 - 4.4-20.

⁵¹ Ex. 2000, pp. 4.4-1 – 4.4-10; 4.4-17 - 4.4-24.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
		<p>However, the Rosie the Riveter Charter High School is located on the current AGS site but is located outside the current security fence. Evidence indicated that the ammonia plume would have a small probability of extending over to the Rosie the Riveter Charter High School in the case of a catastrophic ammonia release.</p> <p>Condition of Certification HAZ-10 requires accidental ammonia release notification and response procedures to be communicated to Rosie the Riveter Charter High School. The notification requirement includes adding a procedural step to the AEC's Emergency Action Plan (EAP) requiring that plant personnel notify the school immediately of a catastrophic aqueous ammonia spill. The plant must also provide a safety procedure to the school indicating what best-practice actions to take during a catastrophic release to avoid exposure of personnel to a potential air-borne plume. These two items will ensure the safety of any sensitive receptors located at the school in the very unlikely event of an accidental ammonia release. See Conditions of Certification HAZ-1, HAZ-2, HAZ-3, HAZ-7, HAZ-8 and HAZ-10. See also the WORKER SAFETY and FIRE PROTECTION section of this Decision.⁵²</p>
Title 22, California Code of Regulations, Chapter 14, Article 10, "Tank Systems"	The design requirements set forth for new tank construction and secondary containment requirements for hazardous chemicals and waste.	Compliant. Condition of Certification HAZ-4 requires that the aqueous ammonia storage tank be designed to appropriate standards. ⁵³
California Safe Drinking Water and Toxic Enforcement Act of 1986 ("Proposition 65") (Health & Safety Code section	Prevents certain chemicals that cause cancer and reproductive toxicity from being discharged into sources of drinking water.	Compliant. See the SOIL and WATER section of this Decision. ⁵⁴

⁵² Ex. 2000, pp. 4.4-9 – 4.4-10; 4.4-17 - 4.4-24; 4.14-1 – 4.14-20.

⁵³ Ex. 2000, pp. 4.4-18 - 4.4-20.

⁵⁴ Ex. 2000, pp. 4.9-1 – 4.9-30; 4.4-17 - 4.4-19.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
25249.5 et seq.) California Public Utilities Commission General Order 112-F and 58-A	Contains standards for gas piping construction and service.	Compliant. Evidence indicates that existing LORS are sufficient to ensure minimal risks of pipeline failure. Additionally, the new gas metering station would be located entirely on-site, which greatly reduces the risks of impacts to the public from a rupture or failure. Condition of Certification HAZ-9 prohibits the use of flammable gas blows for pipe cleaning at the facility, including during construction and after the start of operations. Fuel gas pipe cleaning and purging shall adhere to NFPA code 56, the Standard for Fire and Explosion Prevention during Cleaning and Purging of Flammable Gas Piping Systems, with special emphasis on sections 4.4.1 (written procedures for pipe cleaning and purging) and 6.1.1.1 (prohibition on the use of flammable gas for cleaning or purging at any time). ⁵⁵
LOCAL		
Long Beach Municipal Code Title 18, Chapter 18.48, Fire Code	The city of Long Beach has adopted the latest California Fire Code with amendments found in Title 18, Chapter 18.48.	Compliant. The Long Beach Environmental Health Bureau (LBEHB) has responsibility for the Certified Unified Program Agency programs. The LBEHB is responsible for administering the Hazardous Materials Business Plans (HMBP), Risk Management Plan (RMP), and Spill Prevention Control and Countermeasure (SPCC) plan filed by businesses located within the city. The LBEHB engages the Long Beach Fire Department (LBFD), as a participating agency, to perform inspections at established facilities to verify that hazardous materials are properly stored and handled and that the types and quantities of materials reported in a firm's HMBP are accurate. Construction and design of the buildings and vessels storing hazardous materials meet the appropriate seismic requirements of the latest adopted (2013 or later) California

⁵⁵ Ex. 2000, pp. 4.4-8; 4.4-17 - 4.4-24.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
		Building Code and the latest adopted (2013 or later) California Fire Code. ⁵⁶

The evidence indicates and we find that construction and operation of the AEC project will comply with all applicable LORS regarding long-term and short-term project impacts in the area of hazardous materials management.⁵⁷

AGENCY AND PUBLIC COMMENT

No public comments were received on the topic of Hazardous Materials Management.

FINDINGS OF FACT

Based on the evidence, we make the following findings:

1. The Alamitos Energy Center will use hazardous materials, including aqueous ammonia and natural gas, during construction and operation.
2. Explosion and fire from natural gas and the accidental release of aqueous ammonia are the major public health and safety dangers associated with the Alamitos Energy Center's use of hazardous materials.
3. Energy Commission 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. Condition of Certification **HAZ-10** ensures the safety of any sensitive receptors near the Alamitos Energy Center and at the Rosie the Riveter school in the very unlikely event of an accidental ammonia release.

⁵⁶ Ex. 2000, pp. 4.4-4; 4.4-17 - 4.4-19.

⁵⁷ Ex. 2000, p. 4.4-17.

7. 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.
8. The project owner will ensure that truck deliveries of aqueous ammonia are restricted to the delivery routes specified in Condition of Certification **HAZ-6**.
9. The likelihood of cumulative impacts originating from simultaneous releases of hazardous materials from the Alamitos Energy Center and another project resulting in airborne plumes comingling to create a significant impact is statistically remote and insignificant.
10. Local emergency responders are adequately equipped to deal with hazardous materials accidents at the Alamitos Energy Center.
11. Implementation of the mitigation measures described in the evidence and contained in the Conditions of Certification ensures that the Alamitos Energy Center will not cause significant impacts to public health and safety as a result of the handling, use, storage, or transportation of hazardous materials.
12. With implementation of the Conditions of Certification, the Alamitos Energy Center will comply with all applicable laws, ordinances, regulations, and standards related to hazardous materials management as identified in the evidentiary record.

CONCLUSIONS OF LAW

With the implementation of the Conditions of Certification listed in the pertinent part of **Appendix A**, the Energy Commission concludes, that the storage, use, handling, and transportation of hazardous materials associated with the Alamitos Energy Center project will comply with all laws, ordinances, regulations, and standards, and will not result in any significant direct, indirect, or cumulative adverse public health and safety impacts.

F. WASTE MANAGEMENT

INTRODUCTION

This section reviews the Alamitos Energy Center (AEC) 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. This section also considers whether mitigation measures are necessary to ensure compliance with applicable laws, ordinances, regulations, and standards (LORS).

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. Environmental Protection Agency identification numbers and to contract with registered hazardous waste transporters to transfer hazardous waste to appropriate Class I disposal facilities.² Non-hazardous wastes are degradable 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.³

This topic was contested. Evidence on the topic of waste management is contained in Exhibits 1011, 1014, 1026, 1032, 1041, 1070, 1424, 1468, 1500-1508, 2000, and 3043-3047.⁴

SETTING

For detailed information regarding the setting of the AEC project, please refer to the **PROJECT DESCRIPTION** section of this Decision.

PROJECT DESCRIPTION

For detailed information regarding the design and features of the Project, please refer to the **PROJECT DESCRIPTION** section of this Decision.

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, § 66261.1 et seq.

² Cal. Code Regs., tit. 22, § 66262.10 et seq.

³ Cal. Code Regs., tit. 14, § 17200 et seq.

⁴ 11/15/16 RT 26:10 – 32:15.

ENVIRONMENTAL ANALYSIS

Thresholds of Significance

Waste management analysis addresses existing project site conditions and the potential for contamination associated with prior activities on or near the project site, as well as the impacts from the generation and management of wastes during project construction and operation.

Impact Assessment and Mitigation

The construction of the AEC project over approximately 57 months will produce a variety of mixed wastes, such as soil, wood, metal, concrete, etc. Hazardous waste will include asbestos debris, heavy metal dust, used oils, universal wastes, solvents, and empty hazardous waste material containers. Universal wastes are hazardous wastes that contain mercury, lead, cadmium, copper, and other substances hazardous to human and environmental health. Examples of universal wastes are batteries, fluorescent tubes, and some electronic devices.⁵

Operation and maintenance of the plant and associated facilities will generate a variety of wastes, including a small quantity of hazardous wastes. The AEC turbine units will use selective catalytic reduction and oxidation catalyst equipment and chemicals to control air emissions that will also generate both solid and hazardous waste. Nonhazardous and hazardous waste will be recycled where practical and non-recyclable waste will be deposited in a Class III landfill or Class I landfill.⁶

The Energy Commission's facility 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 its linear facilities (e.g., wastewater pipeline, transmission line). 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.⁷

The Applicant submitted a Phase I ESA, dated July 2015, which was performed in accordance with the American Society for Testing and Materials Standard

⁵ 11/15/16 RT 26:10 – 32:15.

⁶ *Id.*

⁷ Ex. 2000, pp. 4.13-8 – 4.13-9.

Practice E 1527-13 for ESAs and encompassed the entire 71-acre AGS project site footprint.⁸

Recognized Environmental Conditions (REC) is the presence or likely presence of any hazardous substances or petroleum products on a property under the conditions that indicate an existing release, past release, or a material threat of a release of any hazardous substance or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The RECs and Historical RECs for AGS are listed in **Waste Management Table 1**.⁹

Waste Management Table 1
Recognized Environmental Conditions¹⁰

AREAS OF CONCERN	TYPE OF CONTAMINATION	REGULATING AGENCY
North and Central Retention Ponds	Nickel, Vanadium, Arsenic, polychlorinated biphenyls	DTSC – by stipulated order
North fuel oil storage tank	Fuel oil	Long Beach Fire Department or Los Angeles County Public Works Department
Well AW-33	Elevated levels of Nickel	Long Beach Fire Department
Large Aboveground Storage Tank Peaker Unit 7	Residual jet fuel	Long Beach Fire Department, Los Angeles County Public Works Department
Aboveground and underground pipelines	Fuel oil, PCB	Long Beach Fire Department
Groundwater	Metals, VOCs, 1,4-dioxane, PCE, TCE, and TCA	DTSC – thru corrective action
Several spills	Petroleum	DTSC – thru corrective action
Concrete degreasing pits		DTSC – thru corrective action
Near retention basin	TCE, PCE	DTSC – thru corrective action
Machine shop area	Various chemicals	DTSC – thru corrective action
Transformers	PCB	DTSC
Number of Underground Storage Tanks	Various	Long Beach Fire Department, Los Angeles County Public Works Department

⁸ Ex. 2000, p. 4.13-10.

⁹ *Id.*

¹⁰ Ex. 2000, pp. 4.13-10 – 4.13-11.

AREAS OF CONCERN	TYPE OF CONTAMINATION	REGULATING AGENCY
Contaminated Groundwater	Various	DTSC
Site buildings built before 1980.	Asbestos	South Coast Air Quality Management District (SCAQMD)
Site buildings built before 1980.	Lead	Cal/OSHA
Trash Dump around South Retention Basin	Asbestos	DTSC, SCAQMD
Area around Units 3 & 4	Agricultural chemicals	DTSC

The demolition and construction activities on the AEC will come in contact with many of the RECs listed in **Waste Management Table 1**. Construction of AEC will require eight acres of lay down throughout the AGS parcel and 10 acres of laydown area near AGS Units 5 and 6. A portion of the AEC facility will occupy the land where the decommissioned AGS Unit 7 was located. The AEC Power Block 2 will be located on the northern portion of the AEC site next to the San Gabriel River. Stormwater runoff from the power block areas will be directed to new oil/water separators and sumps and directed to the existing south retention basin and discharged to the Los Cerritos Channel via existing stormwater outfalls (see **SOIL AND WATER RESOURCES** in this Decision).¹¹

There are three wastewater retention basins and a boiler chemical cleaning basin located along the eastern edge of AEC immediately adjacent to the San Gabriel River. The retention basins currently collect and store non-hazardous wastewater from the AGS facility. Wastewater generated at the various station facilities is conveyed to these basins through a series of pipelines. The North and Central retention basins were installed in the 1960s. The South Basin was constructed in the mid-1960s. The Boiler Chemical Cleaning Basins (BCCB) was constructed in 1978. Stormwater will be collected in the existing South Basin.

Southern California Edison (SCE) was the original owner of the AGS facility and implemented a Water Quality Monitoring Program in response to a stipulated Final Judgement handed down by the Superior Court of California, Los Angeles County, case number BC 121219 in February 1995. SCE agreed to close the

¹¹ Ex. 2000, p. 4.13-11.

North, Central, and South retention basins and BCCB according to Chapter 15 of Title 22, California Code of Regulations.¹²

The BCCB do not appear to have any issues, but the North, Central and South retention basins will require additional cleanup. SCE believes that the southern third of the South Basin may be the site of a 1940/1950 garbage waste dump. SCE is currently working with the DTSC on the closure of the AGS retention basins. Most of the soil removal/cleanup procedures for the retention basins in SCE's Water Quality Monitoring Program were approved by the Department of Toxic Substance Control.¹³

Storage Tanks

The Long Beach Fire Department Bureau of Fire Prevention and the Long Beach Department of Health and Human Services formed a Certified Unified Program Agency (CUPA). Among the responsibilities of the CUPA is the regulatory oversight of the underground and aboveground storage tank programs. Information related to the removal, upgrade, repair, and monitoring of underground and aboveground storage tanks will be submitted to the CUPA for review. Prior to transportation of tanks off-site, an industrial hygienist or marine chemist must certify the tanks are inert and safe for travel. Additionally, when the tanks or piping are removed, ground soil samples must be collected and tested by the industrial hygienist or marine chemist with a report provided to the CUPA.¹⁴

Condition of Certification **WASTE-1** requires the project owner to provide relevant information to the CUPA, and where necessary, requires completion of Phase II ESA investigations to evaluate the extent of contamination and identify the necessary remedial actions. The project owner will also be required to coordinate with the appropriate regulatory authority that would otherwise regulate the activity, if not for the in-lieu authority of the Energy Commission. This condition further requires monitoring and reporting on the progress of remediation of the various areas of contamination located on the AEC site.¹⁵

Condition of Certification **WASTE-1** also requires the project owner to adequately characterize the site and complete remediation in accordance with applicable laws, ordinances, regulations, and standards (LORS) and under the oversight of

¹² Ex. 2000, p. 4.13-11.

¹³ Ex. 2000, p. 4.13-12.

¹⁴ *Id.*

¹⁵ *Id.*

the Energy Commission compliance project manager (CPM), in consultation with the DTSC, and the Long Beach Fire Department.¹⁶

Subsurface impacts

Based on historic use of the AEC site, there is potential for subsurface impacts. The Applicant will use the Soil Management Plan (SMP) to provide guidance for proper identification, handling, onsite management, and disposal of impacted soil that may be encountered during construction. The SMP must describe the procedures to be followed during soil disturbances to protect the health of workers who may encounter adverse soil conditions. Condition of Certification **WASTE-2** puts procedures in place to properly handle and dispose of contaminated soil.¹⁷

Asbestos

Asbestos will be generated from the demolition of tanks, vessels and piping. Flaking or peeling lead-based paint could also be present in facilities to be demolished. The project owner will comply with Title 17, Cal. Code Regs., Division 1, Chapter 8, Section 35001, to maintain a safe environment for workers. Condition of Certification **WASTE-3** requires the project owner to submit the South Coast Air Quality Management District's (SCAQMD) Asbestos Notification Form to the CPM and SCAQMD for review prior to removal and disposal of asbestos. The demolition of AGS Unit 7 could generate 150 tons of asbestos. All friable asbestos (Class I) collected during demolition activities must be disposed of as hazardous waste.¹⁸

Soil Contamination

Conditions of Certification **WASTE-4** and **WASTE-5** address any soil contamination contingency that may be encountered during project construction. Condition of Certification **WASTE-4** requires that an experienced and qualified professional engineer or professional geologist be available for consultation if contaminated soil not previously identified is encountered. If contaminated soil is identified, Condition of Certification **WASTE-5** requires that the professional engineer or professional geologist inspect the site, determine what is required to characterize the nature and extent of contamination, and provide a report to the CPM with findings and recommended actions. Condition of Certification **WASTE-**

¹⁶ Ex. 2000, p. 4.13-12.

¹⁷ Ex. 2000, p. 4.13-13.

5 also addresses identification and investigation of any previously unidentified soil or groundwater contamination that may be encountered.¹⁹

Construction and Demolition Impacts and Mitigation

Site preparation, demolition of AGS Unit 7, and construction of the AEC power plant and associated facilities will last approximately 56 months and generate both nonhazardous and hazardous wastes in solid and liquid forms. Before demolition of AGS Unit 7 and construction can begin, the project owner will be required to develop and implement a Demolition and Construction Waste Management Plan, per Condition of Certification **WASTE-6**. With implementation of conditions of certification and project compliance with LORS, the evidence shows that no significant impacts will occur as a result of project waste management activities.²⁰

Non-hazardous solid wastes will be generated during construction and demolition of AGS Unit 7, 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 I, II or III landfills in accordance with applicable LORS.²¹

Non-hazardous liquid wastes include sanitary wastes and dust suppression, drainage, and equipment wash water. Sanitary wastes will be collected in portable, self-contained toilets and pumped periodically for disposal at an appropriate facility. Potentially contaminated equipment wash and/or test water will be contained at designated areas, tested to determine if hazardous, and either discharged to the storm water retention basin (if nonhazardous) or transported to an appropriate treatment/disposal facility. See the **SOIL AND WATER RESOURCES** section of this Decision for further discussion of wastewater management.²²

The AEC will also produce hazardous waste during demolition of AGS Unit 7 and construction. The generation of hazardous wastes anticipated during construction includes empty hazardous material containers, solvents, waste paint, oil absorbents, used oil, oily rags, batteries, and cleaning wastes. The amount of

¹⁹ Ex. 2000, p. 4.13-14.

²⁰ *Id.*

²¹ *Id.*

²² Ex. 2000, p. 4.13-16.

waste generated will be minor if handled in the manner identified in the **Waste Management Table 2.**²³

WASTE MANAGEMENT TABLE 2
Demolition & Construction Hazardous Waste²⁴

Waste Generated	Demolition	CCGT Construction	SCGT construction	Disposal Method
Used and waste lube oil	45 drums	100 drums	10,000 gallons	Recycle at a permitted Treatment, Storage, Disposal Facility (TSDF)
Oily rags, oil sorbent excluding lube oil flushes	100 pounds per month	50 pounds per month	800 pounds per month	Recycle or dispose at a permitted TSDF
Residual fuel oil from decommissioned storage tanks and piping	150 gallons			Recycle at a permitted TSDF
Spent lead batteries	5 batteries per year	5 batteries per year	4 batteries per year	Store no more than 10 batteries (up to one year) then recycle offsite
Spent alkaline batteries	10 batteries per month	100 batteries per month	60 batteries per month	Recycle or dispose offsite at an Universal Waste Destination Facility

²³ Ex. 2000, p. 4.13-16.

²⁴ Ex. 2000, p. 4.13-17.

Asbestos waste	Minimum 25 tons			Recycle with vendors or dispose at a Class I landfill if hazardous
Waste oil	40 gallons per month	50 gallons per month	60 gallons per month	Dispose at a permitted TSDF
Solvents, paints, adhesives		125 pounds per month	16 gallons per month	Recycle or dispose at a permitted TSDF
Universal waste solids Fluorescent and mercury vapor lamps (Metals and PCBs)	100 pounds per year	30 pounds per year	70 pounds per year	Recycle or dispose offsite at an Universal Waste Destination Facility

Wastes will be accumulated on site for less than 90 days and then properly manifested, transported, and disposed of at a permitted hazardous waste management facility by licensed hazardous waste collection and disposal companies. The evidentiary record indicates that all wastes will be disposed of in accordance with all applicable LORS. The project owner is required by Condition of Certification **WASTE-7** to notify the CPM if any construction waste management-related enforcement action is initiated by a regulatory agency.²⁵

In the event that construction excavation, grading, or trenching activities for the AEC project encounter potentially contaminated soils and/or require specific handling pursuant to hazardous waste management LORS, Conditions of Certification **WASTE-4** and **WASTE-5** will adequately cover any soil contamination contingency that may be encountered during project construction and will ensure compliance with LORS. According to testimony, compliance with LORS is sufficient to ensure that no significant impacts will occur as a result of project waste management activities at the AEC site. We find that there will be no significant construction impacts from AEC waste management.²⁶

²⁵ Ex. 2000, p. 4.13-16.

²⁶ *Id.*

Operation Impacts and Mitigation

The AEC will generate non-hazardous and hazardous wastes in both solid and liquid forms under normal operating conditions. The evidentiary record contains an analysis of the operation waste streams, expected waste volumes and generation frequency, and management methods proposed. Before operations can begin, the project owner is required to develop, submit for CPM approval, and implement an Operation Waste Management Plan pursuant to Condition of Certification **WASTE-8**.²⁷

The AEC will generate approximately 35 tons per year of non-hazardous solid wastes during operation. Wastes will include routine maintenance wastes (such as used air filters, spent deionization resins, sand and filter media), as well as domestic and office wastes (such as office paper, newsprint, aluminum cans, plastic, and glass). All non-hazardous wastes will be recycled to the extent possible, and non-recyclable wastes will be regularly transported off site to a local solid waste disposal facility. Non-hazardous liquid wastes will be generated during facility operation as discussed in the **SOIL AND WATER RESOURCES** section of this Decision.²⁸

The generation of hazardous wastes expected during routine operation includes used hydraulic fluids, oils, greases, oily filters and rags, spent selective catalytic reduction catalysts, cleaning solutions and solvents, and batteries. In addition, spills and unauthorized releases of hazardous materials or hazardous wastes may generate contaminated soils or materials that may require corrective action and management as hazardous waste. Proper hazardous material handling and good housekeeping practices will help keep spill wastes to a minimum. Nevertheless, Condition of Certification **WASTE-9** requires the project owner/operator to report, clean up, and remediate as necessary, any hazardous materials spills or releases in accordance with all applicable federal, state, and local requirements. Hazardous material management, spill reporting, containment, and spill control and countermeasures plan provisions for the project are provided in the **HAZARDOUS MATERIALS MANAGEMENT** section of this Decision.²⁹

The amount of hazardous wastes generated during the operation of AEC will be minor, with source reduction and recycling of wastes implemented whenever possible. Lubricating oil and filters will be recycled with a certified recycler.

²⁷ Ex. 2000, p. 4.13-17.

²⁸ Ex. 2000, p. 4.13-18.

²⁹ *Id.*

Selective catalytic reduction catalyst units and carbon monoxide catalyst units will be recycled via the manufacturer. The hazardous wastes will be temporarily stored on site, then transported off site by licensed hazardous waste haulers, and recycled or disposed at authorized disposal facilities in accordance with established standards applicable to generators of hazardous waste.³⁰ The project owner is required by Condition of Certification **WASTE-6** to notify the CPM whenever the owner becomes aware of any waste management-related enforcement action initiated by a regulatory agency.³¹

Potential Impacts on Waste Disposal Facilities

The AEC project will generate approximately 3,000 tons (4,290 cubic yards) of solid waste during demolition and construction and approximately 35 tons (50 cubic yards) per year of nonhazardous waste during operation. Nonhazardous waste that is not recycled will be disposed of in a California Class III landfill. Condition of Certification **WASTE-6** requires the project owner to submit a construction waste management plan for approval by the CPM and for review by the City of Long Beach that demonstrates that the AEC will meet the construction waste diversion requirements of 60 percent pursuant to the California Green Building Standards Code.³²

Under Condition of Certification **WASTE-8**, the AEC project will be required to divert all materials from the solid waste stream that could reasonably be diverted for alternate uses. In addition, the project owner must submit to the CPM for approval an Operation Waste Management Plan describing how the project would divert to the maximum extent feasible the recyclable materials that would be generated during construction and operation of the facility. The CPM and County of Los Angeles will determine if the plan is diverting recyclables to the maximum extent feasible.³³

The Applicant identified a Class III waste disposal facility in the project vicinity that is available to receive the project's non-hazardous solid wastes: the Savage Canyon Landfill in Whittier. The evidence shows that there is sufficient capacity at this facility to handle the project's construction and operation solid wastes which is less than one percent of the available landfill capacity over the life of the

³⁰ Title 22, Cal. Code Regs., § 66262.10 et seq.

³¹ Ex. 2000, p. 4.13-17.

³² California Code of Regulations, title 24, part 11, chapter 5, division 5.4, section 5.408.1

³³ Ex. 2000, p. 4.13-20.

project. Therefore, disposal of the AEC project's solid wastes will not significantly impact the capacity or remaining life of these facilities.³⁴

Hazardous wastes will be transported to one of two available Class I landfills: Clean Harbors Buttonwillow Landfill in Kern County or 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 AEC's hazardous wastes during its operating lifetime. The total amount of hazardous wastes generated by the AEC project will consume less than one percent of the 15 million cubic yards of remaining permitted capacity at these two facilities. Therefore, impacts from disposal of AEC generated hazardous wastes will have a less than significant impact on the remaining capacity at Class I landfills.³⁵

CUMULATIVE IMPACTS

A project may result in a significant adverse cumulative impact when 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 (1) past projects; (2) other current projects; and (3) probable future projects.³⁶

The "AEC Master List of Cumulative Projects" in the **PROJECT DESCRIPTION** section of this Decision lists 59 projects that include transportation, energy, commercial and residential projects. The wastes generated by these projects and the AEC will incrementally increase the volumes of waste requiring offsite management and disposal at local or regional landfills.³⁷

The projects vary in size and there is no data detailing the amount of waste that would be generated from the various projects, however, all residential, commercial and industrial projects will have to comply with Cal Recycle, Mandatory Commercial Recycling, Title 14, Division 7, Chapter 9.1 and CALGreen. Compliance with these recycling regulations will reduce solid waste disposal in the City of Long Beach and Los Angeles County. All of the projects listed will be required to recycle 60 percent of their generated waste thereby minimizing the amount of waste generated from new and current projects.³⁸

³⁴ Ex. 2000, p. 4.13-21.

³⁵ *Id.*

³⁶ Cal. Code Regs., tit. 14, § 15130.

³⁷ *Id.*

³⁸ Ex. 2000, p. 4.13-22.

We find that the AEC's proposed waste management and mitigation measures (implementation of source reduction, waste minimization and recycling); along with our conditions of certification ensure that wastes generated by the project will not result in a cumulatively considerable impact to local waste management and disposal facilities. The AEC's contribution will be significantly less than one percent of the county's waste generation.³⁹

Intervenor, Los Cerritos Wetlands Land Trust (LCWLT) submitted rebuttal testimony which argues that Applicant's assertion that "the AEC 'would not result in significant cumulative waste management impacts' is unsubstantiated."⁴⁰ However, the record, including Staff's analysis cited above, contains abundant evidence that the waste generated by the AEC will have less than significant impacts.⁴¹

LCWLT rebuttal testimony also discusses waste management issues under the heading Hazardous Materials.⁴² In both of these sections of LCWLT's rebuttal testimony, and in opening testimony,⁴³ LCWLT relies on a staff report and adopted findings from the California Coastal Commission regarding the South Bay Power Plant.⁴⁴

LCWLT also submitted evidence in the form of an opinion letter regarding the authority for the demolition of the South Bay Power Plant written by a former assistant chief counsel of the Energy Commission.⁴⁵ There is no mention of the AEC in any of this evidence, or expert testimony that compares the two projects, so its probative value is unclear. The Energy Commission did not license the construction and operation of the South Bay Power Plant or its demolition.

Our finding that the AEC will not result in a cumulatively considerable impact to local waste management and disposal facilities is adequately substantiated in the evidentiary record.⁴⁶ The opinion of a former employee of the Energy

³⁹ Ex. 2000, p. 4.13-22.

⁴⁰ Ex. 3004, Section 7.

⁴¹ Exs 1424; 1500, p. 5.14 et seq.; 2000, p. 4.13-1 et seq.

⁴² Ex. 3004, Section 2.

⁴³ Ex.3005.

⁴⁴ Exs. 3001; 3002.

⁴⁵ Ex. 3012.

⁴⁶ Exs 1424; 1500, p. 5.14 et seq.; 2000, p. 4.13-1 et seq.

Commission is hearsay and is not binding on the Energy Commission, nor is it an Energy Commission Decision. Therefore, it has no precedential value.⁴⁷

We find that the AEC's impacts to local waste management and disposal facilities, when considered in combination with the identified projects, including the demolition of the AGS units 1-6, will not be cumulatively considerable.

COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

The following federal, state, and local environmental LORS have been established to ensure the safe and proper management of both solid and liquid hazardous and nonhazardous wastes in order to protect human health and the environment.

Waste Management Table 3
Laws, Ordinances, Regulations, and Standards⁴⁸

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
FEDERAL		
Title 42, United States Code, section 6901, et seq. Solid Waste Disposal Act of 1965 (as amended and revised by the Resource Conservation and Recovery Act [RCRA] of 1976, et al.)	Establishes requirements for the management of solid wastes (including hazardous wastes), landfills, underground storage tanks, and certain medical wastes. The statute also addresses program administration, implementation, and delegation to states, enforcement provisions, and responsibilities, as well as research, training, and grant funding provisions. RCRA Subtitle C establishes provisions for the generation, storage, treatment, and disposal of hazardous waste, including requirements addressing: generator record keeping practices that identify quantities of hazardous wastes generated and their disposition; waste labeling practices and use of appropriate containers; use of a manifest when transporting wastes; submission of periodic reports to the United States Environmental Protection Agency (U.S. EPA) or other authorized agency; and corrective action to remediate releases of	Compliant. The AEC is required to recycle and/or dispose hazardous and non-hazardous wastes at facilities licensed or otherwise approved to accept the wastes. Because hazardous wastes will be produced during both project construction and operation, the AEC will be required to obtain a hazardous waste generator identification number from the U.S. EPA. The AEC will also be required to properly store, package, and label all hazardous waste; use only approved transporters; prepare hazardous waste manifests; keep detailed records; and appropriately train employees in accordance with state and federal hazardous waste management requirements. ⁴⁹

⁴⁷ Gov. Code § 11425.60.

⁴⁸ Ex. 2000, pp. 4.13-2 – 4.13-7.

⁴⁹ Ex. 2000, p. 4.13-22.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
	<p>hazardous waste and contamination associated with RCRA-regulated facilities. RCRA Subtitle D establishes provisions for the design and operation of solid waste landfills.</p> <p>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.</p>	
Title 40, Code of Federal Regulations (CFR), Subchapter I – Solid Wastes	<p>These regulations were established by the 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.</p> <p>Part 246 addresses source separation for materials recovery guidelines.</p> <p>Part 257 addresses the criteria for classification of solid waste disposal facilities and practices.</p> <p>Part 258 addresses the criteria for municipal solid waste landfills.</p> <p>Parts 260 through 279 address management of hazardous wastes, used oil, and universal wastes (i.e., batteries, mercury-containing equipment, and lamps).</p> <p>The 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 the U.S. EPA.</p>	<p>Compliant. The AEC is required to recycle and/or dispose hazardous and non-hazardous wastes at facilities licensed or otherwise approved to accept the wastes. Because hazardous wastes will be produced during both project construction and operation, the AEC will be required to obtain a hazardous waste generator identification number from U.S. EPA. The AEC will also be required to properly store, package, and label all hazardous waste; use only approved transporters; prepare hazardous waste manifests; keep detailed records; and appropriately train employees in accordance with state and federal hazardous waste management requirements.⁵⁰</p> <p>Conditions of Certification WASTE-1, -2, -3, -4, -5, -7 and -9 require the project owner to ensure that the project site is investigated and remediated as necessary; demonstrate that project wastes are managed properly; and ensure that any future spills or releases of hazardous substances or wastes are properly reported, cleaned-up, and remediated as necessary. Conditions of Certification WASTE-6 and -8 require the project owner to prepare Construction Waste Management and Operation Waste Management Plans detailing the types and volumes of wastes to be generated and how wastes will be managed, recycled, and/or disposed of after generation.⁵¹</p>
Title 49, CFR,	The U.S. Department of Transportation	Compliant. Conditions of Certification

⁵⁰ Ex. 2000, p. 4.13-22.

⁵¹ Ex. 2000, p. 4.13-23.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
Parts 172 and 173 Hazardous Materials Regulations	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.	WASTE-6 and -8 require the project owner to comply with these regulations. ⁵²
STATE		
California Health and Safety Code, Chapter 6.5, sections 25100, et seq. Hazardous Waste Control Act of 1972, as amended	Creates the framework under which hazardous wastes must be managed in California. The law provides for the development of a state hazardous waste program that administers and implements the provisions of the federal RCRA program. It also provides for the designation of California-only hazardous wastes and development of standards (regulations) that are equal to or, in some cases, more stringent than federal requirements. The California Environmental Protection Agency (Cal/EPA) and the 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.	Compliant. The AEC is required to recycle and/or dispose hazardous and non-hazardous wastes at facilities licensed or otherwise approved to accept the wastes. Because hazardous wastes will be produced during both project construction and operation, the AEC will be required to obtain a hazardous waste generator identification number from the U.S. EPA. The AEC will also be required to properly store, package, and label all hazardous waste; use only approved transporters; prepare hazardous waste manifests; keep detailed records; and appropriately train employees in accordance with state and federal hazardous waste management requirements. ⁵³ Conditions of Certification WASTE-1, -2, -3, -4, -5, -7 and -9 require the project owner to ensure that the project site is investigated and remediated as necessary; demonstrate that project wastes are managed properly; and ensure that any future spills or releases of hazardous substances or wastes are properly reported, cleaned-up, and remediated as necessary. Conditions of Certification WASTE-6 and -8 require the project owner to prepare Construction Waste Management and Operation Waste Management Plans detailing the types and volumes of wastes to be generated and how wastes will be

⁵² Ex. 2000, p. 4.13-27; 4.13-28.

⁵³ Ex. 2000, p. 4.13-22.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
		managed, recycled, and/or disposed of after generation. ⁵⁴
<p>Title 22, California Code of Regulations (Cal. Code Regs.), Division 4.5</p> <p>Environmental Health Standards for the Management of Hazardous Waste</p>	<p>Establishes requirements for the management and disposal of hazardous waste in accordance with the provisions of the California Hazardous Waste Control Act and federal RCRA. As with the federal requirements, waste generators must determine if their wastes are hazardous according to specified characteristics or lists of wastes. Hazardous waste generators must obtain identification numbers, prepare manifests before transporting the waste off site, and use only permitted treatment, storage, and disposal facilities. Generator standards also include requirements for record keeping, reporting, packaging, and labeling. Additionally, while not a federal requirement, California requires that hazardous waste be transported by registered hazardous waste transporters. The standards addressed by Title 22, CFR include:</p> <p>Identification and Listing of Hazardous Waste (Chapter 11, sections 66261.1, et seq.)</p> <p>Standards Applicable to Generators of Hazardous Waste (Chapter 12, sections 66262.10, et seq.)</p> <p>Standards Applicable to Transporters of Hazardous Waste (Chapter 13, sections 66263.10, et seq.)</p> <p>Standards for Universal Waste Management (Chapter 23, sections 66273.1, et seq.)</p> <p>Standards for the Management of Used Oil (Chapter 29, sections 66279.1, et seq.)</p> <p>Requirements for Units and Facilities Deemed to Have a Permit by Rule (Chapter 45, sections 67450.1, et seq.)</p> <p>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.</p>	<p>Compliant. The AEC is required to recycle and/or dispose hazardous and non-hazardous wastes at facilities licensed or otherwise approved to accept the wastes. Because hazardous wastes will be produced during both project construction and operation, the AEC will be required to obtain a hazardous waste generator identification number from U.S. EPA. The AEC will also be required to properly store, package, and label all hazardous waste; use only approved transporters; prepare hazardous waste manifests; keep detailed records; and appropriately train employees in accordance with state and federal hazardous waste management requirements.⁵⁵</p> <p>Conditions of Certification WASTE-1, -2, -3, -4, -5, -7 and -9 require the project owner to ensure that the project site is investigated and remediated as necessary; demonstrate that project wastes are managed properly; and ensure that any future spills or releases of hazardous substances or wastes are properly reported, cleaned-up, and remediated as necessary. Conditions of Certification WASTE-6 and -8 require the project owner to prepare Construction Waste Management and Operation Waste Management Plans detailing the types and volumes of wastes to be generated and how wastes will be managed, recycled, and/or disposed of after generation.⁵⁶</p>
California Health and Safety Code, Chapter	The Unified Program consolidates, coordinates, and makes consistent the	Compliant. The AEC is required to recycle and/or dispose hazardous and

⁵⁴ Ex. 2000, p. 4.13-23.

⁵⁵ Ex. 2000, p. 4.13-22.

⁵⁶ Ex. 2000, p. 4.13-23.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
<p>6.11 sections 25404–25404.9</p> <p>Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program)</p>	<p>administrative requirements, permits, inspections, and enforcement activities of the six environmental and emergency response programs listed below:</p> <ul style="list-style-type: none"> Aboveground Storage Tank Program Business Plan Program California Accidental Release Prevention (CalARP) Program Hazardous Material Management Plan / Hazardous Material Inventory Statement Program Hazardous Waste Generator / Tiered Permitting Program Underground Storage Tank Program <p>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). Los Angeles County Department of Environmental Health is the area CUPA.</p> <p>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 are addressed in the Hazardous Materials Management and/or Worker Health and Safety sections of this Decision</p>	<p>non-hazardous wastes at facilities licensed or otherwise approved to accept the wastes. Because hazardous wastes will be produced during both project construction and operation, the AEC will be required to obtain a hazardous waste generator identification number from U.S. EPA. The AEC will also be required to properly store, package, and label all hazardous waste; use only approved transporters; prepare hazardous waste manifests; keep detailed records; and appropriately train employees in accordance with state and federal hazardous waste management requirements.</p> <p>Conditions of Certification WASTE-1, -2, 3, 4, 5, 7 and 9 require the project owner to ensure that the project site is investigated and remediated as necessary; demonstrate that project wastes are managed properly; and ensure that any future spills or releases of hazardous substances or wastes are properly reported, cleaned-up, and remediated as necessary. (Ex. 2000, p. 4.13-23.) Conditions of Certification WASTE-6 and -8 require the project owner to prepare Construction Waste Management and Operation Waste Management Plans detailing the types and volumes of wastes to be generated and how wastes will be managed, recycled, and/or disposed of after generation.⁵⁷</p>
<p>Title 27, Cal. Code Regs., Division 1, Subdivision 4, Chapter 1, sections 15100, et seq.</p> <p>Unified Hazardous Waste and Hazardous Materials Management Regulatory Program</p>	<p>While these regulations primarily address certification and implementation of the program by the local CUPAs, the regulations do contain specific reporting requirements for businesses.</p> <p>Article 9 – Unified Program Standardized Forms and Formats (sections 15400–15410).</p> <p>Article 10 – Business Reporting to CUPAs (sections 15600–15620).</p>	<p>Compliant. Condition of Certification WASTE-1 will ensure the Applicant provides relevant information to the CUPA, and where necessary, require completion of Phase II investigations to evaluate the extent of contamination and identify the necessary remedial actions. If a site is considered contaminated, a Phase II environmental site assessment may be conducted (ASTM test E1903), with a more detailed investigation involving chemical analysis for hazardous substances and/or petroleum hydrocarbons performed. The Applicant</p>

⁵⁷ Ex. 2000, pp. 4.13-22 - 4.13-23.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
		will also be required to coordinate with the appropriate regulatory authority that will otherwise regulate the activity if not for the in-lieu authority of the Energy Commission. The condition will then require monitoring and reporting on the progress of remediation of the various areas of contamination located on the AEC site. ⁵⁸
<p>Public Resources Code, Division 30, Section 40000, et seq.</p> <p>California Integrated Waste Management Act of 1989.</p>	<p>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.</p> <p>The act was amended in 2011 (AB 341) to include a legislative declaration of a state policy goal that not less than 75 percent of solid waste generated be source reduced, recycled, or composted by the year 2020. The 2011 amendments expand recycling to businesses and apartment buildings; require the state to develop programs to recycle three-quarters of generated waste; and require commercial and public entities that generate more than four cubic yards of commercial solid waste per week, and multifamily residential dwellings of five units or more, to arrange for recycling services beginning July 1, 2012.</p>	<p>Compliant. The AEC is required to recycle and/or dispose hazardous and non-hazardous wastes at facilities licensed or otherwise approved to accept the wastes. Because hazardous wastes will be produced during both project construction and operation, the AEC will be required to obtain a hazardous waste generator identification number from the U.S. EPA. The AEC will also be required to properly store, package, and label all hazardous waste; use only approved transporters; prepare hazardous waste manifests; keep detailed records; and appropriately train employees in accordance with state and federal hazardous waste management requirements. Conditions of Certification WASTE-1, -2, -3, -4, -5, -7 and -9 require the project owner to ensure that the project site is investigated and remediated as necessary; demonstrate that project wastes are managed properly; and ensure that any future spills or releases of hazardous substances or wastes are properly reported, cleaned-up, and remediated as necessary. Conditions of Certification WASTE-6 and -8 require the project owner to prepare Construction Waste Management and Operation Waste Management Plans detailing the types and volumes of wastes to be generated and how wastes will be managed, recycled, and/or disposed of after generation.⁵⁹</p>
<p>Title 14, Cal. Code Regs., Division 7, section 17200, et seq.</p>	<p>Implements the provisions of the California Integrated Waste Management Act and set forth minimum standards for solid waste handling and disposal. The regulations</p>	<p>Compliant. The AEC is required to recycle and/or dispose hazardous and non-hazardous wastes at facilities licensed or otherwise approved to accept</p>

⁵⁸ Ex. 2000, p. 4.13-12.

⁵⁹ Ex. 2000, pp. 4.13-22 - 4.13-23.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
California Integrated Waste Management Board	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.	the wastes. Because hazardous wastes will be produced during both project construction and operation, the AEC will be required to obtain a hazardous waste generator identification number from U.S. EPA. The AEC will also be required to properly store, package, and label all hazardous waste; use only approved transporters; prepare hazardous waste manifests; keep detailed records; and appropriately train employees in accordance with state and federal hazardous waste management requirements. Conditions of Certification WASTE-1, 2, 3, 4, 5, 7 and 9 require the project owner to ensure that the project site is investigated and remediated as necessary; demonstrate that project wastes are managed properly; and ensure that any future spills or releases of hazardous substances or wastes are properly reported, cleaned-up, and remediated as necessary. Conditions of Certification WASTE-6 and -8 require the project owner to prepare Construction Waste Management and Operation Waste Management Plans detailing the types and volumes of wastes to be generated and how wastes will be managed, recycled, and/or disposed of after generation. ⁶⁰
California Health and Safety Code, Division 20, Chapter 6.5, Article 11.9, section 25244.12, et seq. Hazardous Waste Source Reduction and Management Review Act of 1989 (also known as SB 14).	Expands the state's hazardous waste source reduction activities. Among other things, it establishes hazardous waste source reduction review, planning, and reporting requirements for businesses that routinely generate more than 12,000 kilograms (~ 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 fourth year.	Compliant. Approximately 200 tons of hazardous waste will be generated from the AEC facility. ⁶¹ Condition of Certification WASTE-3 requires the project owner to complete and submit a SCAQMD Asbestos Demolition Notification Form to the CPM and the SCAQMD, and remove all asbestos-containing material (ACM) from the site prior to demolition. Conditions of Certification WASTE-6 and -8 require the project owner to prepare Construction Waste Management and Operation Waste Management Plans detailing the types and volumes of wastes to be generated and how wastes will be

⁶⁰ Ex. 2000, pp. 4.13-22 - 4.13-23.

⁶¹ Ex. 2000, p. 4.13-21.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
		managed, recycled, and/or disposed of after generation. ⁶²
Title 22, Cal. Code Regs., section 67100.1 et seq. Hazardous Waste Source Reduction and Management Review.	Clarifies and implements the provisions of the Hazardous Waste Source Reduction and Management Review Act of 1989 (noted above). The regulations establish the specific review elements and reporting requirements to be completed by generators subject to the act.	Compliant. With implementation of Conditions of Certification WASTE-1 through 9 , the AEC will comply with all applicable LORS regulating the management of hazardous and non-hazardous wastes during both facility construction and operation. The Applicant is required to recycle and/or dispose hazardous and non-hazardous wastes at facilities licensed or otherwise approved to accept the wastes. Because hazardous wastes will be produced during both project construction and operation, the AEC will be required to obtain a hazardous waste generator identification number from the U.S. EPA. The AEC will also be required to properly store, package, and label all hazardous waste; use only approved transporters; prepare hazardous waste manifests; keep detailed records; and appropriately train employees in accordance with state and federal hazardous waste management requirements. ⁶³
California Health and Safety Code Section 101480 101490	Authorizes a local officer, such as the director of the Los Angeles County Department of Environmental Health to enter into voluntary agreements for the oversight of remedial action at sites contaminated by wastes.	Compliant. Condition of Certification WASTE-1 will ensure the Applicant adequately characterizes the site and completes remediation in accordance with applicable LORS. Condition of Certification WASTE-1 also requires that any additional work must be conducted under the oversight of the CPM, in consultation with the DTSC, and the Long Beach Fire Department. ⁶⁴
Title 22, Cal. Code Regs., Chapter 32, sections 67383.1 – 67383.5	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.	Compliant. Conditions of Certification GEN-6, STRUC-4 and MECH-2 , ensure the minimum standards for the management of all underground and aboveground tank systems that hold hazardous waste or hazardous materials. See the FACILITY DESIGN section of this Decision. ⁶⁵

⁶² Ex. 2000, pp. 4.13-26 – 4.13-29.

⁶³ Ex. 2000, p. 4.13-22.

⁶⁴ Ex. 2000, p. 4.13-12.

⁶⁵ Ex. 2000, pp. 5.1-12 – 5.1-18.

Title 8, Cal. Code Regs., section 1529 and 5208	Requires the proper removal of asbestos containing materials in all construction work and are enforced by the California Occupational Safety and Health Administration (Cal/OSHA).	Compliant. Condition of Certification WASTE-3 requires that the project owner submit the SCAQMD's Asbestos Notification Form to the CPM and SCAQMD for review prior to removal and disposal of asbestos. One hundred and fifty tons of asbestos is expected to be generated from the demolition of AGS Unit 7. All friable asbestos (Class I) collected during demolition activities will be disposed of as hazardous waste. ⁶⁶
Title 8, Cal. Code Regs., Section 1532.1	Addresses all of the following areas: permissible exposure limits (PELs); exposure assessment; compliance methods; respiratory protection; protective clothing and equipment; housekeeping; medical surveillance; medical removal protection (MRP); employee information, training, and certification; signage; record keeping; monitoring; and agency notification.	Compliant. See the WORKER SAFETY & FIRE PROTECTION section of this Decision. Conditions of Certification WORKER SAFETY-1 through -8 incorporate sufficient measures to ensure adequate levels of industrial safety. Specifically, WORKER SAFETY-3 requires the Construction Safety Supervisor to assure compliance with Cal/OSHA, the Project Construction Health and Safety Program, and all the plans identified in Conditions of Certification WORKER SAFETY-1 and -2 . ⁶⁷
Title 17, Cal. Code Regs., Division 1, Chapter 8, Section 35001	Requirements for lead hazard evaluation and abatement activities, accreditation of training providers, and certification of individuals engaged in lead-based paint activities.	Compliant. Conditions of Certification WORKER SAFETY-1 through -4 incorporate sufficient measures to ensure adequate training and enforcement of industrial safety. Flaking or peeling lead-based paint could also be present in facilities to be demolished. The Applicant will comply with Title 17, CCR, Division 1, Chapter 8, and Section 35001, to maintain a safe environment for workers. ⁶⁸
LOCAL		
South Coast Air Quality Management District (SCAQMD) Rule 1403	Establishes survey requirements, notification and work practice requirements to prevent asbestos emissions from emanating during renovation and demolition activities. SCAQMD Rule 1403 incorporates the requirements of the federal asbestos requirements found in National Emissions Standard for Hazardous Air Pollutants (NESHAP) in code of Federal Regulations (CFR) Title 40, Part 61, Subpart M.	Compliant. Condition of Certification WASTE-3 requires the project owner to submit the SCAQMD's Asbestos Notification Form to the CPM and SCAQMD for review prior to removal and disposal of asbestos. The demolition of AGS Unit 7 could generate 150 tons of asbestos. All friable asbestos (Class I) collected during demolition activities

⁶⁶ Ex. 2000, pp. 5.1-13; 5.1-16.

⁶⁷ Ex. 2000, pp. 4.14-16 – 4.14-18.

⁶⁸ Ex. 2000, p. 4.13-13.

		must be disposed of as hazardous waste. ⁶⁹
City of Long Beach Integrated Waste Management Plan	Provides guidance for management of solid waste and household hazardous waste in the City of Long Beach (incorporates the county's Source Reduction and Recycling Elements, which detail means of reducing commercial and industrial sources of solid waste).	Compliant. The AEC is required to recycle and/or dispose hazardous and non-hazardous wastes at facilities licensed or otherwise approved to accept the wastes. Conditions of Certification WASTE-1, 2, 3, 4, 5, 7 and 9 require the project owner to ensure that the project site is investigated and remediated as necessary; demonstrate that project wastes are managed properly; and ensure that any future spills or releases of hazardous substances or wastes are properly reported, cleaned-up, and remediated as necessary. ⁷⁰
City of Long Beach Department of Health and Human Services, Environmental Health Bureau Hazardous Materials Programs	Long Beach Environmental Health Bureau and the City of Long Beach Fire Department are the Certified Unified Program Agency (CUPA) for Los Angeles 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.	Compliant. Condition of Certification WASTE-1 will ensure the Applicant provides relevant information to the CUPA, and where necessary, require completion of Phase II investigations to evaluate the extent of contamination and identify the necessary remedial actions. If a site is considered contaminated, a Phase II environmental site assessment may be conducted, with a more detailed investigation involving chemical analysis for hazardous substances and/or petroleum hydrocarbons performed. The Applicant will also be required to coordinate with the appropriate regulatory authority that would otherwise regulate the activity if not for the in-lieu authority of the Energy Commission. The condition would then require monitoring and reporting on the progress of remediation of the various areas of contamination located on the AEC site. Condition of Certification WASTE-1 will ensure the Applicant adequately characterizes the site and completes remediation in accordance with applicable LORS. ⁷¹
City of Long Beach Municipal Code Chapter 18.47	Incorporates, by reference in full, the 2013 Edition of the California Green Building Standards Code. The California Green Building Standards code is Part II of the California Code of Regulations, Title 24,	Compliant. CalRecycle is responsible for recycling, waste reduction, and product reuse programs in California. CalRecycle also promotes innovation in technology to encourage economic and

⁶⁹ Ex. 2000, p. 4.13-13.

⁷⁰ Ex. 2000, pp. 4.14-14 – 4.14-15; 4.14-24.

⁷¹ Ex. 2000, p. 4.13-12.

	also referred to as the California Building Standards Code.	environmental sustainability. The 2008 California Green Building Standards Code Requires all construction projects to develop a recycling plan to divert and/or recycle at least 50 percent of waste generated during construction, (CalGreen Building Standards Code Section 708 construction Waste Reduction, Disposal and Recycling). The City of Long Beach has a Construction & Demolition Debris Recycling (C&D) Program, Long Beach Ordinance, ORD-07-0025, Chapter 18.97. The program is designed to encourage permit applicants to recycle all C&D materials by offering a refundable performance deposit. A waste management plan, a Performance Security Deposit, and an administrative review fee will accompany the building permit application. Applicants must demonstrate 60 percent demolition and construction project waste diversion. A final report detailing the amount of reuse, recycling, and disposal actually generated from the project will be required for an applicant to receive a Performance Security Deposit refund. ⁷²
City of Long Beach Municipal Code Chapter 18.97, Ordinance Number ORD-07-002	City's rules for construction and demolition recycling program and waste management plan. Sixty percent of all material generated must be diverted and a Waste Management Plan submitted.	Compliant. The City of Long Beach has a Construction & Demolition Debris Recycling (C&D) Program. The program is designed to encourage permit applicants to recycle all C&D materials by offering a refundable performance deposit. A waste management plan, a Performance Security Deposit, and an administrative review fee will accompany the building permit application. Applicants must demonstrate 60 percent demolition and construction project waste diversion. A final report detailing the amount of reuse, recycling, and disposal actually generated from the project will be required for an applicant to receive a Performance Security Deposit refund. The AEC is required to recycle and/or dispose hazardous and non-hazardous wastes at facilities licensed or otherwise approved to accept the wastes. Conditions of Certification WASTE-1, 2, 3, 4, 5, 7 and 9 require the project owner

⁷² Ex. 2000, pp. 4.14-14 – 4.14-15.

		to ensure that the project site is investigated and remediated as necessary; demonstrate that project wastes are managed properly; and ensure that any future spills or releases of hazardous substances or wastes are properly reported, cleaned-up, and remediated as necessary. ⁷³
South Coast Air Quality Management District Rule 1166 – Volatile Organic Compound (VOC) Emissions from Decontamination of Soil	This rule sets requirements to control the emission of VOCs from excavating, grading, handling, and treating VOC-contaminated soil as a result of leakage from storage or transfer operations, accidental spillage, or other deposition.	Compliant. Conditions of Certification WASTE-4 and WASTE-5 will be adequate to address any soil contamination contingency that may be encountered during construction of the project and will ensure compliance with LORS. ⁷⁴

AGENCY AND PUBLIC COMMENTS

No public comments were received on the topic of waste management.

FINDINGS OF FACT

Based on the evidence, we make the following findings:

1. The Alamitos Energy Center will generate hazardous and non-hazardous wastes during construction, demolition of Unit 7, and operation.
2. The soil removal/cleanup procedures in Southern California Edison's Water Quality Monitoring Program for the retention basins which currently collect and store non-hazardous wastewater from the Alamitos Generating Station, were approved by the Department of Toxic Substance Control.
3. Condition of Certification **WASTE-1** requires the project owner to provide relevant information to the Certified Unified Program Agency, and where necessary, requires completion of Phase II investigations to evaluate the extent of contamination and identify necessary remedial actions.
4. Condition of Certification **WASTE-1** also requires the project owner to adequately characterize the site and complete remediation in accordance with applicable laws, ordinances, regulations, and standards under the oversight of the Energy Commission Compliance Project Manager, in consultation with the Department of Toxic Substance Control and the Long Beach Fire Department.

⁷³ Ex. 2000, pp. 4.14-14 – 4.14-15.

⁷⁴ Ex. 2000, p. 4.13-16.

5. Condition of Certification **WASTE-2** puts procedures in place to properly identify, handle and dispose of contaminated soil.
6. The demolition of Alamitos Generating Station Unit 7 could generate 150 tons of asbestos which must be disposed of as hazardous waste.
7. Condition of Certification **WASTE-3** requires the project owner to submit the South Coast Air Quality Management District's Asbestos Notification Form to the Energy Commission Compliance Project Manager and the South Coast Air Quality Management District for review prior to removal and disposal of asbestos.
8. Conditions of Certification **WASTE-4** and **WASTE-5** address any soil contamination contingency that may be encountered during project construction.
9. The Alamitos Energy Center will generate approximately 3,000 tons (4,290 cubic yards) of solid waste during demolition and construction.
10. Before demolition and construction can begin, Condition of Certification **WASTE-6** requires the project owner to develop and implement a Demolition and Construction Waste Management Plan.
11. With the implementation of conditions of certification and compliance with laws, ordinances, regulations, and standards, no significant impacts will occur as a result of project waste management activities at the Alamitos Energy Center.
12. Recyclable materials will be separated and removed to recycling facilities.
13. Non-recyclable materials will be collected and deposited at Class I, II or III landfills in accordance with applicable laws, ordinances, regulations, and standards.
14. The project owner is required by Condition of Certification **WASTE-7** to notify the Energy Commission's Compliance Project Manager if any construction waste management related enforcement action is initiated by a regulatory agency.
15. There will be no significant construction impacts from Alamitos Energy Center waste management.
16. Before operations can begin, Condition of Certification **WASTE-8** requires the project owner to develop and implement an Operation Waste Management Plan describing how the project will divert to the maximum extent feasible the recyclable materials that will be generated during construction and operation of the facility.

17. Approximately 35 tons (50 cubic yards) per year of nonhazardous waste will be produced during operation.
18. Condition of Certification **WASTE-9** requires the project owner/operator to report, clean up, and remediate as necessary, any hazardous materials spills or releases in accordance with all applicable federal, state, and local requirements.
19. The Alamitos Energy Center will be required to divert all materials from the solid waste stream that can reasonably be diverted for alternate uses.
20. Nonhazardous waste that is not recycled will be disposed of in a California Class III landfill.
21. Applicant identified two Class III waste disposal facilities in the project vicinity that are available to receive the project's nonhazardous solid wastes: the Savage Canyon Landfill in Whittier and the Puente Hills Landfill in the City of Industry.
22. Hazardous wastes will be transported to Clean Harbors Buttonwillow Landfill (Class I) in Kern County and/or Chemical Waste Management Kettleman Hills Landfill (Class I, II and III) in Kings County.
23. There is sufficient remaining capacity at Clean Harbors Buttonwillow Landfill and Chemical Waste Management Kettleman Hills Landfill to handle the project's non-hazardous and hazardous wastes during its operating lifetime.
24. Impacts from disposal of Alamitos Energy Center generated non-hazardous and hazardous wastes will have a less than significant impact on the remaining capacity of the landfills identified herein.
25. 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, identified in the pertinent portions of **Appendix A** of this Decision, 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 Alamitos Energy Center project wastes will comply with all applicable laws, ordinances, regulations, and standards related to waste management.

V. ENVIRONMENTAL ASSESSMENT

In this section of the Decision, the Energy Commission considers the potential impacts of project-related activities on resources in the area, including biological resources, soil and water resources, cultural resources, and geological and paleontological resources.

A. BIOLOGICAL RESOURCES

INTRODUCTION

The Energy 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 Alamitos Energy Center (AEC) site, assesses the potential for adverse impacts, and determines whether mitigation measures are necessary to ensure compliance with applicable laws, ordinances, regulations, and standards (LORS). This topic was contested. Evidence on the topic of biological resources can be found in Exhibits 1011, 1014, 1041, 1047, 1056, 1064, 1070, 1072, 1412, 1448-1453, 1500-1508, 2000, 2002, 2004, 2005, 2013, 3000-3015, and 3043-3047.¹

SETTING

The regional setting addressed in this section encompasses the area within 10 miles of the AEC. Land use proximate to the proposed project area primarily includes urban development, industrial areas, the San Gabriel River, parklands and open space, and wetlands preserves.²

The AEC project area consists of 21 acres within the larger Alamitos Generating Station (AGS) site. The eastern edge of the AEC site is bounded by the San Gabriel River, about two miles upstream from its terminus at the Pacific Ocean. The river in this area has a soft bottom and riprap banks, and it is channelized between levees. The Los Cerritos Channel is located just west of the project site, across Studebaker Road, and terminates about one mile to the southwest, at Alamitos Bay. Two side channels deliver cooling water from the Los Cerritos Channel to the operating AGS; the cooling water is discharged to the San Gabriel River via existing outfalls. Los Cerritos Channel, Alamitos

¹ 11/15/16 RT 26:10 – 32:15; 78:18 – 105:19.

² Ex. 2000, p. 4.2-5.

Bay, and the portion of the San Gabriel River in the project site vicinity are all tidal waters.³

Extensive urban development throughout the region has replaced most of the natural open space. Natural habitats are now limited to scattered open space preserves and other protected areas. Much of the undeveloped open space south and west of the site is former oil production land.⁴

The AEC is located in a region with several important ecological reserves, wetland preservation sites, and designated open space areas. These areas also provide habitat for several special-status plants and animals. There is designated critical habitat for one federally listed species within 10 miles of the proposed AEC site: the western snowy plover. Critical habitat for western snowy plover includes the Bolsa Chica State Beach and Bolsa Chica Preserve, which are located approximately five miles southeast of the proposed AEC site.⁵

Various biological resources surveys of the site, its sewer pipeline with a 100-foot buffer, laydown areas and vicinity have occurred, including one performed by the Applicant in September 2011, and supplemental surveys in 2013, 2014, 2015, and 2016.⁶

The AEC site and laydown areas are in industrial use. The majority of the project area is paved and any unpaved areas are subject to regular chemical weed control. Landscaped areas, including trees, shrubs and lawns are present on portions of the project site, but no natural habitats or wetlands are present. Within one mile of the site, the land uses are urban to the north, northeast, southwest, south, and northwest; industrial to the east, parks and open space to the west and south and wetland preserves are approximately 700 feet west and 2,000 feet south of the AEC site.⁷

Although there are no natural habitats on or adjacent to the site, within 10 miles are sensitive natural communities, specifically, southern coastal salt marsh, Southern foredunes, and Southern dune scrub. The evidentiary record identifies the common wildlife found in the area.

³ Ex. 2000, p. 4.2-5.

⁴ Ex. 2000, p. 4.2-5.

⁵ Ex. 200, pp. 4.2-5 - 4.2-9.

⁶ Ex. 2000, p. 4.2-7.

⁷ Ex. 2000, p. 4.2-8.

Jurisdictional Waters and Wetlands

Federal jurisdictional waters of the United States include navigable waters and their tributaries, based on the presence of an “ordinary high water mark.” Jurisdictional waters of the state include all waters within California, including those that may be isolated from navigable waters and their tributaries. The project site is above the ordinary high water mark of the adjacent water bodies, and runoff from the site is collected in a retention basin on-site and discharged into the San Gabriel River by outfalls. These features are not regulated as waters of the United States or waters of the state.⁸

The AEC site and laydown areas are in industrial use with the majority of the project area already paved. Some portions of the site are landscaped with trees, shrubs, and lawns, but no natural habitats are present. Therefore, the site does not meet the criteria of a wetland, under applicable definitions of state or federal agencies.⁹

Biological Resources Table 1 lists the special-status species which may occur within 10 miles of AEC and the laydown yard.¹⁰

Biological Resources Table 1
Special-status Species Known to Occur or Potentially Occurring in the AEC Area and Vicinity

Common Name (<i>Scientific Name</i>)	Conservation Status Fed/State/CRPR /G-Rank/S-Rank	Potential for Occurrence in Project Impact Area
PLANTS		
Chaparral sand-verbena (<i>Abronia villosa</i> var. <i>aurita</i>)	___/___/1B.1/ G5T2T3/S2	Not Likely to Occur. No chaparral or coastal scrub habitat on the project site or pipeline alignment.
Ventura Marsh milk-vetch (<i>Astragalus pycnostachyus</i> var. <i>lanosissimus</i>)	FE/SE/1B.1/ G2T1/S1	Not Likely to Occur. No coastal salt marsh habitat on the project site or pipeline alignment.
Coulter's saltbush (<i>Atriplex coulteri</i>)	___/___/ 1B.2/ G3/S2	Not Likely to Occur. No coastal dunes, scrub, or valley and foothill grasslands on the project site or pipeline alignment.
Parish's brittlescale (<i>Atriplex parishii</i>)	___/___/1B.1/ G1G2/S1	Not Likely to Occur. No alkali meadows, vernal pools, chenopod scrub, or playas on the project site or pipeline alignment.
Davidson's saltscale (<i>Atriplex serenana</i> var. <i>davidsonii</i>)	___/___/1B.2/ G5T1/S1	Not Likely to Occur. No coastal scrub habitat on the project site or pipeline alignment.

⁸ Ex. 2000, p. 4.2-23.

⁹ *Id.*

¹⁰ Ex. 2000, pp. 4.2-4, 4.2-13 – 4.2-22.

Common Name (Scientific Name)	Conservation Status Fed/State/CRPR /G-Rank/S-Rank	Potential for Occurrence in Project Impact Area
Plummer's mariposa-lily (<i>Calochortus plummerae</i>)	___/___/4.2/ G4/S4	Not Likely to Occur. No coastal scrub, chaparral, valley and foothill grassland, woodlands, or forests on the project site or pipeline alignment.
Intermediate mariposa-lily (<i>Calochortus weedii</i> var. <i>intermedius</i>)	___/___/1B.2/ G3G4T2/S2	Not Likely to Occur. No coastal scrub, chaparral, or valley and foothill grassland on the project site or pipeline alignment.
Santa Barbara Morning-glory (<i>Calystegia sepium</i> ssp. <i>binghamiae</i>)	___/___/1A/ G5TXQ/SX	Not Likely to Occur. No coastal marsh habitat on the project site or pipeline alignment.
Lewis' evening primrose (<i>Camissoniopsis lewisii</i>)	___/___/3/ G4/S4	Not Likely to Occur. No coastal scrub, woodlands, dunes, or valley and foothill grassland on the project site or pipeline alignment, but recorded in Los Cerritos Wetlands.
Southern tarplant (<i>Centromadia parryi</i> ssp. <i>australis</i>)	___/___/1B.1/ G3T2/S2	Not Likely to Occur. No suitable marsh or swamp margins or valley and foothill grassland on the project site; not found during protocol survey of marginal habitat on the pipeline alignment during summer 2016.
Salt marsh bird's-beak (<i>Chloropyron maritimum</i> ssp. <i>maritimum</i>)	FE/SE/1B.2/ G4?T1/S1	Not Likely to Occur. No coastal salt marsh or dune habitat on the project site or pipeline alignment.
Many-stemmed dudleya (<i>Dudleya multicaulis</i>)	___/___/1B.2/ G2/S2	Not Likely to Occur. No coastal scrub, chaparral, or valley and foothill grassland on the project site or pipeline alignment.
Los Angeles sunflower (<i>Helianthus nuttallii</i> ssp. <i>parishii</i>)	___/___/1A/ G5TH/SH	Not Likely to Occur. No marshes or swamps on the project site or pipeline alignment. Presumed extinct.
Southwestern spiny rush (<i>Juncus acutus</i> ssp. <i>leopoldii</i>)	___/___/4.2/ G5T5/S4	Not Likely to Occur. No marshes or swamps, meadows or seeps, or dunes on the project site or pipeline alignment, but recorded in Los Cerritos Wetlands.
Coulter's goldfields (<i>Lasthenia glabrata</i> ssp. <i>coulteri</i>)	___/___/1B.1/ G4T2/S2	Not Likely to Occur. No vernal pools, coastal salt marshes, valley and foothill grasslands, or playas on the project site or pipeline alignment, but recorded in Los Cerritos Wetlands.
California box-thorn (<i>Lycium californicum</i>)	___/___/4.2/ G4/S4	Not Likely to Occur. No coastal scrub or coastal bluff scrub on the project site or pipeline alignment, but recorded in Los Cerritos Wetlands.
Mud nama (<i>Nama stenocarpa</i>)	___/___/2B.2/ G4G5/S1S2	Not Likely to Occur. No marshes or swamps on the project site or pipeline alignment.
Gambel's water cress (<i>Nasturtium gambelii</i>)	FE/ST/1B.1/ G1/S1	Not Likely to Occur. No marshes or swamps on the project site or pipeline alignment.
Prostrate vernal pool navarretia (<i>Navarretia prostrata</i>)	___/___/1B.1/ G2/S2	Not Likely to Occur. No vernal pools, coastal scrub, or valley and foothill grasslands on the project site or pipeline alignment.

BIOLOGICAL RESOURCES

Common Name (Scientific Name)	Conservation Status Fed/State/CRPR /G-Rank/S-Rank	Potential for Occurrence in Project Impact Area
Coast woolly-heads (<i>Nemacaulis denudata</i> var. <i>denudata</i>)	___/___/1B.2/ G3G4T2/ S2	Not Likely to Occur. No coastal dune habitat on the project site or pipeline alignment.
California Orcutt grass (<i>Orcuttia californica</i>)	FE/SE/1B.1/ G1/S1	Not Likely to Occur. No vernal pools on the project site or pipeline alignment.
Lyon's pentachaeta (<i>Pentachaeta lyonii</i>)	FE/SE/1B.1/ G1/S1	Not Likely to Occur. No coastal scrub, chaparral, or valley and foothill grassland on the project site or pipeline alignment.
Brand's star phacelia (<i>Phacelia stellaris</i>)	___/___/1B.1/ G1/S1	Not Likely to Occur. No coastal scrub or dunes on the project site or pipeline alignment.
Sanford's arrowhead (<i>Sagittaria sanfordii</i>)	___/___/1B.2/ G3/S3	Not Likely to Occur. No marshes or swamps on the project site or pipeline alignment.
Salt spring checkerbloom (<i>Sidalcea neomexicana</i>)	___/___/2B.2/ G4/S2	Not Likely to Occur. No coastal scrub, chaparral, alkali playas, marshes, desert scrub, or coniferous forests on the project site or pipeline alignment.
Estuary seablite (<i>Suaeda esteroa</i>)	___/___/1B.2/ G3/S2	Not Likely to Occur. No marshes or swamps on the project site or pipeline alignment, but recorded in Los Cerritos Wetlands.
Woolly seablite (<i>Suaeda taxifolia</i>)	___/___/4.2/ G3?/S4	Not Likely to Occur. No marshes or swamps, coastal bluff scrub, or dunes on the project site or pipeline alignment, but recorded in Los Cerritos Wetlands.
San Bernardino aster (<i>Symphyotrichum defoliatum</i>)	___/___/1B.2/ G2/S2	Not Likely to Occur. No meadows or seeps, coastal scrub, woodlands, forest, grasslands, marshes, or swamps on the project site or pipeline alignment.
WILDLIFE		
Invertebrates		
Western tidal-flat tiger beetle (<i>Cicindela gabbii</i>)	___/SA/___/ G2G4/S1	Not Likely to Occur. No estuary or mudflat habitat on the project site or pipeline alignment.
Sandy beach tiger beetle (<i>Cicindela hirticollis grvida</i>)	___/SA/___/ G5T2/S1	Not Likely to Occur. No areas adjacent to non-brackish water on the project site or pipeline alignment.
Western beach tiger beetle (<i>Cicindela latesignata latesignata</i>)	___/SA/___/ G2G4T1T2 /S1	Not Likely to Occur. No beaches or mudflats on the project site or pipeline alignment.
Senile tiger beetle (<i>Cicindela senilis frosti</i>)	___/SA/___/ G2G3T1T3 /S1	Not Likely to Occur. No marine shoreline on the project site or pipeline alignment.
Monarch butterfly (winter roosts) (<i>Danaus plexippus</i>)	___/SA/___/ G4T2T3 /S2S3	Not Likely to Occur. No wind-protected tree groves for winter roosting on the project site or pipeline alignment.
Wandering (saltmarsh) skipper (<i>Panoquina errans</i>)	___/SA/___/ G4G5/S2	Not Likely to Occur. No salt marsh habitat on the project site or pipeline alignment, but recorded in Los Cerritos Wetlands.

BIOLOGICAL RESOURCES

Common Name (Scientific Name)	Conservation Status Fed/State/CRPR /G-Rank/S-Rank	Potential for Occurrence in Project Impact Area
Dorothy's El Segundo Dune weevil (<i>Trigonoscuta dorothea dorothea</i>)	___/SA/___/ G1T1/S1	Not Likely to Occur. No coastal sand dune habitat on the project site or pipeline alignment.
Mimic tryonia (=California brackishwater snail) (<i>Tryonia imitator</i>)	___/SA/___/ G2/S2	Not Likely to Occur. No coastal lagoon, estuary, or salt marsh habitat on the project site or pipeline alignment.
Fish		
Tidewater goby (<i>Eucyclogobius newberryi</i>)	FE/CSC/___/ G3/S3	Not Likely to Occur. No aquatic habitat on the project site or pipeline alignment, and true estuarine conditions do not occur in the project vicinity.
Pacific seahorse (<i>Hippocampus ingens</i>)	___/___/___/ IUCN Red List	Not Likely to Occur. No aquatic habitat on the project site or pipeline alignment Present off-site. Recently reported in Alamitos Bay near the project site.
Reptiles and Amphibians		
Southern California legless lizard (<i>Anniella stebbinsi</i>)	___/CSC/___/ G3G4/S3	Not Likely to Occur. No suitable wooded or shrubland habitat, leaf litter, organic soils, or similar habitat on the project site or pipeline alignment.
Orange-throated whiptail (<i>Aspidoscelis hyperythra</i>)	___/CSC/___/ G5/S2	Not Likely to Occur. No coastal scrub, chaparral, or valley-foothill hardwood woodlands on the project site or pipeline alignment.
Pacific green sea turtle (<i>Chelonia mydas</i>)	FT/___/___/ G3/S1	Not Likely to Occur. No aquatic habitat within the project site or pipeline alignment. Present off-site. Pacific green sea turtles inhabit the lower San Gabriel River and vicinity and congregate near the existing AGS outfall adjacent to the project site.
Western pond turtle (<i>Emys marmorata</i>)	___/CSC/___/ G3G4/S3	Not Likely to Occur. No aquatic habitat on the project site or pipeline alignment, but could occur in freshwater marsh areas in the Los Cerritos wetlands.
Coast horned lizard (<i>Phrynosoma blainvillii</i>)	___/CSC/___/ G3G4/S3S4	Not Likely to Occur. No sandy natural habitats on the project site or pipeline alignment.
Western spadefoot (<i>Spea hammondi</i>)	___/CSC/___/ G3/S3	Not Likely to Occur. No grasslands or valley-foothill hardwood woodlands on the project site or pipeline alignment.
Birds¹		
Tricolored blackbird (<i>Agelaius tricolor</i>)	BCC/CSC/___/ G2G3/S1S2	Low. No marsh or grain fields for nesting and foraging on the project site or pipeline alignment. Recorded approximately 0.5 mile from the project site.

BIOLOGICAL RESOURCES

Common Name (Scientific Name)	Conservation Status Fed/State/CRPR /G-Rank/S-Rank	Potential for Occurrence in Project Impact Area
Short-eared owl (<i>Asio flammeus</i>)	___/CSC/___/ G5/S3	Moderate. No marsh or grassland foraging habitats on the project site or pipeline alignment, but recorded in Los Cerritos Wetlands. Outside of breeding range.
Burrowing owl (<i>Athene cunicularia</i>)	BCC/CSC/___/ G4/S3	Moderate (foraging only). No grasslands or similar open habitats with abundant burrows on the project site or pipeline alignment, but recorded in Los Cerritos Wetlands and may forage on the site or fly over; low probability of nesting on the site.
Ferruginous hawk (<i>Buteo regalis</i>)	BCC/WL/___/ G4/S3S4	Low. No grassland, shrub, or desert habitats on the project site or pipeline alignment. Outside of breeding range.
Western snowy plover (<i>Charadrius alexandrinus nivosus</i>)	FT, BCC/CSC/___/ G3T3/S2	Moderate. No salt flats or beaches for nesting and foraging on the project site or pipeline alignment. Nests at Bolsa Chica; rarely at Seal Beach National Wildlife Refuge.
Northern Harrier (<i>Circus cyaneus</i>)	___/CSC/___/ G5/S3	Moderate (foraging only). No grassland or marsh breeding and foraging habitats on the project site or pipeline alignment, but forages in Los Cerritos Wetlands.
Western yellow-billed cuckoo (<i>Coccyzus americanus occidentalis</i>)	FT, BCC/SE/___/ G5T2T3/S1	Not Likely to Occur. No riparian woodlands for breeding and foraging on the project site or pipeline alignment, and presumed extirpated from the area.
White-tailed kite (<i>Elanus leucurus</i>)	___/FP/___/ G5/S3S4	Moderate. No grassland, agricultural, wetland, oak-woodland, or savannah habitats for nesting and foraging on the project site or pipeline alignment, but recorded in Los Cerritos Wetlands.
Southwestern willow flycatcher (<i>Empidonax traillii extimus</i>)	FE/SE/___/ G5T2/S1	Not Likely to Occur. No riparian habitat for breeding and foraging on the project site or pipeline alignment.
Yellow-breasted chat (<i>Icteria virens</i>)	___/CSC/___/ G5/S3	Low. No riparian or shrubby habitats for foraging and nesting on the project site or pipeline alignment, but recorded in Los Cerritos Wetlands.
Loggerhead shrike (<i>Lanius ludovicianus</i>)	BCC/CSC/___/ G4/S4	Moderate (foraging only). No riparian habitats, woodlands, or open natural habitats for foraging and nesting on the project site or pipeline alignment, but recorded in Los Cerritos Wetlands.
Osprey (<i>Pandion haliaetus</i>)	___/WL/___/ G5/S4	Moderate. No open water for foraging on the project site or pipeline alignment, but recorded in Los Cerritos Wetlands.
Belding's savannah sparrow (<i>Passerculus sandwichensis beldingi</i>)	___/SE/___/ G5T3/S3	Moderate. No salt marsh habitat for breeding or foraging on the project site or pipeline alignment, but a breeding population is present in the Los Cerritos Wetlands to the west and south of the project.

BIOLOGICAL RESOURCES

Common Name (Scientific Name)	Conservation Status Fed/State/CRPR /G-Rank/S-Rank	Potential for Occurrence in Project Impact Area
California brown pelican (<i>Pelecanus occidentalis californicus</i>)	FD/SD, FP/___/ G4T3/S3	High. No aquatic habitat for foraging or coastal island habitat for roosting on the project site or pipeline alignment. Roosts offshore approximately 6 miles southwest of the project site. Routinely observed throughout the area, including the Los Cerritos Wetlands.
Coastal California gnatcatcher (<i>Polioptila californica californica</i>)	FT/CSC/___/ G3T2/S2	Not Likely to Occur. No coastal sage scrub habitat on the project site or pipeline alignment. Occurs at Bolsa Chica Ecological Reserve and on the Palos Verdes Peninsula.
Light-footed clapper rail (<i>Rallus longirostris levipes</i>)	FE/SE, FP/___/ G5T1T2/S1	Moderate. No salt marsh habitat for breeding or foraging on the project site or pipeline alignment. Nests at Seal Beach National Wildlife Refuge and may use the Los Cerritos Wetlands as a corridor to travel among occupied habitats in the region.
Bank swallow (<i>Riparia riparia</i>)	___/ST/___/ G5/S2	Not Likely to Occur. No riparian habitat for breeding and foraging on the project site or pipeline alignment. Nesting populations are considered extirpated in southern California.
Black skimmer (<i>Rynchops niger</i>)	BCC/CSC/___/ G5/S2	Moderate. No gravel bars or sandy beaches for nesting on the project site or pipeline alignment, but forages in the Los Cerritos Wetlands to the west and is present year-round on sandy beaches in the vicinity.
California least tern (<i>Sternula antillarum browni</i>)	FE/SE, FP/ G4T2T3Q/S2	Moderate. No sandy beaches or alkali flats for nesting on the project site or pipeline alignment, but forages and trains offspring in the Los Cerritos Wetlands to the west of the project. Historically nested in the Los Cerritos wetlands, but current closest nesting grounds are at the Seal Beach National Wildlife Refuge and Bolsa Chica.
Least Bell's vireo (<i>Vireo bellii pusillus</i>)	FE/SE/___/ G5T2/S2	Not Likely to Occur. No riparian habitat for breeding and foraging on the project site or pipeline alignment.
Mammals		
Western mastiff bat (<i>Eumops perotis californicus</i>)	___/CSC/___/ G5T4/S3S4	Not Likely to Occur. No woodlands, coastal scrub, grasslands, chaparral, or other open arid to semi-arid habitats on the project site or pipeline alignment.
Silver-haired bat (<i>Lasionycteris noctivagans</i>)	___/SA/___/ G5/S3S4	Low. No coastal or montane forest habitats on the project site or pipeline alignment. Could forage in the nearby Los Cerritos wetlands complex.
Western yellow bat (<i>Lasiurus xanthinus</i>)	___/CSC/___/ G5/S3	Low. No riparian, desert wash, or palm oasis habitat on the project site or pipeline alignment, but could occur in the nearby Los Cerritos wetlands complex.

BIOLOGICAL RESOURCES

Common Name (Scientific Name)	Conservation Status Fed/State/CRPR /G-Rank/S-Rank	Potential for Occurrence in Project Impact Area
South coast marsh vole (<i>Microtus californicus stephensi</i>)	___/CSC/___/ G5T1T2/S1S2	Not Likely to Occur. No tidal marsh habitat on the project site or pipeline alignment, but could occur in salt marsh habitats in the nearby Los Cerritos wetlands.
Pocketed free-tailed bat (<i>Nyctinomops femorosaccus</i>)	___/CSC/___/ G4/S3	Not Likely to Occur. No rocky areas with high cliffs on the project site or pipeline alignment.
Big free-tailed bat (<i>Nyctinomops macrotis</i>)	___/CSC/___/ G5/S3	Not Likely to Occur. No rocky outcrops or high cliffs on the project site or pipeline alignment.
Pacific pocket mouse (<i>Perognathus longimembris pacificus</i>)	FE/CSC/___/ G5T1/S1	Not Likely to Occur. No coastal strand, coastal dune, river alluvium, or coastal sage scrub habitat on the project site or pipeline alignment. Presumed extirpated in the area.
Southern California saltmarsh shrew (<i>Sorex ornatus salicornicus</i>)	___/CSC/___/ G5T1? /S1	Not Likely to Occur. No coastal marsh habitat on the project site or pipeline alignment, but could occur in salt marsh habitats in the nearby Los Cerritos wetlands.
American badger (<i>Taxidea taxus</i>)	___/CSC/___/ G5/S3	Not Likely to Occur. No shrub, forest, or grasslands with friable soils on the project site or pipeline alignment.

Sources: (Ex. 2000, 4.2-9 – 4.2-16.)

1. Most special-status birds could occasionally fly over the site, or briefly roost or rest on the site; these casual occurrences are not included in the indicated occurrence probabilities.

Status Codes for Table 1:
<p>State</p> <p>CSC: California Species of Special Concern. Species of concern to the California Department of Fish and Wildlife (CDFW) because of declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction.</p> <p>SE: State listed as endangered</p> <p>SR: State listed as rare</p> <p>ST: State listed as threatened</p> <p>SFP: Fully protected</p> <p>WL: Watch List: includes species formerly on California Species of Special Concern List (Remsen 1978) but which did not meet the criteria for the current list of special concern bird species (Shuford and Gardali 2008).</p> <p>SA: Special Animal. Species is tracked in the California Natural Diversity Database (CNDDB) (due to rarity, limited distribution in California, declining throughout the range, etc.) but holds no other special status at the state or federal level.</p> <p>Federal</p> <p>FE: Federally listed endangered: species in danger of extinction throughout a significant portion of its range</p> <p>FT: Federally listed, threatened: species likely to become endangered within the foreseeable future</p>

BIOLOGICAL RESOURCES

Common Name (Scientific Name)	Conservation Status Fed/State/CRPR /G-Rank/S-Rank	Potential for Occurrence in Project Impact Area
<p>BCC: Fish and Wildlife Service: Birds of Conservation Concern: Identifies migratory and non-migratory bird species (beyond those already designated as federally threatened or endangered) that represent highest conservation priorities</p> <p>http://www.fws.gov/migratorybirds/NewReportsPublications/SpecialTopics/BCC2008/BCC2008.pdf</p> <p>D: Delisted taxon that is considered recovered</p> <p>California Rare Plant Rank (CRPR)</p> <p>CRPR 1A: Plants presumed extirpated in California and either rare or extinct elsewhere</p> <p>CRPR 1B: Rare, threatened, or endangered in California and elsewhere</p> <p>CRPR 2A: Rare, threatened, or endangered in California but more common elsewhere</p> <p>CRPR 2B: Plants rare, threatened, or endangered in California, but more common elsewhere</p> <p>CRPR 3 = Plants which need more information</p> <p>CRPR 4 = Limited distribution – a watch list</p> <p>0.1: Seriously threatened in California (over 80 percent of occurrences threatened / high degree and immediacy of threat)</p> <p>0.2: Moderately threatened in California (20-80 percent occurrences threatened / moderate degree and immediacy of threat)</p> <p>0.3: Not very threatened in California (less than 20 percent of occurrences threatened / low degree and immediacy of threat or no current threats known)</p> <p>Global Rank/State Rank</p> <p>Global rank (G-rank) is a reflection of the overall condition of an element throughout its global range. Subspecies are denoted by a T-Rank; multiple rankings indicate a range of values</p> <p>G1 = Critically Imperiled – At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.</p> <p>G2 = Imperiled – At high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors.</p> <p>G3 = Vulnerable – At moderate risk of extinction due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors.</p> <p>G4 = Apparently Secure – Uncommon but not rare; some cause for long-term concern due to declines or other factors.</p> <p>G5 = Secure – Common; widespread and abundant.</p> <p>State rank (S-rank) is assigned much the same way as the global rank, except state ranks in California often also contain an imperilment status only within California's boundaries.</p> <p>S1 = Critically Imperiled – Critically imperiled in the state because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state.</p> <p>S2 = Imperiled – Imperiled in the state because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the state.</p> <p>S3 = Vulnerable – Vulnerable in the state due to a restricted range, relatively few populations (often 80 or</p>		

BIOLOGICAL RESOURCES

Common Name (<i>Scientific Name</i>)	Conservation Status Fed/State/CRPR /G-Rank/S-Rank	Potential for Occurrence in Project Impact Area
<p>fewer), recent and widespread declines, or other factors making it vulnerable to extirpation from the state.</p> <p>S4 = Apparently Secure – Uncommon but not rare in the state; some cause for long-term concern for population within state due to declines or other factors.</p> <p>S5 = Secure – Common, widespread, and abundant in the state/province.</p> <p>SH = All California occurrences historical (i.e., no records in > 20 years).</p> <p>Potential Occurrence:</p> <p>High – Suitable habitat is present within or near the proposed site: occurrence records exist for species in proximity to the site; species expected to occur on or near site</p> <p>Moderate – Low quality habitat is present within or near the proposed site; species was not identified during reconnaissance surveys of the site; species may occur on or near site</p> <p>Low – Marginal habitat is present on or adjacent to site; no recent records within 10 miles of the site</p> <p>Not Likely to Occur – No recent records within 10 miles, no suitable habitat occurs on or near site</p>		

Ex. 2000, p. 4.2-16.

PROJECT DESCRIPTION

For general project description, including location of the facility and the equipment to be installed, please see the **PROJECT DESCRIPTION** section of this Decision.

ENVIRONMENTAL ANALYSIS

Thresholds of Significance

A project will result in significant impacts to biological resources under the California Environmental Quality Act (CEQA) if it would result in:

- a substantial adverse effect¹¹ to wildlife species that are federally-listed or state-listed or proposed to be listed; a substantial adverse effect to wildlife species of special concern to California Department of Fish and Wildlife (CDFW), candidates for state listing, or animals fully protected in California;
- a substantial adverse effect to plant species considered by CDFW, the U.S. Fish and Wildlife Service (USFWS), or the California Native Plant Society (CNPS) to be rare, threatened, or endangered in California or with strict habitat requirements and narrow distributions; a substantial impact to a sensitive natural community (i.e., a

¹¹ Cal. Pub. Res. § 21068; tit. 14 Cal. Code. Regs. § 15064.

community that is especially diverse; regionally uncommon; or of special concern to local, state, and federal agencies);

- substantial adverse effects on habitats that serve as breeding, foraging, nesting, or migrating grounds and are limited in availability or that serve as core habitats for regional plant and wildlife populations;
- interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- substantial adverse effect on important riparian habitats or wetlands and any other “Waters of the U.S.” or state jurisdictional waters; or
- conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.¹²

We first describe the potential occurrence of special-status vegetation and wildlife at or near the project site.

Vegetation

Rare plant surveys were not conducted at the project site due to existing urbanized and industrial land uses. It is unlikely that special-status plants would colonize or persist at the power block project site due to landscape maintenance and weed management practices. However, near the wastewater pipeline alignment in the vicinity of Loynes Drive and Studebaker Road, the southern tarplant (California Rare Plant Rank 1B.1) has been recorded.¹³

Southern Tarplant

Southern tarplant ranges from Santa Barbara County south into Baja California, and on Santa Catalina Island. Southern tarplant occurs in the Los Cerritos wetlands complex. The nearest record is in the northwest corner of the wetlands complex, about 200 feet south of the offsite wastewater pipeline alignment at Loynes Drive and Studebaker Road. A focused survey for southern tarplant was conducted by the Applicant in 2011 along the pipeline route, as well as supplemental surveys in 2013, 2014, 2015, and 2016, concluded that the plant was not present. Energy Commission staff (Staff)

¹² CEQA Guidelines, App. G, §IV.

¹³ Ex. 2000, p. 4.2-17.

testified that southern tarplant is not likely to occur on the developed industrial AEC site or on the pipeline route.¹⁴

Special-Status Wildlife

The Applicant conducted general reconnaissance surveys of the project site and offsite pipeline alignment in September 2011, July 2013, January 2014, and April 2015. No protocol or focused surveys were performed due to the low potential for special-status wildlife species to occur within the site (except during casual stopover or flyover). The following accounts focus on species with a moderate or high potential to occur near the site, and that could be affected by project construction and operation.¹⁵

Birds

The project region supports a wide range of both resident and migratory bird species. Although the site itself provides relatively little nesting and foraging habitat for native birds, the adjacent wetlands are regionally important for some bird species. Native birds, regardless of any additional conservation status at the local, state, or federal level, are afforded protection by the federal MBTA and California Fish and Game Code.¹⁶

Belding's Savannah Sparrow

The Belding's savannah sparrow (*Passerculus sandwichensis beldingi*) is a state-listed endangered species. It occupies the Los Cerritos wetlands complex and breeds in the coastal salt marsh wetlands in the immediate vicinity of the AEC site. It is also found in the Bolsa Chica wetlands and the Seal Beach National Wildlife Refuge. There is no suitable habitat within the proposed AEC or pipeline alignment, and no Belding's savannah sparrows were observed during reconnaissance-level project surveys.¹⁷

California Brown Pelican

The California brown pelican (*Pelecanus occidentalis*) is a California state "fully protected species" pursuant to Fish and Game Code section 3511(b)(2). The open space and wetland habitats surrounding the AEC site provide resting and loafing habitat for the species in the immediate vicinity of the site; however, there is no natural habitat on the AEC site. California brown pelicans may fly over or occasionally land on or near the facilities, but there is no potential for feeding, breeding, or other important activity on

¹⁴ Ex. 2000, p. 4.2-18.

¹⁵ *Id.*

¹⁶ *Id.*

¹⁷ Ex. 2000, pp. 4.2-19.

the site. Additionally, the California brown pelican is not expected to breed in adjacent marshes due to lack of typical breeding habitat but it is routinely observed foraging and loafing in the marshes and Alamitos Bay.¹⁸

California Least Tern

The California least tern (*Sternula antillarum browni*) is federally and state-listed as endangered. There is no suitable nesting habitat for the California least tern at the AEC site and it has very limited potential to occur on the site. However, the California least tern uses the Los Cerritos Wetlands for foraging, loafing, and training young.¹⁹

Light-footed Clapper Rail

The light-footed clapper rail (*Rallus longirostris levipes*) is federally and state listed as endangered. It occupies coastal salt marshes from Santa Barbara County, California, to San Quintin Bay, Baja California, Mexico. Within its historical range, the amount of suitable habitat has been severely reduced by conversion of marshes for other uses.²⁰

The light-footed clapper rail breeds in wetland habitats in the regional vicinity including the Bolsa Chica wetlands and Seal Beach National Wildlife. Although not documented breeding in the Los Cerritos wetlands complex, it could use the wetlands as a corridor for traveling between regional breeding and foraging grounds.²¹

Western Snowy Plover

The western snowy plover (*Charadrius alexandrinus nivosus*) is a federally listed threatened species and a California Species of Concern. Bolsa Chica State Beach and Bolsa Chica Reserve annually support a significant wintering flock of western snowy plover in a location with high-quality breeding habitat. Although no breeding or wintering habitat occurs on the AEC site or pipeline alignment, the western snowy plover could fly over as it travels among occupied habitats in the region.²²

White-Tailed Kite

The white-tailed kite is a fully protected species in California. White-tailed kites forage in the nearby Los Cerritos wetlands complex. Although no foraging habitat is found on the

¹⁸ Ex. 2000, p. 4.2-22.

¹⁹ Ex. 2000, p. 19.

²⁰ Ex. 2000, p. 20.

²¹ *Id.*

²² Ex. 2000, pp. 4.2-20 – 4.2-21.

AEC site or pipeline alignment, the white-tailed kite could fly over as it moves among occupied habitats in the region.²³

Osprey

The osprey is on CDFW's Watch List. It is a large raptor that feeds almost exclusively on fish. It is found in coastal areas, and inland near rivers and lakes. In southern California, it is primarily an uncommon winter visitor, but has been observed in the Los Cerritos wetlands complex, and could fly over the AEC site while moving among habitats in the region.²⁴

Burrowing owl

The burrowing owl is a California Species of Special Concern. It has been documented in the project vicinity, but not on the project site. Habitat for burrowing owl is typically level, sparsely vegetated, open areas such as grassland, agricultural land, scrubland, and disturbed or landscaped open areas. The burrowing owl has a moderate potential for foraging and a low potential for nesting or taking refuge on the project site.²⁵

Black Skimmer

The black skimmer is a California Species of Special Concern and a USFWS Bird of Conservation Concern. It is a coastal water bird, and the western population breeds from Orange and San Diego counties in California south to Nayarit, Mexico. It forages in the Los Cerritos wetlands complex, and nests at Bolsa Chica. Although the AEC site and pipeline alignment support no nesting or foraging habitat, black skimmers could fly over while moving among habitats in the region.²⁶

Reptiles

Pacific Green Sea Turtle

As shown in **Biological Resources Table 1**, six special-status reptiles and amphibians have been reported within 10 miles of the project site. However, only one, the Pacific green sea turtle (*Chelonia mydas*), is known to be present nearby. The Pacific green sea turtle is federally listed as threatened. It is found in tropical and subtropical waters world-wide. Pacific green sea turtles are found year-round in the San Gabriel River mouth and surrounding areas and have been resident there since at least 2008. They

²³ Ex. 2000, p. 21.

²⁴ *Id.*

²⁵ *Id.*

²⁶ Ex. 2000, p. 21.

are often observed at the warm water discharges from the AGS adjacent to the project site, and the Los Angeles Department of Water and Power's (LADWP) Haynes Generating Station, just across the river from the project site. The turtles visit other local estuaries seasonally (Anaheim Bay, Seal Beach National Wildlife Refuge, and Alamitos Bay), but the warm water discharged from the power plants may be the primary reason for the species' presence in the area. Studies suggest that the resident turtles are more likely to move among locations in local waters during the summer and fall months when ocean temperatures are warmer, and stay in the warm effluent in the river during the winter.²⁷

Construction Impacts and Mitigation

General

Direct loss of vegetation, small mammals, reptiles, and other less mobile species could occur during construction of the AEC project. This would result primarily from the use of vehicles and equipment at the AEC site, which could collapse underground burrows or drive over animals. Additionally, construction and demolition activities and increased human presence may temporarily disrupt breeding or foraging activities of some common wildlife species.²⁸

The developed industrial project area and ruderal lands along the wastewater pipeline do not provide regionally unique habitat or important habitat for special-status species.²⁹ We find significant impacts to native vegetation will not occur and no mitigation is imposed.

Birds could nest in the ornamental plantings, on facilities and equipment, or on the ground within the AEC site. Many adult birds would flee from equipment during project construction. However, nestlings and eggs of ground-nesting birds or birds nesting on ornamental trees, other landscaping, or equipment and facilities would be vulnerable to impacts during project construction. Construction activities during nesting season could destroy bird nests, including eggs or nestling birds.³⁰

Condition of Certification **BIO-7** requires exclusion measures for open trenches (e.g., fencing or covering), inspection of trenches prior to resuming construction activities each day, and installation of escape ramps so that animals that fall in the trench can escape; these measures would also avoid and minimize impacts to nesting birds.

²⁷ Ex. 2000, p. 22.

²⁸ Ex. 2000, p. 4.2-25.

²⁹ Ex. 2000, p. 4.2-25.

³⁰ Ex. 2000, p. 4.2-25.

Condition of Certification **BIO-8** requires a survey for birds in advance of work conducted between January 1 and August 31 (the primary nesting time); if a nest is identified as a result of the survey, a no-disturbance buffer must be established.³¹

Applicant argues that burrowing owl surveys are unnecessary because of the low likelihood of the presence of the species.³² However, Intervenor, Los Cerritos Wetlands Land Trust submitted uncontroverted evidence that burrowing owls have been observed less than 5,000 feet from the project site utilizing drainage pipes and ground squirrel burrows for cover, and has been documented nesting in degraded areas on the Seal Beach Wildlife refuge.³³ Evidence indicates that there is moderate potential for burrowing owls to currently inhabit the project site where the former tank farm once existed.³⁴ Staff argues that the surveys are reasonable. The mitigation is simply to check for birds before performing site work. Staff expects this can be accomplished while the project owner is performing other required pre-construction surveys which the Applicant has already agreed to perform under Conditions **BIO-2**, **BIO-7** and portions of **BIO-8**.³⁵ We are convinced that burrowing owl surveys are reasonable and not overly burdensome given the potential for their presence at the AEC site. We find that Condition **BIO-8** is necessary to mitigate the potential impacts to this species of special concern to below significance.

Because of the rich biodiversity in the area and the potential for special-status species to be impacted due to their proximity to the project, we impose Conditions of Certification **BIO-1**, **BIO-2**, and **BIO-3**, that require the project owner to appoint a Designated Biologist and Biological Monitor(s) to ensure the protection of sensitive biological resources described above and the implementation of minimization measures described below. We impose Condition of Certification **BIO-4**, which describes the duties and authority of the Designated Biologist and Biological Monitor. The Designated Biologist and/or Biological Monitor will be responsible, in part, for developing and implementing the Worker Environmental Awareness Program (WEAP) (see Condition of Certification **BIO-5**), which is a mechanism for training the on-site project construction and maintenance personnel, as well as project site visitors, on how to protect sensitive biological resources and the consequences of non-compliance. We also impose Condition of Certification **BIO-6** requiring project owner to prepare a Biological

³¹ Ex. 2000, p. 4.2-25 – 4.2-26.

³² Applicant's Opening Brief, pp. 2-3.

³³ Ex. 3046, p. 2.

³⁴ *Id.*

³⁵ Staff Reply Brief (TN 214726), pp. 4-5.

Resources Mitigation Implementation and Monitoring Plan (BRMIMP), consolidating all project resource mitigation, monitoring, and compliance measures, as well as other information necessary to ensure compliance with, and effectiveness of, all impact avoidance, minimization, and mitigation measures. With the imposition and implementation of Conditions of Certification **BIO-1** through **BIO-8**, we find the potential impacts of the AEC project on special-status species during construction to be mitigated to a level of “less than significant” and ensure the project’s compliance with MBTA and California Fish and Game Code.

Noise

Noise from construction and demolition activities could discourage special-status species from foraging and nesting near the proposed project area, due to interference with communication, disturbance or disruption of activities, or startling from loud noises. Noise may affect wildlife in several ways, including reducing reproductive success; raising the level of stress hormones; interfering with sleep; causing permanent injury to the auditory system; and interfering with acoustic communication by masking important sounds, such as an approaching predator. However, most demolition and construction noise is at lower frequencies than bird vocalizations, or is intermittent (e.g., pile driving).³⁶

Special-status species present in the Los Cerritos wetlands complex may be affected by construction and demolition noise. The Belding’s savannah sparrow is known to nest in the marshes. Other birds such as the black skimmer are year-round residents in the marshes and may breed there. Other special-status species only occur seasonally, or forage but do not nest in the marshes.³⁷

Construction and demolition noise in proximity to the Los Cerritos wetlands complex will occur over 57 months. The loudest noise generated by the AEC project during construction and demolition will be from pile driving. However, several methods are available to reduce pile-driving noise; these include 1) use of pads or plywood impact cushions, 2) dampened driving using a blanket or enclosure around the hammer, and 3) use of vibratory pile drivers.³⁸

Conditions of Certification in the **NOISE AND VIBRATION** section of this Decision require effective measures to control construction and demolition noise at its source, which benefits all of the surrounding area, including the Los Cerritos wetlands complex.

³⁶ Ex. 2000, p. 4.2-28.

³⁷ *Id.*

³⁸ Ex. 2000, p. 4.2-29.

Condition of Certification **NOISE-8** requires noise and vibration minimization measures for pile driving, and Condition of Certification **NOISE-6** requires mitigation measures for all noisy construction activities. With implementation of these conditions of certification, construction noise impacts to special-status species in the vicinity of the AEC will be less than significant.³⁹

Lighting

Construction and demolition activities will typically occur between 7:00 a.m. and 7:00 p.m. Monday through Friday, and between 9:00 a.m. and 6:00 p.m. on Saturday. Overtime and additional shift work may be used to maintain the construction schedule or to complete critical construction activities. During the commissioning and startup phase of each of the power blocks, some activities may continue 24 hours per day, 7 days per week. Bright lighting at night could disturb the nesting, foraging, or mating activities of wildlife in the nearby marshes and make wildlife more visible to predators. Night lighting could disorient migratory birds and, if placed on tall structures, may attract birds and increase the likelihood of collision.⁴⁰

If night construction is required, the Applicant will use task-specific lighting to the extent practicable and shield and direct lighting onsite. These measures are incorporated into Condition of Certification **VIS-1** (refer to the **VISUAL RESOURCES** section of this Decision). With implementation of Condition of Certification **VIS-1**, impacts to wildlife from construction night lighting will be less than significant.⁴¹

Construction Dust

Fugitive dust results from operating vehicles and equipment on unpaved surfaces on the AEC site, including grading and bulldozing during construction. Demolition activities such as the top-down removal of the boilers and stacks, and loading waste haul trucks with materials and debris could also generate dust. Dust can have deleterious physiological effects on plants and may affect their productivity and nutritional qualities for feeding wildlife.⁴²

Condition of Certification **AQ-SC3** requires specific measures to minimize fugitive dust, and Condition of Certification **AQ-SC4** requires construction monitoring for visible dust plumes and remediation measures in the event visible dust plumes are observed. With

³⁹ Ex. 2000, p. 4.2-29.

⁴⁰ Ex. 2000, p. 4.2-29.

⁴¹ *Id.*

⁴² Ex. 2000, p. 4.2-30.

implementation of these conditions, we find that impacts to plants and habitat in the Los Cerritos Wetlands from project-related dust will be less than significant.⁴³

Invasive Weeds

The spread of invasive weeds degrades or destroys wildlife habitat and forage, threatens native plants, including special-status species, and often increases soil erosion and groundwater loss. Construction activities and related soil disturbance could further spread weeds already present in the project vicinity, introduce new invasive weeds to the area, and perhaps lead to weed infestation in the Los Cerritos Wetlands. In addition, portions of the wetlands are undergoing restoration, or will be restored over the 57-month demolition and construction period. Early phase restoration sites will be particularly vulnerable to weed infestations.⁴⁴

No substantial invasive weed populations are known within the project area. However, to avoid or minimize the spread of existing weeds and the introduction of new ones, we impose the weed management measures in Condition of Certification **BIO-7**. This condition requires limiting vegetation and ground disturbance to the minimum required for safe project completion, and limiting ingress/egress to defined routes. Condition of Certification **SOIL&WATER-1**, requires a site-specific construction Stormwater Pollution Prevention Plan (SWPPP) to manage runoff. Stormwater runoff will be contained and prevented from draining to adjacent sensitive habitats; therefore weed propagules will be prevented from washing into the wetlands. Further, straw bales and other sediment control features will be weed free, and invasive non-native species will be prohibited from use as landscape plantings. Implementation of the conditions of certification reduce the potential impacts from introduction and spread of invasive weeds into sensitive habitat to less than significant.⁴⁵

Stormwater Runoff

The AEC project will not result in direct loss or fill of jurisdictional wetlands or waters, as there are none present within the project area. The AEC site is near the Los Cerritos wetlands which includes estuarine and marine wetland habitats. These areas appear to meet criteria as jurisdictional waters of the state and waters of the U.S. Indirect impacts to wetlands may result if construction contaminants, sediment, or untreated stormwater effluent from the AEC project enter these sensitive areas. The Applicant has committed to implementing Best Management Practices (BMPs) to control site runoff during

⁴³ Ex. 2000, p. 4.2-30.

⁴⁴ Ex. 2000, p. 4.2-30.

⁴⁵ Ex. 2000, p. 4.2-30.

construction and demolition activities in accordance with the project's SWPPP. This requirement is subsumed as a requirement of Condition of Certification **SOIL&WATER-1**. With implementation of Condition of Certification **SOIL&WATER-1**, indirect water quality impacts to adjacent wetland habitats will be less than significant and project impacts to biological resources from stormwater runoff will be less than significant.⁴⁶

Groundwater Contamination

Construction materials could contaminate groundwater if not properly used and stored. If the AEC project caused groundwater contamination (including spills of toxic materials from equipment leakage), adverse effects to vegetation and wildlife at the Los Cerritos wetlands could occur. Such construction impacts will be minimized or avoided through implementation of a SWPPP and associated BMPs (pursuant to Condition of Certification **SOIL&WATER-1**). With implementation of Condition of Certification **SOIL&WATER-1** we find that this impact will be less than significant.⁴⁷

Operation Impacts and Mitigation

Noise

The existing AGS, urban development, and roadways in the area contribute to ambient noise. As described above under "Construction Impacts and Mitigation," operational noise from the AEC can also affect wildlife.⁴⁸

As explained more fully in the **NOISE and VIBRATION** section of this Decision, the operational noise from the AEC will comply with the local noise ordinances and will not have a significant impact to the project's sensitive receptors. Tonal noise will be mitigated below significance. The anticipated steady-state operational sound level from the AEC will be 55 dBA at approximately 500 feet west of the project site. At the nearest point, the Los Cerritos wetlands are more than twice that distance from the AEC site. Operational noise levels in the wetlands will be similar to current conditions, including noise from the existing AGS. Therefore, we find operational noise impacts to wildlife at the Los Cerritos wetlands will be less than significant.⁴⁹

Lighting

Potential lighting effects to wildlife are described above under "Construction Impacts and Mitigation." The Applicant states that operational lighting for the AEC will minimally

⁴⁶ Ex. 2000, p. 4.2-31.

⁴⁷ *Id.*

⁴⁸ *Id.*

⁴⁹ Ex. 2000, p. 4.2-32.

increase the current light from the project site, as the existing AGS is brightly lit at night and the new AEC facility will conform to current night lighting standards, which require minimal lighting, directional lights, and switched lighting circuits for areas where lighting is not required for normal operation or safety. Once the existing AGS generating units are retired and demolished, the amount of lighting at the site, even with the lighting required by the AEC, will be less than existing conditions. To minimize backscatter of light to the sky and ensure that lighting does not obtrude beyond the project site, we will impose Condition of Certification **VIS-4** (refer to the **VISUAL RESOURCES** section of this Decision). To minimize the potential for birds to be attracted to any aviation lighting on tall structures, Condition of Certification **BIO-7** requires blinking lights with the minimum intensity allowed, as feasible. With implementation of Condition of Certification **VIS-4**, impacts to wildlife from operation night lighting are potentially adverse, but less than significant.⁵⁰

Avian Collision and Electrocutation

The Los Cerritos wetlands and other regional wetlands attract resident and migratory birds for foraging, resting, and breeding. Birds moving among these habitats could be subject to collision or electrocution with AEC facilities and appurtenant structures including transmission lines and transmission support structures.⁵¹

Birds can collide with transmission lines, exhaust stacks, and other project structures, causing injury or mortality. Collision rates generally increase in low light conditions, during inclement weather, during strong winds, and during panic flushes when birds are startled by a disturbance or are fleeing danger. Collisions are more probable near wetlands, within valleys that are bisected by power lines, and within narrow passes where power lines run perpendicular to flight paths.⁵²

Although collision may occur, it is not likely that the frequency of bird injury or mortality due to collision with AEC transmission lines and facilities will significantly increase from existing levels, or significantly affect populations of any bird species. No new offsite transmission lines are proposed because the AEC power blocks will connect into the existing SCE switchyard. The AEC exhaust stacks for the combined cycle generators will be 140 feet tall and the stacks for the simple cycle generators will be 80 feet tall. The AEC stacks are much shorter than 350 feet (the height above which is considered dangerous to migrating birds), and shorter than the existing AGS stacks which are over 200 feet tall. The AEC will not present significant new collision hazards, and collision

⁵⁰ Ex. 2000, p. 4.2-32.

⁵¹ *Id.*

⁵² *Id.*

risk with the existing AGS will be reduced once that facility is retired and demolished. Direct and indirect impacts to birds from collision with structures are expected to be minimal and consistent with baseline conditions.⁵³

The majority of raptor electrocutions are caused by transmission lines that are energized at voltage levels between 1 kV and 60 kV. The likelihood of electrocutions occurring on transmission lines carrying voltages greater than 60 kV is low because wider phase-to-phase and phase-to-ground clearances for lines greater than 60 kV are typically sufficient to prevent bird electrocution. Therefore, the new 230 kV onsite generation tie lines have a low likelihood of causing bird electrocution.⁵⁴

The new AEC generation tie lines will not appreciably increase collision risk over baseline conditions. Nonetheless, because of the large numbers of shorebirds, including listed species, in the nearby Los Cerritos wetlands and the likelihood that many birds fly over the project site en route to the marshes, Condition of Certification **BIO-7** (Impact Avoidance and Minimization Measures) includes a requirement that the project owner construct the generation tie lines in accordance with Avian Power Line Interaction Committee standards to minimize or avoid bird collisions and electrocutions. With implementation of this component of Condition of Certification **BIO-7**, this impact will be less than significant.⁵⁵

Stormwater Runoff

Potential effects of stormwater runoff to biological resources are described above under “Construction Impacts and Mitigation.” Similar effects could result from stormwater runoff during operation of the project. Stormwater runoff from the power block areas will be directed to oil/water separators and to an existing retention basin and then ultimately discharged to the Los Cerritos channel via existing stormwater outfalls. Stormwater runoff will be conveyed in accordance with National Pollutant Discharge Elimination System (NPDES) General Industrial Permit requirements. For more information on water quality impacts, please see the **SOIL AND WATER RESOURCES** section of this Decision. Condition of Certification **SOIL&WATER-4** requires the project owner to obtain a NPDES permit for industrial waste and stormwater discharge to the Pacific Ocean through the existing AGS outfall. With implementation of Condition of

⁵³ Ex. 2000, p. 4.2-33.

⁵⁴ *Id.*

⁵⁵ *Id.*

Certification **SOIL&WATER-4**, potential project impacts from stormwater runoff during operation will be less than significant.⁵⁶

Air Emissions – Nitrogen Deposition

Nitrogen deposition is the input of nitrogen oxide (NO_x) and ammonia (NH₃) derived pollutants, primarily nitric acid (HNO₃), from the atmosphere to the biosphere. Nitrogen deposition sources are primarily vehicle and industrial emissions. Mechanisms by which nitrogen deposition can lead to impacts on sensitive species include direct toxicity, changes in species composition among native plants, and enhancement of invasive species. The increased dominance and growth of invasive annual grasses is especially prevalent in low-biomass vegetation communities that are naturally nitrogen-limited. In the project vicinity, these communities include coastal dunes, chaparral, coastal sage scrub, oak woodlands, and vernal pools.⁵⁷

Regional Clean Air Incentives Market (“RECLAIM”) Trading Credits would offset the AEC’s annual NO_x increase in a 1-to-1 ratio so that the project will not result in a net increase in NO_x basin-wide (see the **AIR QUALITY** section of this Decision for more information on the RECLAIM program). This offset will mitigate the project’s effects to basin-wide nitrogen deposition. The biological effects of nitrogen deposition analyzed here are distinct from regional basin-wide NO_x effects because the potential effect to biological resources is localized, limited to the area where atmospheric nitrogen pollutants specifically attributed to the project’s exhaust plume may be deposited on the soil.⁵⁸

The evidence shows that habitat of listed threatened or endangered species within a six-mile radius of the project site will be potentially sensitive to nitrogen deposition from the AEC. The 6-mile radius is based on Staff’s testimony that in-plume nitrogen concentrations are indistinguishable from background concentrations at greater distances. Habitats within six miles of the AEC that support listed species are located at the Bolsa Chica Ecological Reserve, Los Cerritos wetlands complex, and Seal Beach National Wildlife Refuge. State and federally listed species inhabit these protected areas. Also, designated critical habitat for the western snowy plover is located at the Bolsa Chica Ecological Reserve, approximately five miles from the AEC site.⁵⁹

⁵⁶ Ex. 2000, p. 4.2-34.

⁵⁷ *Id.*

⁵⁸ *Id.*

⁵⁹ Ex. 2000, p. 4.2-35.

Adverse effects of nitrogen deposition vary according to habitat type, based on natural availability of soil nitrogen and vulnerability to invasive weeds. “Critical load” (CL) is the threshold nitrogen deposition rate that causes adverse effects to nitrogen-sensitive ecosystems. If a project would cause nitrogen deposition to exceed CL for a sensitive native habitat type, or deposit additional nitrogen in a sensitive habitat where the CL is already exceeded, this impact would meet the CEQA significance criteria for adverse impacts to sensitive habitats.⁶⁰

The most abundant habitat supporting listed species in the region is coastal salt marsh, where the nitrogen CL ranges from 63 to 400 kilograms per hectare per year (kg/ha/yr). These habitats are not as sensitive as uplands to atmospheric nitrogen deposition because tidal sea water influx and flushing create open nitrogen cycles. Small areas of natural and restored coastal dunes, coastal sage scrub, coastal dune scrub, and riparian woodland in the project region may be sensitive to nitrogen deposition.⁶¹

The nitrogen CL for coastal sand dunes, which includes nesting habitat for western snowy plover and California least tern, ranges from 10 to 20 kg/ha/yr. However, western snowy plover and California least tern nest on areas with little to no vegetation, and nesting sites in the project vicinity are managed to maintain appropriate nesting conditions. Very limited coastal sage scrub is located on some upland areas in Bolsa Chica Ecological Reserve; this vegetation has a nitrogen CL of 7.8 kg/ha/yr.⁶²

Staff modeled the estimated nitrogen deposition from the AEC within a six-mile radius of the project site, including the Los Cerritos wetlands complex, Bolsa Chica Ecological Reserve and western snowy plover critical habitat, and the Seal Beach National Wildlife Refuge using the AERMOD atmospheric dispersion model. However, because AERMOD does not account for the transformation of nitrogen, which is time and reaction dependent, the nitrogen deposition impacts of the project are likely overestimated by 10-fold. Further, the nitrogen emission inventory in the South Coast Air Basin has decreased more than 50 percent from 2002 to 2015 for oxides of nitrogen and ammonia combined. The use of the 2002 emissions inventory in the baseline nitrogen deposition rates probably overestimates baseline nitrogen deposition by a factor of two.⁶³

⁶⁰ Ex. 2000, p. 4.2-35.

⁶¹ *Id.*

⁶² *Id.*

⁶³ Ex. 2000, pp. 4.2-35 - 4.2-36; 4.2-81.

Even with the substantial overestimation of modeled nitrogen deposition, the nitrogen deposition rates of the proposed AEC will not approach CL for most sensitive vegetation and habitat within the 6-mile radius. According to the model, the upper range of baseline nitrogen deposition in coastal dunes exceeds the lower estimate of CL for that habitat. The project's estimated additional nitrogen deposition will be minimal (0.04 to 0.06 kg/ha/year, or less than one percent of the upper baseline estimate).⁶⁴

The estimated baseline for coastal salt marsh and mud flat habitats are well below the critical load thresholds and additional project-related nitrogen deposition will not cause the total to exceed the critical loads. This is due to the naturally high nitrogen availability in these habitats.⁶⁵

Based on (1) the over-estimate of nitrogen deposition inherent to the AERMOD model, (2) the limited area of potentially affected native vegetation, (3) weed management practices at nest sites for listed birds, and (4) the current overestimate and continuing downward trend of baseline NO_x and NH₃, we find that the AEC's nitrogen deposition impacts to listed species and sensitive habitats will be less than significant.⁶⁶

With the implementation of the relevant conditions of certification in the **NOISE AND VIBRATION, VISUAL RESOURCES, SOIL & WATER**, and **AIR QUALITY** sections of this Decision, we find the potential impacts of the AEC project on special-status species during operation to be mitigated to a level of "less than significant."

CUMULATIVE IMPACTS

Cumulative effects are those that result from the incremental effects of a proposed action considered with other past, present, and reasonably foreseeable future actions. Cumulative effects can result from individually minor but collectively significant actions taking place over time. A project may result in a significant adverse cumulative effect if its effects contribute considerably to an overall cumulatively significant impact.⁶⁷

There are currently proposed projects near the AEC that may impact local biological resources, especially those in and near the Los Cerritos wetlands complex and other regional wetlands. These projects include the Alamitos Barrier Improvement Project and a planned retail development at Pacific Coast Highway and 2nd Street. Other

⁶⁴ Ex. 2000, p. 4.2-36.

⁶⁵ Ex. 2000, p. 4.2-37.

⁶⁶ *Id.*

⁶⁷ *Id.*

cumulative projects identified within six miles of the AEC would be too far from the site to contribute cumulatively to impacts to biological resources.⁶⁸

If nearby projects overlap with those of the AEC, cumulative indirect impacts to wildlife from noise, dust, lighting, spread of invasive weeds, or stormwater runoff could occur. However, implementation of Conditions of Certification **BIO-1** through **BIO-7**, **SOIL&WATER-1**, **AQ-SC3**, **AQ-SC4**, **NOISE-6**, **NOISE-8**, and **VIS-1** will minimize these impacts from the proposed AEC. The combined effects on biological resources from the construction and operation of AEC with other expected projects in the area will not be cumulatively considerable because of the dispersed nature of the projects in location and time, and the expected use of readily available mitigation by other projects to address similar impacts. In addition AEC's comprehensive mitigation measures coupled with the use of an existing industrial site, and the temporary nature of construction impacts, ensure that AEC's contribution to any cumulative effects will not be cumulatively considerable.⁶⁹

The operational AGS Units 1-6 are nearing the end of their useful life and utilize once-through cooling (OTC). In 2010, the State Water Resources Control Board (SWRCB) approved an OTC policy that includes phasing out the use of OTC by December 31, 2020, in part to protect marine life. In compliance with the OTC policy, the AGS Units 1-6 are expected to be retired by the end of 2020. The demolition of the AGS Units 1-6 is addressed in a Memorandum of Understanding between the project owner and the City of Long Beach. The schedule for decommissioning and demolition of AGS Units 1-6 has not been determined.⁷⁰

Los Cerritos Wetlands Land Trust (LCWLT) submitted testimony asserting that because impacts from the demolition of AGS Units 1-6 have not been identified, implementation of Conditions of Certification **BIO-1** through **BIO-7** would not mitigate cumulative impacts from the AEC.⁷¹ We have found that the demolition of AGS Units 1-6 is not part of the AEC project.⁷² Nevertheless, because the AEC site is an existing industrial facility and the baseline environment takes into account the operations of not only the AGS facility, but also LADWP's Haynes Generating Station, Conditions of Certification **BIO-1** through **BIO-7** reduce the AEC's incremental contribution to cumulative impacts below significance, even if another project in the cumulative scenario, such as the demolition

⁶⁸ Ex. 2000, p. 4.2-37.

⁶⁹ Ex. 2000, pp. 4.2-37 - 4.2-38.

⁷⁰ Ex. 2000, p. 4.2-37.

⁷¹ Ex. 3005, pp. 2 - 6, Ex. 3004, Section 1.

⁷² Ex. 2002.

of the AGS Units 1-6, has its own significant impacts to biological resources, or if the combined impacts of the AEC, AGS, and other projects were cumulatively significant.⁷³

LCWLT submitted a video showing the implosion of the South Bay power plant.⁷⁴ The video showed dust and debris rising as a result of the implosion. There is no evidence in the record describing what method the AGS will use if and when the AGS Units 1-6 are demolished. Even assuming that the AGS Units 1-6 are demolished in the same manner as the South Bay power plant, there would still be no cumulative impact in relation to AEC.⁷⁵ As is noted in the **PROJECT DESCRIPTION** section of this Decision, demolition of AGS, if it occurs, would take place during the operations of AEC. The operations of AEC are not expected to release dust and debris and therefore there would be nothing to combine with the temporary AGS demolition dust. Given the industrial setting and temporary nature of any demolition of AGS, and lack of corresponding impacts from AEC, Staff disagreed with LCWLT that further detailed information on the time and methodology of demolition was necessary to assess cumulative impacts.⁷⁶ In this regard, we agree with Staff and find that the cumulative analysis is adequate.

The same analysis is also true regarding the impacts of noise on biological resources from the demolition of AGS. The operational noise of AEC will not cumulatively contribute to the short-term implosion noise of AGS's demolition as indicated on the video.⁷⁷ This is especially true given the noise mitigation set forth in the **NOISE** section of this Decision.

A cumulative impact consists of an impact which is created as a result of the combination of the project being evaluated together with other projects causing related impacts.⁷⁸ There are two key questions we ask in a cumulative analysis. First: whether the AEC is contributing a related impact and secondly: if there is a contribution from the project, whether the project's incremental effects are cumulatively considerable.⁷⁹

⁷³ Ex. 2004, pp. 6-7.

⁷⁴ Ex. 3007.

⁷⁵ Ex. 2004, p. 7.

⁷⁶ *Id.*

⁷⁷ *Id.*

⁷⁸ CEQA Guidelines, § 15130(a)(1).

⁷⁹ *Communities for a Better Environment v. California Resources Agency* (2002) Cal. App. 4th 98, 120, CEQA Guidelines § 15130 (a)(2).

As to the first question, regardless of how much environmental damage the demolition of the AGS Units 1-6 may cause, if there is no related impact attributable to AEC, there can be no cumulative impact and further analysis is not necessary.⁸⁰ In this case, demolition of AGS is a future project that has yet to be developed and the time frame and methodologies of demolition are unknown beyond that demolition of AGS will occur during operations of AEC.⁸¹ The discussion of cumulative impacts need not be to the same level of detail as is provided for the effects attributable to the project alone.⁸² Therefore, it is appropriate for Staff to make assumptions and offer a more qualitative analysis because cumulative discussions are to be guided by the standards of practicality and reasonableness.⁸³ To be clear, we find that the cumulative impacts analysis in the record is reasonable and sufficient.

Pacific Green Sea Turtles

The Pacific green sea turtles inhabiting the San Gabriel River and surrounding bays and inlets are occasionally observed congregating near the warm water outfalls of the existing AGS plant and the adjacent LADWP Haynes power plant. This area appears to be the warmest location in the river during winter months, although temperatures upstream are warmer during the summer. Pacific green sea turtles are more widely distributed during the summer but appear to congregate near the outfalls in winter. Pacific green sea turtles' distribution and movement throughout the area is the subject of ongoing research, and limited data is available for this population.⁸⁴

The AGS is not the only source of warm water inputs to the San Gabriel River and Alamitos Bay. Water treatment plants, urban runoff, the adjacent LADWP Haynes Generating Station, and physical characteristics of local sea turtle habitats all contribute to warm year-round temperatures. It is unlikely that Pacific green sea turtles are dependent on these unnatural warm water sources, especially during the summer months, and even in the absence of the existing power plants' warm water outfalls, the river and surrounding bays and inlets are suitable habitat for Pacific green sea turtles. Further, ongoing and planned future restoration of the Los Cerritos Wetlands and San

⁸⁰ CEQA Guidelines § 15130(a)(1).

⁸¹ Ex. 2000, pp. 3-1 to 3-2.

⁸² CEQA Guidelines § 15130, (b).

⁸³ *Id.*

⁸⁴ Ex. 2000, p. 4.2-38.

Gabriel River mouth could increase habitat quality and quantity for Pacific green sea turtles in these areas.⁸⁵

The LADWP's Haynes Generating Station on the east side of the San Gabriel River, opposite the AEC site, is in the process of converting from OTC to dry cooled technology. A portion of the plant was replaced within the last nine years, and repowering of Haynes Units 1 and 2 is scheduled for completion at the end of 2023. Haynes Unit 8 repowering is scheduled for completion at the end of 2029.⁸⁶

Elimination of OTC from the Haynes Generating Station, combined with decommissioning of the AGS, would eventually eliminate warm water effluent from power plants at this location. However, the elimination of OTC and the associated warm water effluent would occur gradually over more than a decade, and Pacific green sea turtles in the area are expected to gradually adapt to the changing temperature regime by adjusting their local activities.⁸⁷

The AEC will not directly contribute to impacts to Pacific green sea turtles from the cessation of warm water effluent because the AGS units would need to be retired or converted to a differently technology to comply with the OTC policy regardless of whether the AEC is built. The AEC would not contribute to or eliminate any warm water discharges currently occurring. Therefore, the AEC will not contribute to cumulative effects to Pacific green sea turtles.⁸⁸

Once operational, the AEC will not result in a substantial change from baseline conditions for other biological resources. Operational noise and nitrogen deposition impacts will not differ substantially from baseline conditions, and the AEC's contribution to these impacts will not be cumulatively considerable. We find that with the implementation of Conditions of Certification **BIO-1 through BIO-8**, the AEC will have no cumulatively considerable effects to biological resources.⁸⁹

FACILITY CLOSURE

When the AEC is closed in the future, whether planned or unexpected, it must be done so that closure activities protect the environment and public health and safety. A Closure Plan must be prepared by the project owner and approved by the Energy Commission compliance project manager. Facility closure requirements are discussed

⁸⁵ Ex. 2000, p. 4.2-39.

⁸⁶ *Id.*

⁸⁷ *Id.*

⁸⁸ *Id.*

⁸⁹ *Id.*

in more detail in the **COMPLIANCE CONDITIONS AND COMPLIANCE MONITORING PLAN** section. Facility closure mitigation measures will also be included in the Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) prepared by the project owner and described in Condition of Certification **BIO-6**.⁹⁰

Upon decommissioning and permanent facility closure, reclamation would be necessary to prevent adverse effects such as contamination from hazardous substances, erosion, dust, invasion and spread of weeds, and hazards to wildlife from abandoned project infrastructure. Decommissioning activities are likely to cause similar indirect impacts to adjacent sensitive biological resources as described above for the construction and demolition phases of the proposed project.⁹¹

To ensure that public health and safety and the environment are protected during decommissioning, the Applicant has committed to developing a decommissioning plan that would be submitted to the Energy Commission for approval prior to decommissioning. If possible, unused chemicals would be sold back to the suppliers or other purchasers or users. All equipment containing chemicals would be drained and shut down to ensure public health and safety and to protect the environment. All nonhazardous wastes would be collected and disposed of in appropriate landfills or waste collection facilities. All hazardous wastes would be disposed of according to all applicable LORS.⁹²

We conclude that these potential effects of facility closure and decommissioning would be a significant impact absent mitigation. Conditions of Certification similar to **BIO-1** through **BIO-8** will minimize or avoid these impacts to biological resources, so that demolition impacts to biological resources will be less than significant.

COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

The LORS applicable to the project's potential impacts during project construction, demolition, and operation on biological resources are listed in **Biological Resources Table 2**.

⁹⁰ Ex. 2000, p. 4.2-40.

⁹¹ *Id.*

⁹² *Id.*

Biological Resources Table 2
Laws, Ordinances, Regulations, and Standards⁹³

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
FEDERAL		
Endangered Species Act (Title 16, United States Code, section 1531 et seq., and Title 50, Code of Federal Regulations, part 17.1 et seq.)	Designates and provides for protection of threatened and endangered plant and animal species, and their critical habitat. Take of federally listed species as defined in the Endangered Species Act is prohibited without incidental take authorization, which may be obtained through Section 7 consultation (between federal agencies) or Section 10 Habitat Conservation Plan. The administering agencies are the USFWS the National Oceanic Atmospheric Administration (NOAA), and National Marine Fisheries Service.	Compliant: No state- or federally listed species occur on the project site or pipeline alignment, and therefore no “take” of listed species would occur.. With implementation of Conditions of Certification BIO-1 through BIO-8 the AEC will comply with the Endangered Species Act. ⁹⁴
Migratory Bird Treaty (Title 16, United States Code, sections 703 through 711)	Makes it unlawful to take or possess any migratory nongame bird (or any part of such migratory nongame bird including nests with viable eggs). The administering agency is the USFWS.	Compliant: Special-status birds are not expected to use the project site, except for incidental flyover or possibly roosting. With the implementation of Conditions of Certification BIO-5, BIO-6, and BIO-8 , the AEC will comply with the Migratory Bird Treaty Act. ⁹⁵
STATE		
California Endangered Species Act of 1984 (Fish and Game Code, sections 2050 through 2098)	Protects California's rare, threatened, and endangered species. The administering agency is CDFW.	Compliant: With implementation of Conditions of Certification BIO-1 through BIO-8 , the AEC will comply with the Endangered Species Act. No state- or federally listed species occur on the project site or pipeline alignment, and therefore no “take” of listed species would occur. ⁹⁶
California Code of Regulations Title 14, sections 670.2 and 670.5	Lists the plants and animals of California that are declared rare, threatened, or endangered. Take of state listed species is prohibited without incidental take authorization, according to Section 2081 or 2080.1 of the Endangered Species Act. The administering agency is CDFW.	Compliant: Conditions of Certification BIO-1 through BIO-8 , ensure compliance with these regulations. No state listed species occur on the project site or pipeline alignment, and therefore no “take” of listed species will occur. ⁹⁷

⁹³ Ex. 2000, pp. 4.2-2 - 4.2-4, Ex. 2013, pp. 2 - 12.

⁹⁴ Ex. 2000, pp. 4.2-1; 4.2-16 - 4.2-22; 4.2-40; Ex. 2013, p. 2.

⁹⁵ Ex. 2000, p. 4.2-26; Ex. 2013, p. 4.

⁹⁶ Ex. 2000, pp. 4.2-1; 4.2-16 - 4.2-22; 4.2-40.

⁹⁷ Ex. 2000, pp. 4.2-1; 4.2-27; 4.2-40.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
Fish and Game Code sections 3511, 4700, 5050, and 5515; Title 14, California Code of Regulations, section 670.7. Fully Protected Species	Designates certain species as fully protected and prohibits the take of such species unless for scientific purposes (see also Title 14, California Code of Regulations, section 670.7). The administering agency is CDFW.	Compliant: No state listed species occur on the project site or pipeline alignment, therefore no “take” of listed species are expected to occur. ⁹⁸ In addition, with implementation of Conditions of Certification BIO-1 through BIO-8 , the AEC will comply with the Fully Protected Species Act. ⁹⁹
Fish and Game Code section 3503	Protects California’s birds by making it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. The administering agency is CDFW.	Compliant: With implementation of Conditions of Certification BIO-7 and BIO-8 , no significant impacts to bird nests or eggs would result from AEC project construction and demolition activities and the project would comply with California Fish and Game Code, section 3503. ¹⁰⁰
Fish and Game Code section 3513	Protects California’s migratory birds by making it unlawful to take or possess any migratory nongame bird as designated in the MBTA Migratory Bird Treaty Act or any part of such migratory nongame birds. The administering agency is CDFW.	Compliant: With implementation of Conditions of Certification BIO-7 and BIO-8 , no significant impacts to nesting birds would result from proposed project construction and demolition activities and the project would comply with Fish and Game Code, section 3513. ¹⁰¹
Fish and Game Code sections 1600 et seq.	Regulates activities that may divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake in California designated by CDFW in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit. Impacts to vegetation and wildlife resulting from disturbances to waterways are also reviewed and regulated during the permitting process. The administering agency is CDFW.	Compliant: Conditions of Certification SOIL&WATER-1 and SOIL&WATER-4 ensure compliance with California Fish and Game Code 1600 et seq., by requiring control of runoff from the project area and operational discharges to be treated in accordance with NPDES permit requirements. ¹⁰²

⁹⁸ Ex. 2000, pp. 4.2-1; 4.2-16 - 4.2-22; 4.2-40.

⁹⁹ Ex. 2000, pp. 4.2-1; 4.2-16 - 4.2-22; 4.2-40.

¹⁰⁰ Ex. 2000, p. 4.2-26.

¹⁰¹ *Id.*

¹⁰² Ex. 2000, pp. 4.2-1; 4.2-28.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
Public Resources Code, sections 30000 et seq. California Coastal Act	Establishes comprehensive land use planning along the California coast; sets forth general policies (§30200 et seq.) which govern the California Coastal Commission's review of permit applications and local plans. Specific to energy facilities, requires that the Coastal Commission designate specific locations within the coastal zone where a thermal power plant subject to the Warren-Alquist Act could prevent the achievement of the objectives of the Coastal Act (30413(b)). Section 30231 requires actions that minimize adverse impacts to biological productivity of coastal waters. Section 30240 mandates protection of environmentally sensitive habitats from the degradation of habitat value. The administering agency is the California Coastal Commission.	Compliant: While the project is located within the Coastal Zone as defined by the California Coastal Act, the City of Long Beach's General Plan and Local Coastal Plan, which require buffers between new development and environmentally-sensitive habitats, would not directly apply to the project. The nearest environmentally-sensitive habitat, the Los Cerritos Wetlands, is over 1,000 feet from the closest AEC boundary. ¹⁰³ The AEC project would not result in loss or fill of wetlands or waters of the U.S. or wetlands or waters of the state (as defined by CDFW, California Water Resources Control Board, or California Coastal Commission), as there are none present on the site or pipeline alignment. Indirect impacts resulting from degradation of adjacent wetlands and coastal waters from construction runoff or operational discharges would be less than significant with implementation of Conditions of Certification SOIL&WATER-1 and SOIL&WATER-4 . These conditions would ensure compliance with the California Coastal Act by requiring control of runoff from the project area and operational discharges to be treated in accordance with NPDES permit requirements. ¹⁰⁴
Porter-Cologne Water Quality Control Act	Regulates discharges of waste and fill materials to waters of the state, including "isolated" waters and wetlands. The administering agency is the SWRCB.	Compliant: With implementation of Conditions of Certification SOIL&WATER-1 and SOIL&WATER-4 , the AEC would comply with the Porter Cologne Water Quality Act by requiring control of runoff from the project area and operational discharges to be treated in accordance with NPDES permit requirements. ¹⁰⁵

The AEC will not result in "take" of listed species as no state or federally listed species occur on the project site or pipeline alignment.¹⁰⁶

The AEC project will not result in loss or fill of wetlands or waters of the U.S. (as defined by the U.S. Army Corps of Engineers) or wetlands or waters of the state (as defined by

¹⁰³ Ex. 2013, p. 11.

¹⁰⁴ Ex. 2000, p. 4.2-41; Ex. 2006.

¹⁰⁵ Ex. 2000, p. 4.2-41.

¹⁰⁶ Ex. 2000, p. 4.2-40.

CDFW, California Water Resources Control Board, or California Coastal Commission), as there are none present on the site or pipeline alignment. Conditions of Certification **SOIL&WATER-1**, **SOIL&WATER-3**, **SOIL&WATER-4**, and **BIO-7** ensure compliance with the federal Clean Water Act, California Fish and Game Code 1600 et seq., California Coastal Act, and the Porter Cologne Water Quality Act by requiring control of runoff from the project area and operational discharges to be treated in accordance with NPDES permit requirements.¹⁰⁷

AGENCY AND PUBLIC COMMENTS

Keith Simmons,¹⁰⁸ President of the Los Cerritos Wetlands Land Trust commented that the AGS was built on coastal wetlands before science understood the enormous value of wetlands. He commented that the noise and air emissions from AGS have been a “constant source of habitat degradation that impairs restoration.” He also suggested that marine life mortality due to AGS’ cooling water intake impeded restoration for decades.

Also, in comments on the PMPD, **the Sierra Club, California Coastal Protection Network, 350.org, Coastal Environmental Rights Foundation, Los Angeles Waterkeeper, Surfrider Foundation, Earth Law Center, Heal the Bay, and Protect Our Communities** assert that the PMPD failed to account for adverse impacts to nearby coastal wetlands.

Response to Comments: The evidence indicates that the AEC will not be built on existing coastal wetlands, but on a brownfield within the parcel encompassing the existing AGS. Also, the AEC will be air-cooled and will not use once-through-cooling. The evidence cited above indicates that noise and nitrogen deposition impacts will not differ substantially from baseline conditions, and the AEC’s contribution to these impacts will not be cumulatively considerable, which supports the finding that noise impacts and air emissions impacts on biological resources from the AEC will be less than significant. See also the **NOISE and VIBRATION** and **AIR QUALITY** sections of this Decision.

FINDINGS OF FACT

Based on the evidence, we make the following findings:

1. The AEC site is located on an existing power plant site.

¹⁰⁷ Ex. 2000, p. 4.2-41.

¹⁰⁸ 11/15/16 RT 128:10 – 130:20.

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. Significant impacts to native vegetation will not occur.
4. The project site does not contain suitable habitat for special status species.
5. The project owner will implement appropriate avoidance and mitigation measures to prevent significant adverse impacts to all sensitive species.
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 incorporating all biological mitigation and compliance measures required by applicable local, state, and federal laws, ordinances, regulations, and standards.
8. Transmission lines will be designed to reduce the risk of avian collisions and electrocutions.
9. Night time lighting will be designed to avoid disruption to wildlife.
10. The AEC will be air-cooled and will not use once through cooling.
11. With implementation of Conditions of Certification **BIO-1** through **BIO-8**, the potential impacts of the Alamitos Energy Center on special-status species during construction will be mitigated to a level of "less than significant."
12. With implementation of Condition of Certification **VIS-1**, impacts to wildlife from construction night lighting will be less than significant.
13. Impacts to plants and habitat in the Los Cerritos Wetlands from project-related dust will be less than significant.
14. With implementation of Condition of Certification **SOIL&WATER-1**, indirect water quality impacts to adjacent wetland habitats will be less than significant.
15. With implementation of Condition of Certification **SOIL&WATER-1**, project impacts to biological resources from stormwater runoff will be less than significant.
16. With implementation of Condition of Certification **SOIL&WATER-1** we find that construction impacts to groundwater will be less than significant.

17. Operational noise impacts to wildlife at the Los Cerritos Wetlands will be less than significant.
18. Impacts to wildlife from night lighting are potentially adverse during operations, but less than significant with implementation of Conditions of Certification **VIS-4** and **BIO-7**.
19. The Alamitos Energy Center will not present significant new collision hazards during operations with implementation of Conditions of Certification **BIO-7**.
20. The new 230 kV onsite generation tie lines have a low likelihood of causing bird electrocution.
21. The Alamitos Energy Center's nitrogen deposition impacts to listed species and sensitive habitats during operations will be less than significant.
22. With implementation of Condition of Certification **SOIL&WATER-4**, potential project impacts from stormwater runoff during operation will be less than significant.
23. The AEC will have no cumulatively considerable effects on biological resources.
24. Facility Closure mitigation measures contained in the Biological Resources Mitigation Implementation and Monitoring Plan will minimize or avoid impacts to biological resources, so that demolition impacts to biological resources will be less than significant.
25. No state or federally listed species occur on the project site or pipeline alignment, and therefore no "take" of listed species will occur.
26. The Alamitos Energy Center project will not result in loss or fill of wetlands or waters of the U.S. or wetlands or waters of the state as there are none present on the site or pipeline alignment.

CONCLUSIONS OF LAW

1. With implementation of the mitigation measures described in the evidentiary record and incorporated into the Conditions of Certification in **Appendix A** of this Decision, the Alamitos Energy Center will not result in significant direct, indirect, or cumulative impacts to biological resources.
2. With implementation of the mitigation measures described in the evidentiary record and incorporated into the Conditions of Certification, the Alamitos Energy Center will comply with all applicable laws, ordinances, regulations, and standards related to biological resources.

SOIL AND WATER RESOURCES

INTRODUCTION

This section focuses on the soil and water resources associated with the proposed Alamitos Energy Center (AEC or Project), including the potential for the project 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. In addition, we have reviewed the AEC's ability to comply with applicable federal, state, and local laws, ordinances, regulations, and standards (LORS) related to soil and water resources. Evidence on the topic of soil and water resources is contained in Exhibits 1011, 1040, 1041, 1056, 1070, 1072, 1421, 1425, 1438, 1467, 1471, 1500-1508, 2000, 2004, 2007, 3000-3015, 3025, and 3043-3047.¹

SETTING

The AEC site is located on an approximately 21-acre site within the larger 71.1-acre Alamitos Generating Station (AGS) site. The site is bounded on the north by State Route 22, on the east by the San Gabriel River, on the south by 2nd Street, and on the west by N. Studebaker Road in the City of Long Beach, Los Angeles County, California.

PROJECT DESCRIPTION

The AEC will use approximately 8 acres of land within the 21-acre AEC site for construction activities, including laydown, storage, and parking. A 10-acre lot adjacent to the project site will also be used for onsite laydown and construction parking areas.

A 1,000-foot pipeline will be constructed to connect the project to the City of Long Beach's existing sanitary sewer system.

For general project description, including location of the facility, equipment to be installed, site layout, linears, and regional maps, please see the **PROJECT DESCRIPTION** section of this Decision.

Soils

At the AEC site, the geologic units are buried under a layer of fill approximately 6 to 9 feet thick. The geologic units in the subsurface are widespread alluvial deposits that occur throughout the Long Beach/Seal Beach area. Limited soil

¹ 11/15/16 RT 26:10 – 32:15.

disturbance will be necessary to construct the new power blocks because the project will be constructed on an industrial site that has been completely disturbed and would utilize existing infrastructure as needed.²

Groundwater

The AEC project site is located within the Central Groundwater Basin, which lies inland and adjacent to the West Coast Basin of the Los Angeles Coastal Plain Groundwater Basin. The Central Groundwater Basin has a total capacity of 13,800,000 acre-feet. The majority of the West Coast Basin is underlain by the Silverado aquifer. With a yield of 80 to 90 percent of the groundwater extracted annually, the Silverado aquifer is the most productive aquifer in the West Coast Basin.³

There are currently two seawater barrier projects in operation to protect the freshwater aquifer: the West Coast Basin Barrier project, and the Dominguez Gap Barrier project. Injection wells along these barriers create a groundwater ridge, which inhibits the intrusion of salt water into the sub-basin to protect and maintain groundwater elevations.⁴

Groundwater mapping shows historical high groundwater levels at the AEC site at a depth of approximately ten feet. The Applicant's subsurface exploration encountered groundwater at depths ranging from less than one foot to approximately 14 feet below the ground surface. The variability in the depth to groundwater encountered in the borings was primarily due to the difference in the ground surface elevations of the borings. The evidence shows the presence of groundwater at the AEC site at an elevation ranging from approximately two feet above to one foot below mean sea level. Thus, excavation and drilling activities would likely encounter groundwater in the lower areas of the site.⁵

Surface Water

The AEC site lies within the area regulated by the Los Angeles Regional Water Quality Control Board (LARWQCB) and is adjacent to the San Gabriel River, which discharges to the Pacific Ocean near Alamitos Bay. Water quality

² Ex. 2000, p. 4.9-8.

³ Ex. 2000, p. 4.9-6.

⁴ Ex. 2000, p. 4.9-8.

⁵ *Id.*

objectives for San Gabriel River Estuary are contained in the Water Quality Control Plan for the Los Angeles Region.⁶

The AGS uses five retention basins for onsite runoff from storm drains, boilers, and sumps. Water that collects in these basins discharges to the San Gabriel River. The San Gabriel River Estuary, Alamitos Bay, and Los Cerritos Channel are impaired water bodies according to the 2010 EPA-approved Total Maximum Daily Load list. The record contains the list of pollutants that cause the San Gabriel River Estuary, Alamitos Bay, and Los Cerritos Channel to be impaired.⁷

Project Water Supply

During construction, the Applicant proposes to use potable water for dust suppression. Average water use during construction will be about 18,000 gallons per day (gpd) and around 24,000 gpd during hydrostatic testing and commissioning. Commissioning is expected to take approximately 60 days. Average water use during construction will not likely exceed 22-acre feet per year (AFY).⁸ Total construction time for the AEC is approximately 57 months.

During operations, the AEC will use about 130 AFY of potable water provided by Long Beach Water Department (LBWD) for process and sanitary use. The project will use process water for the generator turbine wash, inlet air evaporative cooling blowdown makeup, water treatment, and other purposes. The project will use a minimal amount of potable water for sanitary use, drinking, eyewash, safety showers, and fire protection. Average use should be less than 1.0 gallons per minute (gpm), or approximately 1.6 AFY.⁹

The potable water line serving the existing AGS will also serve water to the AEC through an existing six-inch-diameter pipeline. LBWD has provided a will-serve letter indicating there is sufficient supply of potable water to accommodate the AEC. The potable water that the AEC will use as process water and domestic water is currently allocated for industrial use at the AGS.¹⁰

Wastewater Discharge

The AEC will collect wash-down, general facility, and facility equipment wastewater in floor drains and sumps and route them to an oil/water separator system. Miscellaneous wastewaters, such as those from combustion turbine

⁶ Ex. 2000, p. 4.9-8.

⁷ *Id.*

⁸ Ex. 2000, p. 4.9-15.

⁹ Ex. 2000, p. 4.9-16.

¹⁰ *Id.*

water washes and from some water treatment membrane-based system cleaning operations will be collected in holding tanks or sumps and trucked offsite for disposal at an appropriate wastewater disposal facility. Wastewater streams that are unlikely to contain oil and grease, such as the cooler blowdown units and reverse osmosis reject, bypass the oil/water separator. These process wastewaters collect in an onsite retention basin that will discharge to the San Gabriel River through an existing AGS outfall. Discharge rates will range between 16 and 99 gallons per minute (gpm), with average annual discharge equaling about 11 AFY. Blowdown condensate¹¹ removed from the heat recovery steam generators (HRSG) will discharge to an atmospheric flash tank, which cools the condensate before transferring it to the service-water storage tank for reuse. Similarly, blowdown from the combustion turbine evaporative coolers will discharge to the plant-process drain system and be directed to the service-water storage tank for reuse. Any unused portion will discharge to the sewer.¹²

ENVIRONMENTAL ANALYSIS

Thresholds of Significance

Appendix G of the California Environmental Quality Act (CEQA) Guidelines provides the following questions to determine if significant impacts to soil or water resources will occur:

- Would the project violate any water quality standards or waste discharge requirements?
- Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level?
- Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river that would result in substantial erosion or siltation on- or off-site?
- Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff that would result in flooding on- or off-site?

¹¹ Blowdown is water intentionally wasted from a [boiler](#) to avoid concentration of impurities during continuing evaporation of steam.

¹² Ex. 2000, p. 4.9-7.

- Would the project create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?
- Would the project otherwise substantially degrade water quality?
- Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood-hazard delineation map?
- Would the project place within a 100-year flood hazard area structures, which would impede or redirect flood flows?
- Would the project expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding due to the failure of a levee or dam?
- Is the project at risk of inundation by seiche or tsunami?
- Would the project result in substantial soil erosion or the loss of topsoil?
- Does the project have impacts that are individually limited, but cumulatively considerable?¹³

Impact Assessment and Mitigation

Groundwater Contamination

The Phase I Environmental Site Assessment¹⁴ (ESA) conducted on behalf of the Applicant states that:

“Groundwater underlying the site is known to be impacted by metals, volatile organic compounds (VOCs), and 1,4-dioxane. Groundwater is monitored as part of on-going subsurface investigations regarding former Southern California Edison operations at the site including former operation of wastewater retention basins. The Department of Toxic Substances Control oversees these investigations. The presence of groundwater contamination represents a Recognized Environmental Condition in connection with the site.”¹⁵

Due to the site’s long industrial history and results from the Phase 1 ESA, it is likely that any ground water pumped to dewater excavations would be contaminated. If not appropriately handled the contaminated groundwater could

¹³ Ex. 2000, pp. 4.9-9 – 4.9-10.

¹⁴ Ex. 1470, p.3.

¹⁵ Ex. 2000, p. 4.9-12.

have significant impacts to on- and off-site water resources. Condition of Certification **SOIL&WATER-3** requires any discharge of dewatering water to comply with the LARWQCB and State Water Resources Control Board (SWRCB) regulatory requirements and National Pollution Discharge Elimination System (NPDES) permits. If groundwater is contaminated, the water must be disposed of or treated for discharge in accordance with the approved methods required in the applicable permit.¹⁶

Construction and Operation Stormwater Discharges

During construction and operation, the stormwater collection system, comprising both existing and new elements, will collect and process stormwater from the site. Stormwater that falls within process-equipment containment areas will be collected and discharged to the existing AGS process drain system, which consists of oil/water separation sumps and two retention basins. Stormwater that falls within the plant-wide pavement areas and outside the process equipment containment areas will drain to an onsite retention basin, which also collects briny blowdown water from the cooling system and the HRSG. Stormwater falling outside of the process containment and pavement areas will either percolate directly into the soil or drain to the retention basins. The oil-free stormwater collected in the retention basin will discharge to the San Gabriel River via an existing outfall and ultimately discharge to the Pacific Ocean. Some of the discharge would likely flow into the Alamitos Bay because the San Gabriel River discharge point is adjacent to the entrance from the Pacific Ocean to the Alamitos Bay. A vacuum truck will collect the residual oil containing sludge and dispose of it as hazardous waste, thus mitigating potential impacts to these water bodies. See the **WASTE MANAGEMENT** section of this Decision for details about disposal locations and quantities.¹⁷

The AEC would discharge stormwater to the same outfall currently used by the AGS under the requirements of State Water Resources Control Board Order No. R4-2000-0082 and National Pollutant Discharge Elimination System (NPDES) No. CA0001139. The project owner will be required to obtain a construction stormwater permit during construction from the LARWQCB. The estimated amount of soil disturbance resulting from demolition of some existing AGS facilities and AEC construction activities requires the Applicant to prepare a Stormwater Pollution Prevention Plan (SWPPP) for submittal to the LARWQCB. Condition of Certification **SOIL&WATER-1** requires a construction SWPPP for

¹⁶ Ex. 2000, p. 4.9-13.

¹⁷ Ex. 2000, p. 4.9-11.

the AEC site and laydown areas. The SWPPP must specify Best Management Practices (BMPs) that would prevent all construction pollutants, including erosion products, from contacting stormwater, eliminate or reduce non-stormwater discharges to waters of the Pacific Ocean, and require inspection and monitoring of BMPs.¹⁸

The project would use up to 600,000 gallons (approximately 1.85 acre-feet) of potable water for hydrostatic testing of pipes. Hydrostatic testing often involves the use of chemicals that have the potential to impact surface waters. Condition of Certification **SOIL&WATER-2**, requires the project owner to obtain permit coverage for hydrostatic discharges.¹⁹

The AEC will discharge sanitary and industrial wastewater consisting of reject water from the reverse osmosis system and blowdown from the HRSG to the LBWD sanitary system, and ultimately to Los Angeles County Sanitation District facilities. Blowdown from the combustion turbine evaporative coolers will discharge via the AEC's process drain system to the service-water storage tank for reuse. The unused portion will discharge to the sewer. The discharge rate could range from 16 to 99 gpm. The average annual discharge will be about 11 AFY, assuming 4,600 hours of annual operation. The evidence shows that the City of Long Beach has sufficient capacity to receive sanitary and industrial wastewater from AEC.²⁰

Wastewater from combustion turbine water washes will collect in the combustion turbine generator (CTG) drain tanks and then be transported offsite in trucks for disposal. Service water will be re-used for makeup to the combustion turbine evaporative coolers, equipment washdown, and other miscellaneous plant uses.²¹

The AEC project has received a new NPDES permit that requires the implementation of BMPs for both the project's industrial discharge and the project's operational stormwater discharges to the San Gabriel River. BMPs would likely include pollutant source control, pollutant containment, a monitoring and sampling protocol, and an iterative process for improving the initially implemented best management practices based on monitoring and sampling results. With implementation of BMPs and associated monitoring, we find that impacts to water quality from operation of the AEC will be less than significant.

¹⁸ Ex. 2000, p. 4.9-12.

¹⁹ *Id.*

²⁰ Ex. 2000, p. 4.9-13.

²¹ *Id.*

Condition of Certification **SOIL&WATER-4** requires the Applicant to obtain an industrial permit for project operation from the LARWQCB, prior to the start of commercial operations. Condition of Certification **SOIL&WATER-5** ensures proper disposal of the industrial wastewater to the sanitary sewer and compliance with the discharge requirements contained in the City of Long Beach Municipal Code.²²

Sanitary Wastewater

AEC's sanitary wastewater will discharge through the facility's sanitary sewer collector system to the City of Long Beach's sanitary sewer line located 1000 feet away from the project site. During operations, the AEC will discharge approximately 0.91 gpm. The City of Long Beach will provide sewerage service. Condition of Certification **SOIL&WATER-5** requires the project owner to pay sanitary sewer fees ordinarily assessed by the city, in accordance with the City of Long Beach Municipal Code, title 15, chapters 4 through 28. We find that the impact from AEC's sanitary wastewater disposal will be less than significant.²³

Harbor Circulation and Trash Removal

AGS's once-through cooling draws trash into the intake screens during pumping from Alamitos Bay for power plant cooling. This removes significant volumes of trash, which keeps the harbor clean and clear of debris. Intake water is screened for trash and debris prior to entering the units. The AGS facility collects and disposes an estimated 165,000 pounds per year of waste. AGS has chosen cessation of its once through cooling by December 31, 2020 to comply with the State Water Resources Control Board's once through cooling policy (SWRCB Resolution 2010-0020) and section 316(b) of the Clean Water Act. It is not a component or part of the AEC project or a physical change related to the AEC project. We find that the termination of the trash removal associated with AGS's once-through cooling is not a direct or indirect impact of the AEC project. Therefore, no additional analysis or mitigation is required.²⁴

We find that with the implementation of Conditions of Certification **SOIL&WATER-1** through **SOIL&WATER-5**, the AEC will have no significant impacts to soil resources, groundwater resources, potable water supplies, or water quality.

²² Ex. 2000, p. 4.9-13.

²³ Ex. 2000, p. 4.9-14.

²⁴ Ex. 2000, p. 4.9-15.

Project Water Supply

Based on water volumes from 2008 through 2011, the AGS has historically used approximately 402 AFY of potable while operating at only 8 percent of its annual maximum capacity. AGS therefore uses more potable water than is proposed for the AEC. Compared to the AGS use, the AEC will cause a net reduction of potable water use equal to 272 AFY with a net beneficial impact on local water supplies. LBWD completed a water supply assessment based on projected water use of 225 AFY rather than the actual proposed use of 130 AFY. Nevertheless, LBWD found that potable water would be available in sufficient amounts during the project life. We find that there is an adequate supply of potable water for the AEC and the AEC will not cause a significant impact on potable water supply.²⁵

The Applicant testified that it would be infeasible to use recycled water for project construction and operation due to the long distance between the project and the three treatment plants that produce recycled water in the area.²⁶ In addition to the cost of constructing the pipeline, the pipeline installation would have its own environmental impacts. Energy Commission staff (Staff) testified that the closest recycled water connection point is about 1.33 miles away from the project; however, the costs associated with construction of a 7,000-foot pipeline for a single user like AEC would be too high considering the project needs only about 130 AFY. Therefore, Staff agreed with the Applicant that it would be economically infeasible for the project to use recycled water for operation. Absent contrary evidence, we find that the cost involved in installing a pipeline for 130 AFY of recycled water is infeasible.²⁷

To ensure that project water use is within the projected volumes as analyzed in the evidentiary record, we impose Conditions of Certification **SOIL&WATER-6** and **SOIL&WATER-7**, which limit potable water use for domestic (including landscaping) and process use to 130 AFY and require the project owner to meter and report facility water use in compliance reports. Condition of Certification **SOIL&WATER-6** requires the project owner to pay for water supply connection fees assessed by LBWD. With the implementation of Conditions of Certification **SOIL&WATER-6** and **SOIL&WATER-7**, impacts to local water supplies will be less than significant.

²⁵ Ex. 2000, p. 4.9-16.

²⁶ Ex. 1500 pp. 5.15-6; 6-8 – 6-9.

²⁷ Ex. 2000, p. 4.9-16.

Flooding, Tsunamis, and Seiches

The AEC site is not located within the 100-year flood zone as defined by the Federal Emergency Management Agency (FEMA). Per FEMA, the site is located in Zone X, which is a zone of moderate flood potential (usually the area between 100-year and 500-year floods' boundaries). The evidence establishes that the siting of the AEC project will not erect any structures that would impede or redirect flood flows. Therefore, flooding impacts due to the construction and operation of the AEC will be less than significant.²⁸

Evidence shows that projected sea-level rise has the potential to reduce the effectiveness of local flood control measures by increasing the 100-year flood stage. The local protection from inundation is projected to be reduced up to 30 centimeters (1.0 foot) by 2030 and 61 centimeters (2.0 feet) by 2050 (relative to 2000 levels). Evidence acknowledges future sea-level rise that may have reduced flood protection and inundation potential in the future. A significant rise in local sea water levels would also raise groundwater levels, and raise the fluvial base level, thereby potentially increasing the rate and extent of flooding.²⁹

The AEC project will have final elevation grades at least 12 feet above sea level. FEMA flood maps show that the 100-year flood elevation for the Long Beach area is about 6.0 feet; therefore, the project site would be separated from the flood level by at least 6.0 feet. Using the current projections of sea-level rise, separation between the site and the flood elevation is estimated to be reduced by up to 2.0 feet by the year 2050. However, if the minimum separation between the site and the surrounding floodplain were reduced from six feet to four feet there would still be a sufficient level of flood protection.³⁰

Storm surges are increased ocean water levels that occur during storms. Much like precipitation events and rainfall runoff events, storm surge events can be assigned recurrence intervals, e.g., 10-year, 100-year, etc. Storms may create increased threats of local flooding to shoreline property. Coastal ecosystems, development, and public access are most at risk from short-term storm events, including the confluence of large waves, storm surges, and high astronomical tides during a strong El Niño climatic event.³¹

²⁸ Ex. 2000, p. 4.9-17.

²⁹ Ex. 2000, p. 4.9-18.

³⁰ *Id.*

³¹ *Id.*

The evidence shows that the combination of predicted sea level rise (approximately 1.5 feet) and increased wave-induced storm surges (approximately 5 feet) in southern California could result in an increased depth of inundation in the project area of approximately 6.5 feet from wave-induced storm surges. However, as the AEC site's existing elevation is approximately 12 feet above existing mean sea level, there would still be a buffer of at least 5.5 feet on the AEC site through its expected operational period.³² We find this vertical separation is sufficient to protect the project from flooding impacts.

The Los Cerritos Wetlands Land Trust (LCWLT) submitted rebuttal testimony that "disagrees" that tsunami run-up and sea level rise impacts are adequately described and/or mitigated.³³ We note that tsunamis hazards are more fully described in the **GEOLOGICAL AND PALEONTOLOGICAL RESOURCES** section of this Decision. The rebuttal testimony assumes that mitigation, such as sea walls, would be required, but also notes that such mitigation may cause adverse impacts to wetlands habitats.³⁴ Other than imposing a Tsunami Mitigation Plan in accordance with Conditions of Certification **WORKER SAFETY-1** and **-2**, we have not imposed any condition requiring the type of mitigation suggested by LCWLT that may adversely affect wetlands habitat. Based on the foregoing analysis and absent contrary factual evidence,³⁵ we are satisfied that the record adequately analyzes, describes, and mitigates impacts due to tsunamis and sea level rise impacts.

Cumulative Impacts

A project may result in a significant adverse cumulative impact when 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 (1) past projects; (2) other current projects; and (3) probable future projects.³⁶

The AEC Master Cumulative Project List is contained within the **PROJECT DESCRIPTION** section of this Decision. The record contains an analysis of the contribution of the AEC in connection with other past and proposed projects in the areas of water supply, surface water, groundwater, wastewater and storm

³² Exs. 1070, p. 82; 2000, pp. 4.9-18 – 4.9-19.

³³ Ex. 3004, Section 8(b).

³⁴ *Id.*

³⁵ Tit. 14, Cal. Code Regs. § 15384.

³⁶ Tit. 14, Cal. Code Regs. § 15130.

water, and found no instance in which the AEC contributed to a significant impact. Therefore, we find that the incremental effects of the AEC project on soil and water resources are not cumulatively considerable when viewed in connection with the effects of past, current, and reasonably foreseeable future projects.³⁷

COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

Soil and Water Table 1 provides an assessment of the AEC's compliance with applicable LORS pertaining to soil and water resources.

Soil and Water Table 1
Laws, Ordinances, Regulations, and Standards

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
FEDERAL		
The Clean Water Act (CWA) (33 USC § 1257 et seq.)	Requires states to set standards to protect water quality, which includes regulation of stormwater and wastewater discharges during construction and operation of a facility. California established its regulations to comply with the CWA under the Porter-Cologne Water Quality Control Act.	Compliant. The AEC will satisfy the requirements of the NPDES permit with the adoption of Conditions of Certification SOIL&WATER-1 through SOIL&WATER-4 . ³⁸
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 of water is prohibited.	Compliant. The AEC would adequately protect the beneficial uses of waters of the state through implementation of federal, state, and local requirements for management of stormwater discharges and pollution prevention and compliance with local grading and erosion control requirements, and compliance with local onsite wastewater system requirements. ³⁹
Water Code Sections 10910-10915	Signed into law in 2001 amending Sections 10910-10915 of the California Water Code. Requires public water systems to prepare	Compliant. LBWD prepared a WSA for AEC in conformance with Sections 10910-10915. The Long Beach Board of Water Commissioners approved the

³⁷ Ex. 2000, pp. 4.9-19 – 4.9-20.

³⁸ Ex. 2000, p. 4.9-20.

³⁹ *Id.*

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
	water supply assessments (WSA) for certain defined development projects subject to the California Environmental Quality Act. Lead agencies determine, based on the WSA, whether protected water supplies will be sufficient to meet project demands along with the region's reasonably foreseeable cumulative demand under average-normal-year, single-dry-year, and multiple-dry-year conditions.	WSA on January 21, 2016. Condition of Certification SOIL & WATER-6 limits the amount of water used consistent with the scope of the WSA. ⁴⁰
The Porter-Cologne Water Quality Control Act of 1967, California Water Code Section 13000 et seq.	Requires the State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCBs) to adopt water quality criteria to protect state waters. Those regulations require that the RWQCBs issue waste discharge requirements (WDRs) specifying conditions for protection of water quality as applicable. Section 13000 also states that the state must be prepared to exercise its full power and jurisdiction to protect the quality of the waters of the state from degradation. Water Code 13000 et seq. is applicable in its entirety.	Compliant. AEC would satisfy the applicable requirements of the Porter-Cologne Water Quality Control Act and adequately protect the beneficial uses of waters of the state through implementation of federal, state, and local requirements for management of stormwater discharges and pollution prevention and compliance with local grading and erosion control requirements, and compliance with local onsite wastewater system requirements. ⁴¹
California Water Code Section 13240, 13241, 13242, 13243, & Water Quality Control Plan for the Los Angeles Region Basin (Basin Plan)	Establishes water quality objectives that protect the beneficial uses of surface water and groundwater in the Los Angeles Region. The Basin Plan describes implementation measures and other controls designed to ensure compliance with statewide plans and policies, and provides comprehensive water quality planning.	Compliant. Ocean waters in the vicinity are protected from degradation by the Basin Plan. The discharge for the site would be subject to regulation based on beneficial uses identified in the Basin Plan. The site would likely also be subject to the Coastal Plain of Los Angeles Groundwater Basin Plan. The Coastal Plain of Los Angeles Groundwater Basin lies inland, and is adjacent to the West Coast Subbasin. The site would be subject to regulations by the LARWQCB to protect beneficial uses.

⁴⁰ Ex. 2000, p. 4.9-22.

⁴¹ Ex. 2000, p. 4.9-20.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
		<p>Condition of Certification SOIL&WATER-1 requires the project to comply with the Clean Water Act and obtain discharge permits for construction through the SWRCB.</p> <p>Condition of Certification SOIL&WATER-2, requires the proposed project to comply with the Los Angeles Regional Water Quality Control Board's (LARWQCB) Permit Order No. R4-2009-0068, NPDES No. CAG674001 which regulates discharges from hydrostatic testing water.</p> <p>Condition of Certification SOIL&WATER-3 requires the Applicant to apply for coverage under a Regional Water Quality Control Board permit that would allow for the discharge of petroleum-contaminated groundwater from dewatering activities.⁴²</p>
California Water Code Section 13260	Requires filing, with the LARWQCB, a report of waste discharge that could affect the water quality of the state unless the requirement is waived pursuant to Water Code section 13269.	<p>Compliant. Condition of Certification SOIL&WATER-1 requires the project to comply with the Clean Water Act and obtain discharge permits for construction through the SWRCB.</p> <p>Condition of Certification SOIL&WATER-2, requires the proposed project to comply with the (LARWQCB Permit Order No. R4-2009-0068, NPDES No. CAG674001, which regulates discharges from hydrostatic testing water.</p> <p>Condition of Certification SOIL&WATER-3 requires the Applicant to apply for coverage under a RWQCB permit that would allow for the discharge of petroleum-contaminated groundwater from dewatering activities.</p> <p>Condition of Certification SOIL&WATER-4, requires the AEC comply with the Clean Water Act and obtain industrial discharge permits for</p>

⁴² Ex. 2000, pp. 4.9-11; 4.9-26.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
		<p>project operation through the SWRCB. This condition would ensure that the impacts to waters of the US would be less than significant.</p> <p>Condition of Certification SOIL&WATER-5, requires the project to comply with the City of Long Beach Municipal Code, title 15, chapters 4 through 28, which define regulations and permits required for discharge of wastewater to the city's wastewater system. Compliance with this condition would ensure that connections to the city's sewer system are completed appropriately and that annual fees are paid to the city.⁴³</p>
California Water Code Section 13550	Requires the use of recycled water for industrial purposes when available and when 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.	Compliant. Based on evidence provided by the Applicant and staff, it would be economically infeasible for the project to use recycled water for operation due to unreasonable cost. ⁴⁴
Water Recycling Act of 1991 (Water Code 13575 et. seq.)	Retail water suppliers, recycled water producers, and wholesalers should promote the substitution of recycled water for potable and imported water in order to maximize the appropriate cost-effective use of recycled water in California.	Compliant. Based on evidence provided by the Applicant and staff, it would be economically infeasible for the project to use recycled water for operation due to unreasonable cost. ⁴⁵
Water Conservation Act of 2009 (Water Code 10608 et. seq.)	Requires a statewide 20% reduction in urban per capita water use by 2020. It requires that urban water retail suppliers determine baseline water use and set reduction targets according to specified requirements, and requires agricultural water suppliers prepare plans and implement efficient water	Compliant. The AEC project would reduce the amount of potable water used relative to baseline conditions. The reduction in water use would be about 272 AFY. ⁴⁶

⁴³ Ex. 2000, p. 4.9-26.

⁴⁴ Ex. 2000, p. 4.9-16.

⁴⁵ *Id.*

⁴⁶ Ex. 2000, pp. 4.9-19; 4.9-21.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
	management practices.	
California Code of Regulations, Title 17, Division 1, Chapter 5, Group 4,	Requires measures to prevent backflow and to protect a public water supply system with cross connections of potable and non-potable water lines.	Compliant. The project would tie into two existing separate pipeline interconnections that are already in service. Conditions of Certification COM-6, COM-7, COM-11, and COM-13 require periodic and incidental reporting of compliance. The CPM will ensure that the potable and non-potable pipelines do not interconnect. ⁴⁷
California Code of Regulations, Title 20, Division 2, Chapter 3, Article 1	The regulations under Quarterly Fuel and Energy Reports (QFER) require power plant owners to periodically submit specific data to the California Energy Commission, including water supply and water discharge information.	Compliant. Conditions of Certification COM-6, COM-7, COM-11, and COM-13 require periodic and incidental reporting of compliance. ⁴⁸
California Code of Regulations, Title 22 Division 4, Chapter 3	Defines recycled water quality treatment standards and specifies permissible uses for each recycled water class, to protect the health and safety of the public.	Compliant. Based on evidence provided by the Applicant and Staff, it would be economically infeasible for the project to use recycled water for operation due to unreasonable cost. ⁴⁹
SWRCB Order 2009-0009-DWQ	Regulates stormwater discharges associated with construction affecting areas greater than or equal to one acre to protect state waters. Under Order 2009-0009-DWQ, the SWRCB has issued a National Pollutant Discharge Elimination System (NPDES) General Permit for stormwater discharges associated with construction activity. Projects can qualify under this permit if specific criteria are met and an acceptable Stormwater Pollution Prevention Plan (SWPPP) is prepared and implemented after notifying the SWRCB with a Notice of Intent.	Compliant. Condition of Certification SOIL&WATER-1 requires a construction SWPPP for the AEC site and laydown areas. The SWPPP would specify BMPs that would prevent all construction pollutants, including erosion products, from contacting stormwater, eliminate or reduce non-stormwater discharges to waters of the Pacific Ocean, and require inspection and monitoring of BMPs. Condition of Certification SOIL&WATER-4 requires the Applicant to obtain an industrial permit for project operation from the LARWQCB, prior to beginning construction. Condition of Certification SOIL&WATER-5 ensures proper disposal of the industrial wastewater to the sanitary sewer. ⁵⁰

⁴⁷ Ex. 2000, pp. 4.9-6; 7-5 – 7-21.

⁴⁸ Ex. 2000, pp. 7-5 – 7-21.

⁴⁹ Ex. 2000, p. 4.9-16.

⁵⁰ Ex. 2000, pp. 4.9-12; 4.9-14.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
SWRCB Order 97-03-DWQ	The SWRCB regulates stormwater discharges associated with several types of facilities, including steam electric generating facilities. Under Order 97-03-DWQ, the SWRCB has issued a NPDES General Permit for stormwater discharges associated with industrial activity. Projects can qualify under this permit if specific criteria are met and an acceptable SWPPP is prepared and implemented after notifying the SWRCB with a Notice of Intent.	Compliant. Condition of Certification SOIL&WATER-1 requires a construction SWPPP for the AEC site and laydown areas. The SWPPP would specify BMPs that would prevent all construction pollutants, including erosion products, from contacting stormwater, eliminate or reduce non-stormwater discharges to waters of the Pacific Ocean, and require inspection and monitoring of BMPs. ⁵¹
Los Angeles Regional Water Quality Control Board, Permit Order No. R4-2009-0068, NPDES NO. CAG674001	Regulate discharges to surface waters that pose a <i>de minimus</i> threat.	Compliant. Condition of Certification SOIL&WATER-2 , requires the Applicant to obtain permit coverage for hydrostatic discharges under Permit Order No. R4-2009-0068, NPDES NO. CAG674001. ⁵²
LOCAL		
City of Long Beach Municipal Code, Title 15 – Public Utilities.	Defines the process and permits required to connect to the city's water supply and sewer systems.	<p>Compliant. The AEC would comply with all Local LORS.</p> <p>Condition of Certification SOIL&WATER-5, requires the project to comply with the City of Long Beach Municipal Code, title 15, chapters 4 through 28, which define regulations and permits required for discharge of wastewater to the city's wastewater system. Compliance with this condition would ensure that connections to the city's sewer system are completed appropriately and that annual fees are paid to the city</p> <p>The project would tie into the two existing separate pipeline interconnections that are already in service. Conditions of Certification COM-6, COM-7, COM-11, COM-13 require periodic and incidental reporting of compliance. The CPM will ensure</p>

⁵¹ Ex. 2000, pp. 4.9-12 - 4.9-13.

⁵² Ex. 2000, p. 4.9-12.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
		that the potable and non-potable pipelines do not interconnect. ⁵³
STATE POLICIES AND GUIDANCE		
2003 Integrated Energy Policy Report (Public Resources Code, Div. 15, Section 25300 et seq.)	Outlines the state policy with regards to water use by power plants, stating that the Energy Commission would approve the use of fresh water for cooling purposes only where alternative water supply sources and alternative cooling technologies are shown to be “environmentally undesirable” or “economically unsound.”	Compliant. Based on evidence provided by the Applicant and Staff, it would be economically infeasible for the project to use recycled water for operation due to unreasonable cost. The AEC will reduce the amount of potable water used relative to baseline conditions. The reduction in water use would be about 272 AFY. The AEC will utilize dry cooling which significantly reduces potential water consumption. The project would also reuse a portion of the blowdown water from the HRSGs and combustion turbines, which would result in reduction of water consumption and wastewater discharges. ⁵⁴
SWRCB Res. 2009-0011 (Recycled Water Policy)	Supports and promotes the use of recycled water as a means to achieve sustainable local water supplies and reduction of greenhouse gases. This policy encourages the beneficial use of recycled water over disposal of recycled water.	Compliant. Based on evidence provided by the Applicant and Staff, it would be economically infeasible for the project to use recycled water for operation due to unreasonable cost. The AEC will reduce the amount of potable water used relative to baseline conditions. The reduction in water use would be about 272 AFY. The AEC will utilize dry cooling which significantly reduces potential water consumption. The project would also reuse a portion of the blowdown water from the HRSGs and combustion turbines, which would result in reduction of water consumption and wastewater discharges. ⁵⁵
SWRCB Res. 75-58	The principal policy of the SWRCB that addresses siting of energy facilities is the Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Power Plant Cooling, adopted by the Board on June 19, 1976, by	Compliant. Based on evidence provided by the Applicant and Staff, it would be economically infeasible for the project to use recycled water for operation due to unreasonable cost. The AEC will reduce the amount of potable water used relative to baseline

⁵³ Ex. 2000, pp. 4.9-6; 7-5 – 7-21.

⁵⁴ Ex. 2000, pp. 4.9-16; 4.9-22.

⁵⁵ *Id.*

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
	Resolution 75-58. This policy states that use of fresh inland waters should only be used for cooling if other sources or other methods of cooling would be environmentally undesirable or economically unsound.	conditions. The reduction in water use would be about 272 AFY. The AEC will utilize dry cooling which significantly reduces potential water consumption. The project would also reuse a portion of the blowdown water from the HRSGs and combustion turbines, which would result in reduction of water consumption and wastewater discharges. ⁵⁶
SWRCB Res. 77-1	Encourages and promotes recycled water use for non-potable purposes and use of recycled water to supplement existing surface and groundwater supplies.	Compliant. Based on evidence provided by the Applicant and Staff, it would be economically infeasible for the project to use recycled water for operation due to unreasonable cost. ⁵⁷
SWRCB Res. 2010-0020	SWRCB's Resolution No. 2010-0020 and adoption of a Policy for the Use of Coastal and Estuarine Waters for Power Plant Cooling (OTC Plan), requires all coastal power plants that utilize OTC to meet new performance requirements (Best Technology Available [BTA]) through a reduction in intake volume and velocity.	Compliant. The AEC will utilize dry cooling which significantly reduces potential water consumption. The project will not use OTC. ⁵⁸

PUBLIC COMMENTS

Michael O'Toole,⁵⁹ representing the Naples Improvement Association, commented favorably on the Applicant's outreach efforts and voiced his concern regarding the water quality of Alamitos Bay. He supports the continued use of the OTC pumps from the AGS project to filter the water in the bay. **Tony Gentile**,⁶⁰ of the Peninsula Beach Preservation Group echoed Michael O'Toole's comments. **Neal Lauzon**,⁶¹ of the International Brotherhood of Electrical Workers, Local 441, commented on the AEC's improved use of water. **Lara**

⁵⁶ Ex. 2000, pp. 4.9-16; 4.9-22.

⁵⁷ Ex. 2000, p. 4.9-16.

⁵⁸ Ex. 2000, p. 4.9-19.

⁵⁹ 11/15/16 RT 120:24 – 122:13.

⁶⁰ 11/15/16 RT 131:2 – 132:5.

⁶¹ 11/15/16 RT 134:20 – 135:24.

Laramendi,⁶² of the Los Angeles County Business Federation also spoke favorably regarding the AEC's reduction of water use compared to the AGS.

FINDINGS OF FACT

Based upon the evidence, we make the following findings:

1. Project construction and operation have the potential to induce erosion and sedimentation, adversely affect water supplies, and degrade water quality.
2. Groundwater may be encountered during excavation activities in the lower areas of the site.
3. Average water use during construction will not exceed 22 acre feet per year.
4. During operations, the Alamos Energy Center will use about 130 acre feet per year of potable water provided by Long Beach Water Department for process and sanitary use
5. The operational water savings during the life of the project will offset the volume of water required for construction.
6. The amount of potable water the Alamos Energy Center will use as process water and domestic water is currently allocated for industrial use at the Alamos Generating Station.
7. Condition of Certification **SOIL&WATER-3**, requires any discharge of dewatering water to comply with the Los Angeles Regional Water Quality Control Board and State Water Resources Control Board regulatory requirements and National Pollutant Discharge Elimination System permits.
8. Stormwater that falls within process equipment containment areas will be collected and discharged to the existing Alamos Generating Station process drain system, which consists of oil/water separation sumps and two retention basins.
9. Stormwater that falls within the Alamos Energy Center plant-wide pavement areas and outside the process equipment containment areas will be routed to an onsite retention basin, which also collects briny blowdown water from the cooling system and heat recovery steam generators.

⁶² 11/15/16 RT 135:13 – 138:1.

10. A vacuum truck will collect and dispose the residual oil containing sludge as hazardous waste thus mitigating potential impacts to water bodies.
11. The oil-free stormwater collected in the retention basin will be discharged to the San Gabriel River via an existing outfall currently utilized by the Alamitos Generating Station under the requirements of the Order Number. R4-2000-0082, National Pollutant Discharge Elimination System, Number CA0001139, which ultimately discharges to the Pacific Ocean.
12. Condition of Certification **SOIL&WATER-1**, requires a construction Stormwater Pollution Prevention Plan for the Alamitos Energy Center site and laydown areas which will specify best management practices to prevent all construction pollutants, including erosion products, from contacting stormwater, eliminate or reduce non-stormwater discharges to the Pacific Ocean, and requires inspection and monitoring.
13. Condition of Certification **SOIL&WATER-2**, requires the Applicant to obtain permit coverage for hydrostatic discharges.
14. The Alamitos Energy Center will discharge sanitary and industrial wastewater consisting of reject water from the reverse osmosis system and blowdown from the HRSG to the Long Beach Water Department sanitary system, and ultimately to Los Angeles County Sanitation District facilities.
15. The impact from Alamitos Energy Center's sanitary wastewater disposal will be less than significant.
16. Wastewater from combustion turbine water washes will collect in CTG drain tanks and then be transported offsite in trucks for disposal.
17. Service water will be re-used for makeup to the combustion turbine evaporative coolers, equipment washdown, and other miscellaneous plant uses.
18. Condition of Certification **SOIL&WATER-4**, requires the Applicant to obtain an industrial permit for project operation from the Los Angeles Regional Water Quality Control Board, prior to the start of commercial operations.
19. With implementation of best management practices and associated monitoring, we find that impacts to water quality from operation of the Alamitos Energy Center will be less than significant.
20. Condition of Certification **SOIL&WATER-5**, ensures proper disposal of the industrial wastewater to the sanitary sewer and compliance with the

discharge requirements, as well as payment of sanitary sewer fees ordinarily assessed by the city, in accordance with the contained in the City of Long Beach Municipal Code.

21. The impact from disposal of sanitary wastewater through the Long Beach sewer line will be less than significant.
22. There is an adequate supply of potable water for the Alamitos Energy Center and the project will not cause a significant impact on potable water supply.
23. The construction of a pipeline to convey 130-acre feet per year of recycled water to the Alamitos Energy Center is economically infeasible.
24. The termination of the trash removal associated with Alamitos Generating Station's once through cooling is not a direct or indirect impact of the Alamitos Energy Center project.
25. Conditions of Certification **SOIL&WATER-6** and **SOIL&WATER-7**, which limit potable water use for domestic and process use and require the project owner to meter and report facility water use in compliance reports, ensure that project water use will remain within the projected volumes as analyzed in the record.
26. With implementation of Conditions of Certification **SOIL&WATER-6** and **SOIL&WATER-7**, impacts to local water supplies will be less than significant.
27. With the implementation of **SOIL&WATER-1** through **SOIL&WATER-5**, the Alamitos Energy Center will have no significant impacts to soil resources, groundwater resources, potable water supplies, or water quality.
28. The Alamitos Energy Center project will have final elevation grades at least 12 feet above sea level and by 2050, the site will be at least 5.5 feet above the current 100-year floodplain, which is sufficient vertical separation to protect the project from flooding impacts.
29. Flooding impacts from construction and operation of the Alamitos Energy Center will be less than significant.
30. The impact of the Alamitos Energy Center on soil and water resources, in conjunction with other past and proposed projects in the area, will not be cumulatively considerable.

CONCLUSIONS OF LAW

1. The Energy Commission concludes that implementation of the Conditions of Certification set forth in the pertinent portion of **Appendix A** of this Decision will ensure that the Alamitos Energy Center will comply with the applicable laws, ordinances, regulations, and standards regarding soil and water resources, and;
2. The Alamitos Energy Center will not cause a significant direct, indirect or cumulative environmental impact to soil and water resources.

C. CULTURAL RESOURCES

INTRODUCTION

This section reviews the structural and cultural evidence of human development in the project vicinity where cultural resources could be disturbed by excavation and construction. 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. State laws require a lead agency, or its delegatee, to develop and implement mitigation measures to minimize potential adverse impacts to significant cultural resources.

This topic was contested. Evidence on the topic of cultural resources is contained in Exhibits 1002, 1004-1011, 1014, 1019, 1025, 1027-1030, 1032, 1041, 1056, 1070, 1413, 1454, 1455, 1456, 1457, 1500-1508, 2000, 2002, 2004, 2005, 2011, 2012, 2013, 3000-3015, and 3043-3047.¹

SETTING

The evidentiary record contains a detailed account of the methods and processes employed by Energy Commission staff (Staff) and the Applicant to ascertain the extent of the cultural resources present in the project area of analysis (PAA), analyze potential impacts and recommend mitigation in the event of a potentially significant impact. Staff and Applicant conducted a full cultural resource inventory for the PAA of the Alamitos Energy Center (AEC) site and linear facility routes, including both archival research and field surveys of the area.²

Staff defines the archaeological component of the PAA as the AEC project site and the new process water/sanitary wastewater pipeline, with a 200-foot buffer surrounding the project site, and a 50-foot buffer around the proposed pipeline (see **Cultural Resources Figure 1**). For ethnographic resources, Staff identified one ethnographic resource in the ethnographic PAA: the Puvugna Ceremonial Site Complex (PCSC). The PAA includes Puvugna and the related village camp sites on Alamitos Mesa, located less than 0.5 mile northwest of the AEC (see **Cultural Resources Figure 2**).³

The PAA for built-environment resources is defined as the project site, any linear facilities, and a buffer of a single parcel around the project site and facilities. The proposed project site at the Alamitos Generating Station (AGS) consists primarily of buildings, structures, pavement, hardscape, and modest landscape elements, most of which date to the historic period. To the north, the PAA includes a vacant lot between

¹ 11/15/16 RT 26:10 – 32:15.

² Ex. 2000, p. 4.3-10.

³ Ex. 2000, pp. 4.3-10 – 4.3-11.

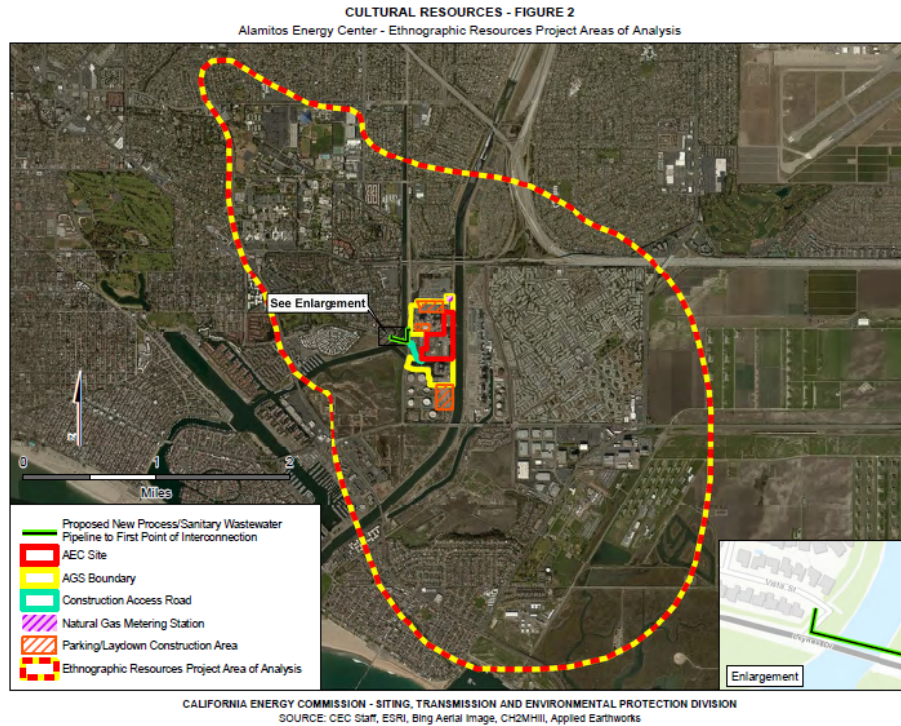
the Los Cerritos Channel and the San Gabriel River, and the existing Southern California Edison (SCE) Switchyard, constructed during the late 1950s concurrent with the AGS. To the east, the PAA includes a segment of the San Gabriel River and the Los Angeles Department of Water and Power Haynes Generating Station (Haynes Generating Station) property on the east side of the river. To the south, the PAA includes an industrial parcel, ending at Westminster Boulevard/2nd Street. To the west, the PAA includes a segment of the Los Cerritos Channel and two residential parcels in the southeast corner of the University Park Estates subdivision (see **Cultural Resources, Figure 3**).⁴

Cultural Resources Figure 1

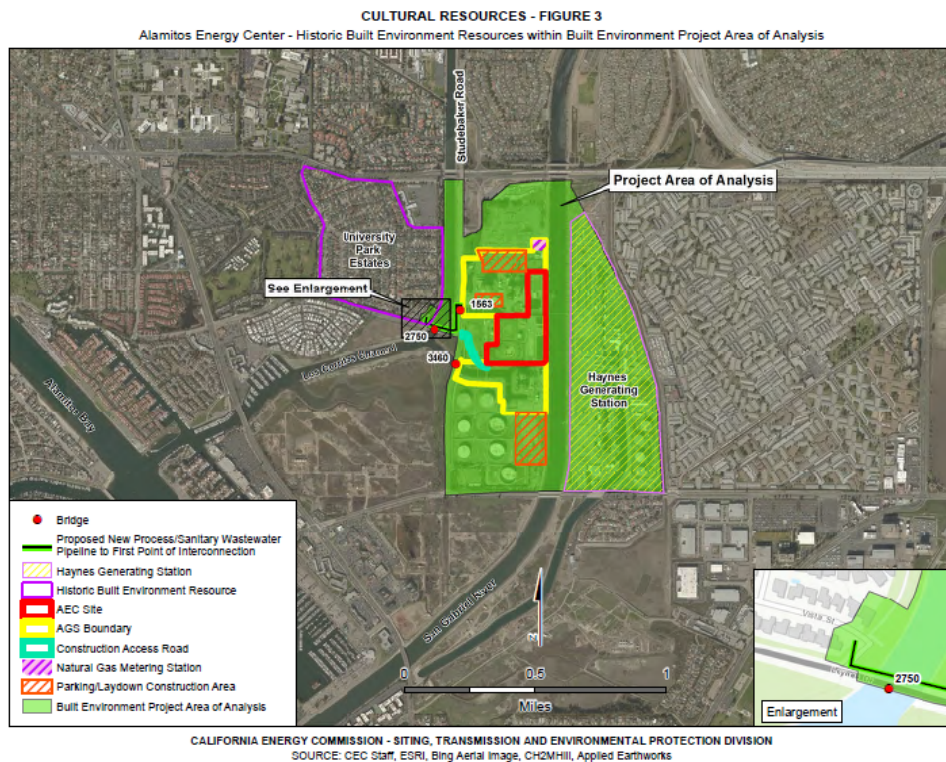


(Ex. 1041, p. 3.)

⁴ Ex. 2000, p. 4.3-11.



(Source: Ex. 2000, p. 4.3-99.2. Note that the Construction Access Road was eliminated from the project as shown in Exhibit 1041, p. 3.)



(Source Ex. 2000, p. 4.3-99.3 Note that the Construction Access Road was eliminated from the project as shown in Exhibit 1041, p. 3.)

CULTURAL RESOURCES

PROJECT DESCRIPTION

The location and setting of the AEC is described in more detail in the **PROJECT DESCRIPTION** section of this Decision.

ENVIRONMENTAL ANALYSIS

Thresholds of Significance

The term “cultural resource” is used broadly to include the several categories of resources, such as ethnographic, prehistoric and historic archaeological sites, buildings, structures, objects, and historic districts. Ethnographic resources are those resources important to the heritage of a particular ethnic or cultural group, such as Native Americans. When a cultural resource is determined to be significant (that is, an historical resource or unique archaeological resource), it is eligible for listing in the California Register of Historical Resources (CRHR). An archaeological resource that does not qualify as a historical resource may be considered a “unique” archaeological resource under the California Environmental Quality Act (CEQA). Structures older than 50 years (or less if the resource is deemed exceptional) can be considered for listing as significant historic structures. 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.⁵

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 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.⁶

Impact Assessment and Mitigation

Archival Research

The record indicates that archival research included records searches at the South Central Coastal Information Center (SCCIC) of the California Historical Resources Information System (CHRIS). The CHRIS files revealed that there had been 81 previous cultural resource studies conducted in the project area and that 98 previously recorded resources had been identified within the 1-mile buffer surrounding the AEC project site.

⁵ Ex. 2000, pp. 4.3-1 - 4.3-7.

⁶ Ex. 2000, p. 4.3-52.

None of these archaeological resources has been found in the archaeological component of the PAA.⁷

The previously recorded archaeological resources consist of 79 prehistoric archaeological resources, two historic archaeological resources (refuse deposits), six archaeological resources containing prehistoric and historic materials, and one archaeological resource of unknown properties. Staff also added three bridges (Bridge #s 1563, 3460, and 2750) within the vicinity of the project, but concluded that none of these three bridges qualify as a historical resource for the purposes of CEQA. The record demonstrates that Staff and Applicant both conducted a thorough review of the relevant literature. There is no evidence that the project will have any effect on the other previously recorded archaeological resources that are located outside the AEC project boundaries.⁸

Field Surveys

The field efforts to identify cultural resources in the PAA consist of the Applicant's pedestrian archaeological and historic built-environment surveys, and Staff's field visits to the AEC project site. Applicant surveyed the proposed process water/sanitary wastewater pipeline corridor. Applicant's archaeologist surveyed a 50-foot buffer on both sides of the proposed pipeline route which intersects the former site of fuel oils tanks adjacent to the project site, a portion of Los Cerritos Wetlands, sidewalks, Studebaker Road, Loynes Drive and the bridge carrying it over Los Cerritos Channel, and a portion of E. Vista Street. Two residential parcels and Bridge 2750 lie within a one parcel extent of the linear pipeline alignment. Staff and Applicant concur that no historical resources present in the University Park Estates subdivision could be impacted by the installation of the offsite linear process/sanitary wastewater pipeline. Therefore, the two subject parcels within the University Park Estates that border the offsite linear pipeline alignment were eliminated from further analysis.⁹

At Staff's request, the Applicant provided additional inventory and evaluation data for historic-era built environment resources located within the PAA (the AGS, HGS, San Gabriel River Channel, Los Cerritos Channel and the segment of Studebaker Road within the PAA). Staff and Applicant concur that the AGS and HGS appear ineligible for listing on the CRHR under criteria 1 through 4. Staff concluded that both the San Gabriel River Channel and Los Cerritos Channel appear eligible for the CRHR, and would therefore qualify as a historical resource for purposes of CEQA. Staff and

⁷ Ex. 2000, p. 4.3-12.

⁸ Ex. 2000, pp. 4.3-16 - 4.3-17.

⁹ Ex. 2000, pp. 4.3-30; 4.3-37.

Applicant concur that the subject segment of Studebaker Road does not qualify as a historical resource under CEQA.¹⁰

Ethnographic Resources

The Gabrielino Tongva people and representative tribes are the Native Americans most directly related to the project vicinity. Staff and Applicant obtained a list of the various Gabrielino Tongva tribes, nations and other organizations from the Native American Heritage Commission (NAHC). The NAHC also maintains records and maps of traditional resource sites and sacred lands located throughout the state. The NAHC sacred lands files indicated that there were no Native American cultural resources identified in the project area.¹¹

Staff sent letters to all of the NAHC-listed tribes on April 1, 2014 inviting comment on the AEC project and offering face-to-face consultation meetings should any tribal entities so request. Staff met with Gabrielino Tongva individuals and groups on June 6 and 7, 2014. Staff received several comments from tribal entities requesting a requirement that tribal monitors be present during project ground-disturbing activities and to proceed with caution because the project region is highly sensitive for cultural resources (specifically, the sites and burials at Landing Hill south of the project area and at Leisure World, east of the project area). Additionally, several responses were received that expressed concern regarding potential impacts to the ceremonial site of Puvugna, which was the focus of meetings held in June, 2014 between the Applicant, some members of the Ti'at Society/Intertribal Council of Pimu and a representative of the Gabrielino Tongva Indians of California Tribal Council at the project site. Staff opined that the Puvugna Ceremonial Site Complex (PCSC) is eligible for the CRHR under Criteria 1, 2 and 4.¹²

As stated above, there are no significant historic structures either on or near the project site, laydown area, or pipeline route that would be directly or indirectly affected by the project. No archaeological resources have been identified on the surface of the archaeological PAA. The evidence establishes that despite the presence of the PCSC in the PAA, the AEC will not impact the resource or visitors of the PCSC. Nor will the AEC project alter, destroy, damage any historical features or otherwise negatively affect the historical integrity of the relevant portion of the San Gabriel River Channel or Los Cerritos Channel in a way that would diminish its historical significance.¹³

¹⁰ Ex. 2000, pp. 4.3-38; 4.3-46.

¹¹ Ex. 2000, pp. 4.3-5 – 4.3-6; 4.3-21.

¹² Ex. 2000, pp. 4.3-21; 4.3-27.

¹³ Ex. 2000, pp. 4.3-55 – 4.3-57.

Numerous project elements are known to involve construction to a depth that will intersect non-fill sediments, where archaeological resources could be preserved. The proposed fire water piping and hydrants will require excavation into native sediments to a depth of up to 1.5 feet. The foundation slabs within the power block as well as the fuel gas compressor/conditioning structure and relocated gas metering station will require approximately 1 to 4 feet of excavation into native sediments. These excavations have the potential to encounter buried archaeological resources.¹⁴

Deep-pile foundations will be excavated in excess of 40 feet into native sediments. Unlike the foundation slabs, which require mass excavation, the deep piles will likely be 14 inches in diameter and driven or hammered into the substrate. Deep piles will intersect as many as five low-energy strata (including a buried land surface). Pile driving therefore has the potential to damage buried archaeological resources. Driven piles, however, preclude the ability to observe the affected sediments and produce little to no spoils to examine.¹⁵

No positive identification of buried prehistoric archaeological resources on the AEC site has been made by Staff or the Applicant. Still, the project could result in damage to buried archaeological resources, if any are present. If any newly found archaeological resources are eligible for the CRHR, direct impacts from construction could materially impair the resources.¹⁶ Should any of the construction activities outlined above strike buried archaeological resources that meet the CEQA criteria for historical, unique archaeological or tribal cultural resources; the damage to those resources would constitute a significant environmental impact.¹⁷

Conditions of Certification **CUL-1** through **CUL-8** incorporate Applicant's proposed mitigation measures as well as Staff's recommendations to ensure that unknown archaeological deposits will be properly identified and treated so 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 and Native American Monitor to monitor 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. We find that with the implementation of Conditions of Certification **CUL-1** through **CUL-8**, all direct and indirect construction impacts will be mitigated to less than significant levels.¹⁸

¹⁴ Ex. 2000, p. 4.3-53.

¹⁵ *Id.*

¹⁶ Ex. 2000, p. 4.3-52.

¹⁷ *Id.*

¹⁸ Ex. 2000, p. 4.3-55.

The evidence does not identify any potential operational impacts to any CRHR eligible historical built-environment resources qualifying as historical resources under CEQA. Nevertheless, if a leak should develop in buried pipelines within the AEC site during operation, repair of the buried utility could damage previously unidentified, subsurface archaeological resources in areas unaffected by the original excavation. The Conditions of Certification **CUL-1** through **CUL-8** will also mitigate impacts that may occur during operations-phase repairs.¹⁹

Cumulative Impacts

A project may result in a significant adverse cumulative impact when 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 (1) past projects, (2) other current projects, and (3) probable future projects.²⁰ Cumulative impacts to cultural resources in the project vicinity could occur if any other existing or proposed projects, in conjunction with the proposed AEC, had or would have impacts on cultural resources that, considered together, would be significant.²¹

Staff testified that although the AEC could result in significant impacts on archaeological resources that qualify as either historical or unique archaeological resources under CEQA, Conditions **CUL-1** through **CUL-8** would reduce project-specific impacts to a less-than-significant level. Staff further testified that the AEC project’s contribution to cumulative impacts on archeological resources would not be cumulatively considerable.²²

The evidentiary record further establishes that the decommissioning and possible future removal of the AGS and nearby steam-generating power plants would add to the loss of information relative to the development of electric steam power generation in twentieth century California. These post-war power plants have been recorded, their operations and expansion activities documented and evaluated, and that historical information has been made available to the public. Due to the existence of this recorded historical information, the evidence shows that the likelihood of there being a cumulative impact from the AEC is negligible.²³

Furthermore, undisputed evidence establishes that there is no overall potential for cumulative impacts to the San Gabriel River Channel and the Los Cerritos Channel; the only two CRHR-eligible historical built-environment resources in the PAA that qualify as

¹⁹ Ex. 2000, pp. 4.3-56 – 4.3-57.

²⁰ Cal. Code Regs., tit. 14, § 15130.

²¹ Ex. 2000, p. 4.3-57.

²² Ex. 2000, p. 4.3-58.

²³ Ex. 2000, p. 4.3-59.

historical resources under CEQA. Both Channels are located outside of the boundaries of the proposed AEC and there is no evidence of any potential for cumulative impacts that would affect the significance of these two resources.²⁴

The Conditions of Certification are intended to mitigate any impacts to cultural resources related to AEC's construction activities. Other future project proponents in the AEC area must also mitigate impacts to as-yet-undiscovered subsurface archaeological deposits. The record demonstrates that any incremental effect of the AEC in conjunction with other projects will not be cumulatively considerable.²⁵

COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

The following federal, state, and local laws and policies apply to the protection of human remains and grave goods. The record examines the project's compliance with these requirements.

Cultural Resources Table 1
Laws, Ordinances, Regulations, and Standards²⁶

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
STATE		
Pub. Resources Code, section 5097.98 (b and e)	Requires a landowner on whose property Native American human remains are found to limit further development activity in the vicinity until s/he confers with the Native American Heritage Commission (NAHC) identified most likely descendants (MLD) to consider treatment options. In the absence of MLDs or of a treatment acceptable to all parties, the landowner is required to reinter the remains elsewhere on the property in a location not subject to further disturbance.	Compliant. Condition of Certification CUL-3 requires the preparation of a Cultural Resources Monitoring and Mitigation Plan (CRMMP), which would describe the response and notification procedures described in these sections of the Public Resources Code. Condition of Certification CUL-5 would inform construction workers of the legal response to discovery of Native American human remains and artifacts. The AEC would therefore be in compliance with the applicable state LORS. ²⁷
Pub. Resources Code, section 5097.99	Prohibits the acquisition, possession, sale, or dissection with malice or wantonness of Native American remains or artifacts taken from a Native American grave or cairn.	Compliant. Condition of Certification CUL-3 requires the preparation of a CRMMP, which would contain provisions for the disposition of Native American remains or artifacts. Condition of Certification CUL-5 would inform construction workers of the legal response to

²⁴ Ex. 2000, p. 4.3-59.

²⁵ Ex. 2000, p. 4.3-63.

²⁶ Ex. 2000, p. 4.3-62.

²⁷ *Id.*

		Native American human remains and artifacts. The AEC would therefore be in compliance with the applicable state LORS. ²⁸
Health and Safety Code, section 7050.5	Makes it a misdemeanor to disturb or remove human remains found outside a cemetery. It also requires a project owner to halt construction if human remains are discovered and to contact the county coroner.	Compliant. Condition of Certification CUL-3 requires the preparation of a CRMMP, which would describe the response and notification procedures described in this section of the Health and Safety Code. Construction workers would be instructed in these matters during the Workers Environmental Awareness Program (WEAP) required by Condition of Certification CUL-5 . The AEC would therefore be in compliance with the applicable state LORS. ²⁹

AGENCY AND PUBLIC COMMENT

Sam Dunlap,³⁰ Cultural Resource Director for the Gabrielino Tongva Nation commented in support of the adoption and implementation of Conditions of Certification **CUL-1** through **CUL-8**, but disagrees with Applicant's assessment that there is a low probability of encountering significant buried cultural resources and that there will be no impacts to cultural resources. Mr. Dunlap emphasized the importance of adequate archaeological monitoring and Native American monitoring during ground disturbing construction activities, including in areas containing fill materials.

Sandonne Goad,³¹ Tribal Council Chairwoman for the Gabrielino Tongva Nation commented that a Native American monitoring during ground disturbing construction activities would prevent the conflict of interest between the developer's desire to cut costs and the Gabrielino Tongva Nation's need to save sacred cultural resources. She also commented that it is inappropriate to exclude fill dirt from Native American monitoring.

Lenny Arkenstahl,³² CEO and founder of the Los Cerritos Wetlands Stewards, commented that he hopes that the "Applicant will respect the request of the Tongva Nation."

Anna Christensen,³³ a retired teacher, commented that under SB 18,³⁴ the Applicant must consult with California Indian tribal peoples for their input on the project. She also commented that the way consultation is usually done is through "a consultant that hires

²⁸ Ex. 2000, p. 4.3-62.

²⁹ Ex. 2000, p. 4.3-62.

³⁰ Ex. 2011, 11/15/16 RT 122:19 – 124:9.

³¹ TN 214444; 11/15/16 RT 124:14 – 126:19.

³² 11/15/16 RT 132:8 - 132:19.

³³ 12/20/17 RT 123:23 – 126:4; 130:15 – 131:21.

³⁴ SB 18 (Burton, Chapter 905, Statutes of 2002).

an archeologist that sends out a couple of letters, most of which come back, some of which come back addressee unknown, and drop the ball, that's it."

Response to Comments: According to Staff's Supplemental Testimony for Cultural Resources, "Staff recommends against the Applicant's proposal that Native American monitoring would only be required once the non-fill materials are encountered. The Gabrielino Tongva tribes are on record in consultation with Staff, as well as in the docket, that work in fill material could still encounter artifacts, features, and human remains relating to their culture. Mindful of the State of California's relationship to California Native American tribes and tribal communities—and the Energy Commission's Tribal Consultation Policy—the Applicant's proposal on this point is one that the Energy Commission's Tribal Liaison is obliged to discuss with local tribes and tribal communities. That consultative work is already underway."³⁵ Subsequent to the Evidentiary Hearing on Part 1 of the Final Staff Assessment, the Applicant concurred "with the Conditions proposed by Staff in the Final Staff Assessment Part 1 (Ex. 2000), Rebuttal Testimony, dated October 26, 2016 (Ex. 2004), and Supplemental Testimony for Cultural Resources (Ex. 2012)."³⁶ In light of the concurrence between the parties, we impose Condition of Certification **CUL-6**, which includes Native American monitoring of ground-disturbing activities.

The uncontroverted evidence indicates that Staff is in compliance with the tribal consultation requirements of SB 18.³⁷

FINDINGS OF FACT

Based on the evidence, we make the following findings:

1. Applicant's consultants conducted archival research and pedestrian surveys of the project area of analysis, which included a 200-foot radius around the immediate project site and laydown areas, the 50 foot radius around the proposed wastewater pipeline, Puvugna, and the related village camp sites on Alamitos Mesa, located less than 0.5 mile northwest of the Alamitos Energy Center.
2. Archival research at the South Central Coastal Information Center of the California Historical Resources Information System revealed that although 98 previously recorded resources had been identified within the one mile buffer surrounding the Alamitos Energy Center project site, none of the archaeological resources have been found in the archaeological component of the project area of analysis.

³⁵ Ex. 2012, p. 1.

³⁶ Applicant's Opening Brief, p. 1 (TN 214628).

³⁷ Ex. 2000, pp. 4.3-20 – 4.3-22.

3. The Alamitos Energy Center will not impact the resource or visitors of the Puvugna Ceremonial Site Complex.
4. There is no evidence that the Alamitos Energy Center will have any effect on the other previously recorded archaeological resources that are located outside the project boundaries.
5. No historical resources present in the University Park Estates subdivision will be impacted by the installation of the offsite linear process/sanitary wastewater pipeline.
6. The Alamitos Generating Station and Los Angeles Department of Water and Power Haynes Generating Station appear ineligible for listing on the California Register of Historic Resources under criteria 1 through 4, and do not qualify as a historical resource under the California Environmental Quality Act.
7. The segment of Studebaker Road within the project area of analysis does not qualify as a historical resource under the California Environmental Quality Act.
8. The San Gabriel River Channel and Los Cerritos Channel appear eligible for the California Register of Historic Resources, and therefore qualify as a historical resource for purposes of the California Environmental Quality Act.
9. The Alamitos Energy Center project will not alter, destroy, damage any historical features or otherwise negatively affect the historical integrity of the relevant portion of the San Gabriel River Channel or Los Cerritos Channel in a way that would diminish the historical significance of either channel.
10. Pedestrian surveys revealed three bridges (bridge numbers 1563, 3460, and 2750) within the vicinity of the project, but none of these three bridges qualify as a historical resource for the purposes of the California Environmental Quality Act.
11. There are no significant historic structures either on or near the project site, laydown area, or pipeline route that will be directly or indirectly affected by the project.
12. The Gabrielino Tongva people and representative tribes are the Native Americans most directly related to the project vicinity.
13. The Native American Heritage Commission sacred lands files indicated that there are no Native American cultural resources identified in the project area.
14. The evidentiary record contains no positive identification of buried prehistoric archaeological resources on the Alamitos Energy Center site.

CULTURAL RESOURCES

15. The record shows that numerous project elements are known to involve construction to a depth that will intersect non-fill sediments, where archaeological resources may be preserved and could be damaged.
16. Conditions of Certification **CUL-1** through **CUL-8** ensure that unknown archaeological deposits will be properly identified and treated so that project-related impacts thereto are reduced to insignificance.
17. The evidence does not identify any potential operational impacts to any California Register of Historic Resources eligible historical built-environment resources qualifying as historical resources under the California Environmental Quality Act.
18. Conditions of Certification **CUL-1** through **CUL-8** will mitigate impacts that may occur during operations-phase repairs to underground utilities.
19. The project owner will implement a Cultural Resources Monitoring and Mitigation Plan to protect known and unknown resources, including avoidance, worker education, archeological monitoring, Native American monitoring, authority of Cultural Resources Specialist to halt construction, and the filing of a periodic Cultural Resources Report.
20. There is no evidence that the Alamitos Energy Center's incremental effect on cultural resources in conjunction with other projects in the area will be cumulatively considerable.

CONCLUSIONS OF LAW

1. The implementation of the Conditions of Certification in **Appendix A** 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.
2. Implementation of the mitigation measures described in the evidentiary record and contained in the Conditions of Certification in **Appendix A** will ensure that any direct, indirect, or cumulative adverse impacts to cultural resources resulting from project-related activities will be less than significant.

D. GEOLOGICAL AND PALEONTOLOGICAL RESOURCES

INTRODUCTION

This section summarizes the Alamitos Energy Center (AEC) project's potential exposure to geologic hazards as well as its potential impacts on geologic, mineralogical, and paleontological resources. The analysis includes whether the AEC 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. It also evaluates whether project construction or operation could potentially result in adverse impacts on geologic or mineralogical resources in the area. Finally, we examine whether paleontological resources, such as fossilized remains or trace remnants of prehistoric plants or animals, could be present at the site and, if so, whether the AEC's potential impacts on these resources will be adequately mitigated.

The evidence on the topic of geological and paleontological resources is contained in Exhibits 1041, 1459, 1056, 1070, 1414, 1418, 1459, 1500-1508, 2000, 2010, 3025, and 3043-3047.¹

SETTING

The AEC site is located in the northwestern portion of the Peninsular Ranges geomorphic province (see **Geo/Paleo Figure 1**). The crustal subduction where the East Pacific Rise meets the western edge of the continent caused the Channel Islands-San Nicolas Island crustal block and the Santa Monica Mountains crustal block to move west from the Peninsular Ranges, leaving behind a rift that became the Los Angeles (LA) basin. Subsequently, late Cenozoic age marine sediments filled the LA Basin. These sediments overlie diversely oriented Mesozoic basement rocks.²

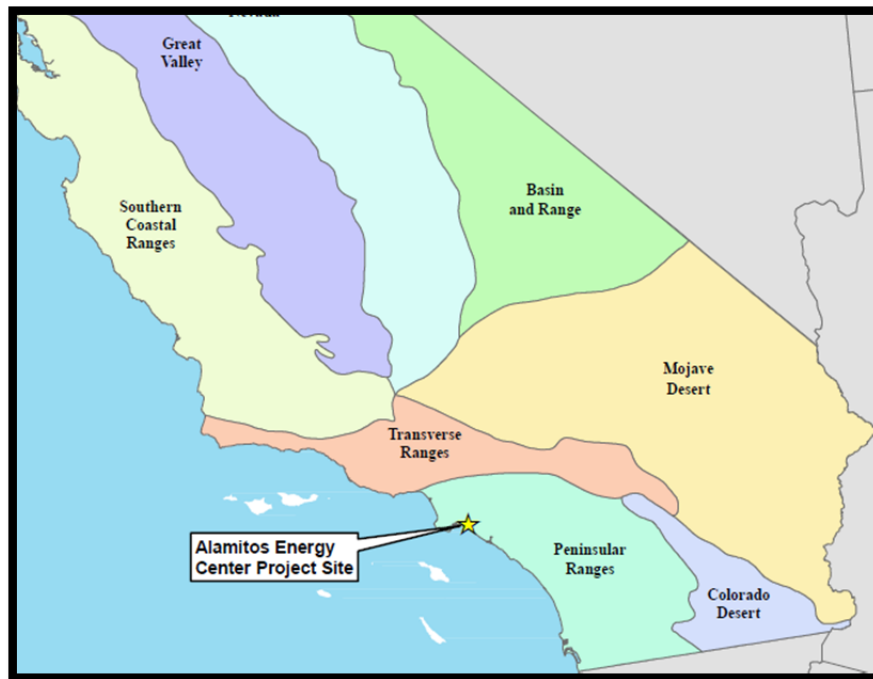
Structurally, the LA Basin is a northwest-trending syncline composed of Cretaceous to Recent marine and non-marine deposits underlain by a basement complex of Jurassic through Cretaceous meta-sediments and granitic rocks. During the late stages of sediment deposition in the LA Basin, deformation in the basin created four uplifted zones and synclinal depressions that are bound by faults. These regional faults break the LA Basin into four structural zones identified as the Northwestern, Northeastern, Central and Southern Blocks. The

¹ 11/15/16 RT 26:10 – 32:15.

² Ex. 2000, pp. 5.2-3 – 5.2-4.

AEC site lies near the boundary of the Southwest Block and Central Block which is defined by the Newport-Inglewood fault zone.³

Geology and Paleontology Figure 1



(Ex. 2000, GEOLOGY AND PALEONTOLOGY - FIGURE 1.)

Tectonic uplifting activities during the past 300,000 years have created a raised linear dome structure within the marine sediments in the Long Beach area. Dissection of these uplifted marine sediments occurred during the lower sea level stand of the last glacial period when the ancestral Los Angeles and San Gabriel Rivers created deeply incised channels through the sedimentary sequence. The water gaps formed by the Los Angeles and San Gabriel rivers are respectively known as the Dominguez and the Alamitos Gaps.⁴

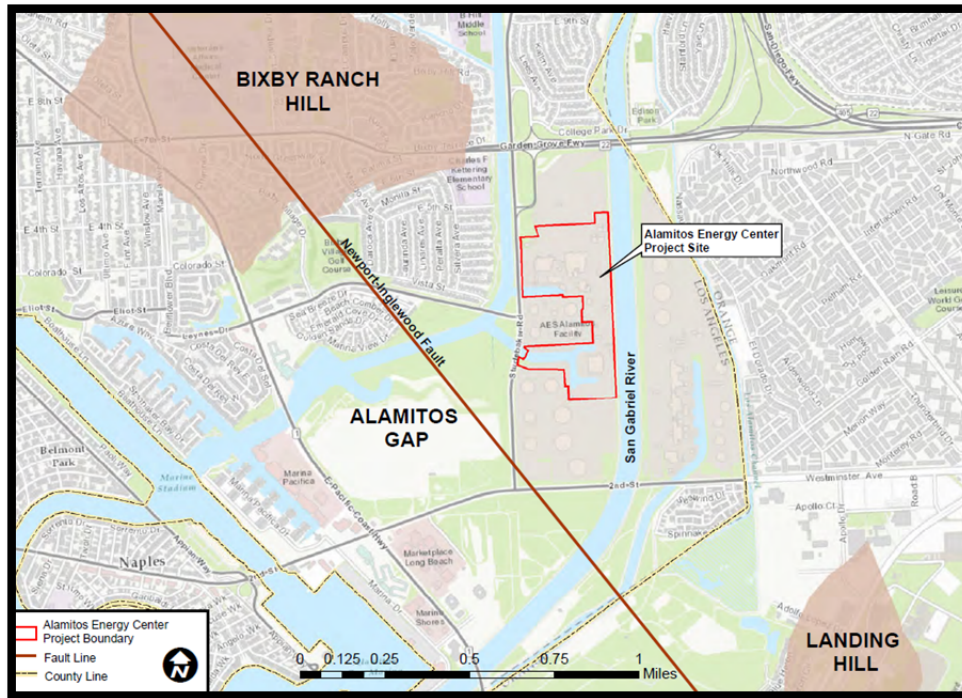
The AEC site is located within the Alamitos Gap; an erosional feature located between the mesas of Bixby Ranch Hill and Landing Hill in the cities of Long Beach and Seal Beach, respectively (see **Geo/Paleo - Figure 2**). The erosion that created the Alamitos Gap began in the Late Pleistocene (approximately 60,000 years ago). The combination of a lowered sea level and accelerated stream erosion produced a river valley that grew hundreds of feet deep and thousands of feet wide. At the end of the glacial period, the sea level began to

³ Ex. 2000, p. 5.2-4.

⁴ *Id.*

rise and the ancestral river began backfilling the river valley eventually forming the existing coastal plain where the project site is located⁵.

Geology and Paleontology Figure 2



(Ex. 2000, GEOLOGY AND PALEONTOLOGY - FIGURE 2.)

The AEC site and surrounding area are situated within the Seal Beach oil field which is located between the Long Beach and the Huntington Beach oil fields, about one-half mile inland from the Pacific Ocean. The oil fields are associated with what is referred to as the Newport-Inglewood Structural Trend.⁶

PROJECT DESCRIPTION

For general project description, including location of the facility and the equipment to be installed, please see the **PROJECT DESCRIPTION** section of this Decision.

The AEC site is located on a gently sloping coastal plain in the southeast part of the city of Long Beach. Topography of the site is relatively flat and elevation ranges from approximately 8 to 15 feet above mean sea level (MSL). The upper 6 to 9 feet of the subsurface consists of artificial fill composed of loose to medium dense sandy silt, sandy clay, and clayey sand and firm clayey silt. Native alluvial

⁵ Ex. 2000, p. 5.2-4.

⁶ *Id.*

deposits beneath the fill consist of interbedded layers of loose to very dense sand, silty sand, sandy silt and clayey sand and very soft to stiff clayey silt, silty clay, and silt to a depth of approximately 63.5 feet below the ground surface.⁷

ENVIRONMENTAL ANALYSIS

Thresholds of Significance

Appendix G of the California Environmental Quality Act (CEQA) Guidelines provides a checklist for evaluating whether a project site could expose persons or structures to geologic hazards based on site-specific conditions, or destroy a unique paleontological resource or site, or a unique geological feature, or affect mineral resources.⁸ The California Building Standards Code⁹ (CBSC) provides geotechnical and geologic investigation and design standards, which engineers must follow when designing a facility subject to geologic hazards.¹⁰

GEOLOGIC AND MINERALOGIC RESOURCES

The geologic units at the AEC site are buried under a layer of fill approximately 6 to 9 feet thick and occur as widespread alluvial deposits throughout the Long Beach/Seal Beach area. They are not unique in terms of recreational, commercial, or scientific value.¹¹

The Long Beach area has been the site of oil and gas extraction since the late 1920s. Today, the oil and gas production in the Long Beach area is in a mature stage. Of the 140 known wells, only 19 are still producing.¹²

The AEC site is mapped as an area with no aggregate significance and there are no known active areas of mining for mineral resources near the AEC site. We find that the AEC project will have no adverse effect on oil and gas production, on other geologic resources of commercial value or on the availability of such resources. Thus, the AEC will not have any significant adverse direct, or indirect, impacts to potential geologic and mineralogical resources.¹³

PALEONTOLOGIC RESOURCES

Beneath the 6 to 9 feet of artificial fill material are native soils consisting of alluvial, estuarine and marine sediments. The upper 50 feet of the native soils

⁷ Ex. 2000, p. 5.2-45; 12.20, 16 RT 18:17 – 19:19.

⁸ Title 14, California Code of Regulations, Section 15000, Appendix G, Section VI.

⁹ Title 24, California Code of Regulations.

¹⁰ Ex. 2000, p. 5.2-6.

¹¹ Ex. 2000, p. 5.2-7.

¹² *Id.*

¹³ *Id.*

consist of Holocene coastal marine sediments and below that are older Quaternary sediments of the Pleistocene age Palos Verdes Formation. Within the Palos Verdes Formation is a unit referred to as the Palos Verdes Sand. The Palos Verdes Sand is a fossiliferous layer of marine gray sands and gravels which has produced a large number of fish fossils, as well as the remains of terrestrial and aquatic birds and mammals. Beneath the Palos Verdes Formation lies the San Pedro Sand which has yielded fossils from late Pleistocene crustaceans, marine mollusks, bony fish and sharks, amphibians, birds, rodents, and mammals, including bison, mammoth, sloth, horse, and very small antelope.¹⁴

Although the site is developed, paved, and mantled with artificial fill, excavations are part of the project's construction. If the excavations extend through the fill, native soils will be encountered. There is a low potential for significant fossils to be encountered in the excavations. However, the possibility of encountering fossils remains. Therefore, monitoring of construction activities in accordance with the Conditions of Certification is necessary. Conditions of Certification **PAL-1** to **PAL-8** require a worker education program in conjunction with monitoring of earthwork activities by qualified professional paleontologists (paleontological resource specialist PRS). Earthwork would be halted in the immediate area of the find at any time potential fossils are recognized by either the paleontological monitor or the worker. A PRS will produce a monitoring and mitigation plan, conduct worker training, and provide on-site monitoring. Conditions of Certification **PAL-1** to **PAL-8** will mitigate any potential paleontological resource impacts to a less than significant level.¹⁵

GEOLOGICAL HAZARDS

Faulting and Seismicity

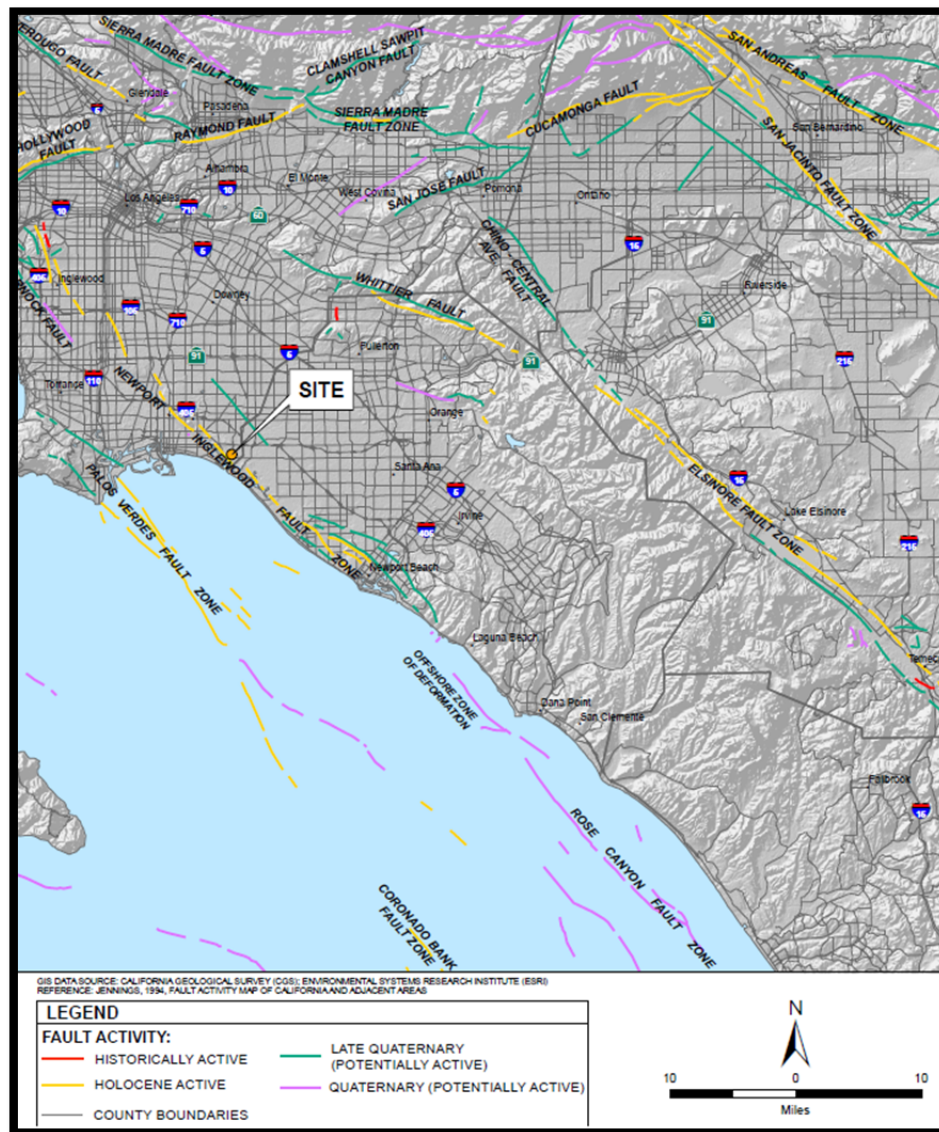
In southern California, tectonic deformation between the Pacific and North American plates is accommodated primarily by a zone of northwest trending strike-slip faults. Active faults in southern California associated with shear between the north American and Pacific plates include (from east to west), the San Andreas fault zone, the San Jacinto fault zone, the Elsinore fault zone, the Whittier fault zone, the Newport-Inglewood fault zone, the Palos Verdes fault zone, the San Diego Trough fault zone and the San Clemente fault zone. Faults specific to the inner Continental Borderland include the Newport-Inglewood fault zone, the Palos Verdes fault zone, the San Diego Trough fault zone and the San

¹⁴ Ex. 2000, pp. 5.2-8.

¹⁵ *Id.*

Clemente fault zone. See **Geological Resources Figure 1** for a detailed depiction of these fault zones.¹⁶

Geological Resources Figure 1¹⁷



All of the faults discussed above have the potential to generate strong seismic shaking at the project site. However, none have the potential to cause fault offset of the ground surface at the project site. An Earthquake Fault Zone has not been mapped on the project site. No active faults are shown on published maps as crossing the boundary of new construction on the AEC power plant site or

¹⁶ Ex. 2000, pp. 5.2-10 – 5.2-14.

¹⁷ Ex. 1500, Figure 5.4-2.

associated linear facilities. Therefore, it is highly unlikely that the site would experience surface fault rupture during the project's design life.¹⁸

Seismic Shaking

Preliminary estimates of ground motion based on probabilistic seismic hazard analyses have been calculated for the AEC site using the U.S. Seismic "DesignMaps" Web Application. This application produces seismic hazard curves, uniform hazard response spectra, and seismic design values. The values provided by this application are based upon data from the 2008 U.S. Geological Survey National Seismic Hazard Mapping Project. These design parameters are for use with the 2012 International Building Code, the 2010 ASCE-7 Standard, the 2009 National Earthquake Hazards Reduction Program provisions, and their respective predecessors.¹⁹

The evidence shows that ground acceleration values presented are typical for the area. The potential for and mitigation of the effects of strong seismic shaking during an earthquake must be addressed in a project-specific geotechnical report, as required by the 2013 CBSC, or the most current version succeeding that code. Condition of Certification **GEO-1** and **FACILITY DESIGN** Conditions of Certification **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. Compliance with these conditions of certification will ensure the AEC is built to current seismic standards and potential impacts will be mitigated to insignificant levels in accordance with current standards of engineering practice.²⁰

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. The AEC project site is mapped in a Liquefaction Investigation Zone on the State of California Seismic Hazard Zone Map for the Los Alamitos Quadrangle which means that mitigation is required.²¹

Groundwater was measured in geotechnical borings at depths between approximately 8 and 14 feet below ground surface. These determinations indicate that groundwater is shallow at the site and surrounding vicinity. The

¹⁸ Ex. 2000, p. 5.2-14.

¹⁹ Ex. 2000, p. 5.2-15.

²⁰ *Id.*

²¹ Ex. 2000, p. 5.2-16.

presence of shallow groundwater raises concerns about liquefaction potential, settlement rates, and the possible need for construction dewatering.²²

Based on the evidence, subsurface conditions at the site are likely to be conducive to liquefaction. Groundwater levels must be confirmed and the liquefaction potential on the AEC site must be addressed in a project-specific geotechnical report, pursuant to requirements of the most current version of the CBSC, and Condition of Certification **GEO-1**, and **FACILITY DESIGN** Conditions of Certification **GEN-1**, **GEN-5**, and **CIVIL-1**.²³

Tsunamis and Seiches

Tsunamis are large-scale seismic-sea waves caused by offshore earthquakes, submarine landslides and/or volcanic activity. Seiches are waves generated within enclosed water bodies such as bays, lakes or reservoirs caused by seismic shaking, rapid tectonic uplift, basin bottom displacement and/or land sliding.²⁴

All of coastal California is at risk from tsunamis. Eighty-two possible or confirmed tsunamis have been observed or recorded in California during historic times. Eleven tsunami events were large enough to cause damage, two events caused major damage, and four events caused deaths.²⁵

Inundation Potential

Studies indicate that the Catalina fault is the most likely source of local tsunami generation (Legg 2002). Areas considered susceptible to tsunami wave amplification include the coast from Los Angeles and Long Beach harbors to Newport Beach. Based on detailed earthquake modeling using variable earthquake scenarios, the maximum run-up of a tsunami in the project area caused by an earthquake on the Catalina Island restraining bend would have a height between 5 and 7.2 feet.²⁶

Based on the modeling of a dozen distant and local “worst case” sources, the U.S. Geological Survey determined that the high incoming wave elevation is 13.2 feet and maximum onshore run-up elevation would be approximately 16.4 feet in the Los Angeles Harbor area. Coupled with the tsunami occurring at Mean High Water (MHW) conditions, which is approximately 2 feet above mean sea level

²² Ex. 2000, p. 5.2-16.

²³ *Id.*

²⁴ Ex. 2000, p. 5.2-20.

²⁵ *Id.*

²⁶ Ex. 2000, p. 5.2-21.

(MSL), the modeling shows inundation could extend to about 18 feet in portions of the AEC project site.²⁷

The entire AEC site lies at an elevation that is less than 10 feet above MSL. Therefore, regardless of the source generating the tsunami, the entire site would be inundated if a tsunami occurred during MHW conditions. The entire site would also be inundated should a “worst case” scenario seismically-induced tsunami happen with current sea level conditions.²⁸

Effects of Sea-Level Rise

The effects of sea-level rise could exacerbate potential flooding and tsunami inundation impact at the site. Analysis of potential of flooding impacts from storm water flows coupled with sea level rise is included in the **SOIL AND WATER RESOURCES** section of this Decision.²⁹

The National Academy of Sciences (NRC 2012) provides tables of expected sea-level rise referenced to the sea level measured in the year 2000. The document provides a range of “possible” sea level changes from a low estimate to a high estimate. Using the maximum rate in the tables for the Los Angeles area between the years 2020 and 2055, which is the project’s design life, sea level could rise a total of 1.5 feet at the site, and a total of 2 feet above the year 2000 sea level. Based on the rate of sea level rise of 0.4 inches per year, mean sea level in 1992 was 3 inches lower than sea level in 2000.³⁰

Using the NRC 2012 projections, coupled with back calculating the rate of sea level rise between 1992 and 2000, sea level is predicted to rise in 2055, to a level 2.5 feet higher than what sea level was in 1992. Therefore, if sea level rises as projected and the maximum tsunami (16.4 feet) occurs during MHW (+ 2 feet MSL) at the end of the project’s design life, the leading edge of tsunami derived water inundation could approach an elevation of approximately 23.5 feet, effectively inundating the entire AES site.³¹

The key requirement for the formation of a seiche is that the body of water be at least partially bounded, allowing the formation of the standing wave. Los Cerritos Channel, connected to Alamitos Bay, is located immediately adjacent to the western side of the site. The channel and bay are both shallow and narrow, and

²⁷ Ex. 2000, p. 5.2-22.

²⁸ *Id.*

²⁹ Ex. 2000, p. 5.2-23.

³⁰ *Id.*

³¹ *Id.*

while a seiche could possibly form within the bay or channel, their diminutive size would suggest that the likelihood of a seiche is very low.³²

Tsunami Impact Mitigation

The planning scenarios discussed above show that the project site could be inundated by a tsunami and thus present a threat of impact to public health and safety from site flooding. Los Angeles County issued its 2014 All Hazard Mitigation Plan, which addresses the tsunami hazard and describes the warning and notification systems. The Los Angeles County Office of Emergency Services has identified primary tsunami evacuation routes that are clearly marked with blue and white signage.³³

Staff recommended Condition of Certification **GEO-2** which would require a Tsunami Hazard Mitigation Plan (THMP). The THMP would include among other things a discussion of criteria for a response to ensure public safety for a tsunami event, show where on and offsite refuge can be accessed, and provide detailed evacuation routes. The THMP would also include a training program for workers.³⁴ The Applicant objected to Condition **GEO-2** arguing, *inter alia*, that it would be duplicative of construction and operations Emergency Action Plans required by Conditions **WORKER SAFETY-1** and **2**.³⁵ We agree with Applicant in this regard and further note that Condition **COM-12** will also ensure public safety by requiring the project owner to submit an Emergency Response Site Contingency Plan 60 days before start of construction. Therefore, we will not impose Condition of Certification **GEO-2**.

The potential for, and mitigation of, the effects of tsunami or seiche caused inundation on the AEC site must also be addressed in a project-specific geotechnical report in accordance with Condition of Certification **GEO-1** and Conditions of Certification Facility Design **GEN-1**, **GEN-5** and **CIVIL-1**. Mitigation of tsunami run-up hazards includes structural and civil engineering evaluation, strengthening of seafront structures and providing emergency warning systems. Structural reinforcement at the site can be included for tsunami protection, as deemed appropriate at the detailed design stage by the project structural engineer. Compliance with Conditions of Certification **GEO-1**, **GEN-1**, **GEN-5**, **WORKER SAFETY-1** and **2**, and **CIVIL-1** ensure that tsunami or seiche hazards are mitigated to a less than significant level.

³² Ex. 2000, p. 5.2-24.

³³ *Id.*

³⁴ Ex. 2000, pp. 5.2-25 – 26.

³⁵ Ex. 1070, p. 37.

Corrosive Soils

The AEC site soils are classified as corrosive. Corrosive soil conditions may exacerbate the corrosion hazard to buried conduits, foundations, and other buried concrete or metal improvements, and cause premature deterioration of underground structures or foundations. Mitigation of corrosive soil conditions may involve the use of concrete resistant to sulfate exposure. Corrosion protection for metals may be needed for underground foundations or structures in areas where corrosive groundwater or soil could potentially cause deterioration. Corrosive soils on the site must be addressed in a project-specific geotechnical report, pursuant to requirements of the most current version of the CBSC, Condition of Certification **GEO-1**, and **FACILITY DESIGN** Conditions of Certification **GEN-1**, **GEN-5**, and **CIVIL-1**. Compliance with Conditions of Certification would ensure that any corrosive soil hazard is mitigated to insignificant levels.³⁶

Other Geologic Hazards

Based on the evidence, the likelihood of such geologic hazards to occur at the project site is considered low. 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.³⁷

Operation Impacts and Mitigation

The evidence indicates that operation of the AEC plant facilities will not have any adverse impact on geologic, mineralogical, or paleontological resources. Once the plant is constructed and operating, there would be no further disturbances that could affect these resources.³⁸

³⁶ Ex. 2000, p. 5.2-19.

³⁷ Ex. 2000, pp. 5.2-17 – 5.2-19.

³⁸ Ex. 2000, p. 5.2-25.

Cumulative Impacts

A project may result in a significant adverse cumulative impact when 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 (1) past projects; (2) other current projects; and (3) probable future projects.³⁹

No geologic and mineralogical resources have been identified in the project area. The site has not been identified as containing a significant mineral deposit that should be protected. Development of this project is not expected to lead to a significantly cumulative effect on geologic and mineralogical resources within the project area.⁴⁰

Paleontological resources have been documented in the general area of the AEC project site but not in sediments that could be encountered beneath the site. If significant paleontological resources are uncovered during construction, they would be protected and preserved in accordance with Conditions of Certification **PAL-1** through **PAL-8**. These conditions also mitigate any potential cumulative impacts.⁴¹

The AEC site is located in an active geologic environment. Strong ground shaking potential must be mitigated through foundation and structural design as required by CBSC. The potential for lateral spreading and liquefaction must be addressed and mitigated through appropriate facility design. Corrosive soils and soils that may be subject to settlement due to liquefaction and dynamic compaction, must be addressed and mitigated in accordance with a design-level geotechnical investigation as required by the 2013 CBSC, or the most current version of the code, and Conditions of Certification **GEO-1**, **GEN-1**, **GEN-5** and **CIVIL-1**.⁴²

Based on this foregoing, we find that the potential adverse cumulative impacts to project facilities from geologic hazards during its design life are not cumulatively considerable. Similarly, the record shows the potential adverse cumulative impacts to potential geologic, mineralogical, and paleontological resources from the construction, operation, and closure of the AEC project, if any, are not cumulatively considerable.

³⁹ Cal. Code Regs., tit. 14, § 15130.

⁴⁰ *Id.*

⁴¹ Ex. 2000, p. 5.2-25.

⁴² *Id.*

COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

Geology and Paleontology Table 1
Laws, Ordinances, Regulations, and Standards⁴³

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
STATE		
2013 California Building Standards Code (CBSC), California Code of Regulations, Title 24	The 2013 CBSC includes a series of standards that are used in project investigation, design, and construction (including seismicity, grading and erosion control). The CBSC has adopted provisions in the International Building Code (IBC, 2012).	Compliant. A design-level geotechnical investigation required for the project by the 2013 CBSC, and Condition of Certification GEO-1 and FACILITY DESIGN Conditions of Certification GEN-1 , GEN-5 and CIVIL-1 , would present standard engineering design requirements for mitigation of strong seismic shaking, liquefaction and potential excessive settlement due to dynamic compaction. ⁴⁴
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.	Compliant. No active faults are shown on published maps as crossing the boundary of new construction on the AEC power plant site or associated linear facilities. Condition of Certification GEO-2 . ⁴⁵
Seismic Hazards Mapping Act, PRC section 2690–2699	Maps identify areas (zones) that are subject to the effects of strong ground shaking, such as liquefaction, landslides, tsunamis, and seiches. Requires a geotechnical report be prepared that defines and delineates any seismic hazard prior to approval of a project located in a seismic hazard zone.	Compliant. A design-level geotechnical investigation required for the project by the 2013 CBSC and Condition of Certification GEO-1 and FACILITY DESIGN Conditions of Certification GEN-1 , GEN-5 and CIVIL-1 , would present standard engineering design requirements for mitigation of strong seismic shaking, liquefaction and potential excessive settlement due to dynamic compaction. ⁴⁶
LOCAL		

⁴³ Ex. 2000, pp. 5.2-2 – 5.2-3.

⁴⁴ Ex. 2000, p. 5.2-29.

⁴⁵ Ex. 2000, p. 5.2-15.

⁴⁶ Ex. 2000, p. 5.2-29.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
City of Long Beach Public Safety Element, 1975	The City of Long Beach addresses public safety and welfare in the City through implementation of its General Plan. The City of Long Beach Public Safety Element of its General Plan lists policies specific to geologic, soil, and seismic hazards, and outlines steps to ensure public health and safety.	Compliant. Long Beach Public Safety Element outlines steps to ensure public health and safety. The project owner will draft and implement Emergency Action Plan, which is part of the Project Construction Safety and Health Program and Project Operations and Maintenance Safety and Health Program required under certification conditions WORKER SAFETY-1 and -2 , and COM-12 .
City of Long Beach Public Seismic Safety Element, 1988	Provides an in-depth analysis of seismic factors to assist with the reduction of loss of life, injuries, damage to property, and social and economic impacts resulting from future earthquakes.	Compliant. A design-level geotechnical investigation required for the project. The CBSC and Condition of Certification GEO-1 and FACILITY DESIGN Conditions of Certification GEN-1 , GEN-5 and CIVIL-1 , would present standard engineering design requirements for mitigation of strong seismic shaking, liquefaction and potential excessive settlement due to dynamic compaction. ⁴⁷
Long Beach Building Standards Code as a part of the Long Beach Municipal Code, ORD – 13 – 0024, 2013	Establishes the minimum requirements to safeguard the public health, safety and general welfare, provides minimum provisions considered necessary for safety, efficiency, adequacy and the practical safeguarding of persons and of buildings, structures and their contents from hazards.	Compliant. The AEC can be designed and constructed in accordance with all applicable LORS, and in a manner that both protects environmental quality and assures public safety. ⁴⁸
STANDARDS		
Society for Vertebrate Paleontology (SVP), 2010	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	Compliant. Conditions of Certification PAL-1 to PAL-8 require a worker education program in conjunction with monitoring of earthwork activities by qualified paleontological resource specialist. Condition of

⁴⁷ Ex. 2000, p. 5.2-29.

⁴⁸ Ex. 2000, p. 5.2-30.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
	developed by the SVP, a national organization of professional scientists. The measures were adopted in October 1995, and revised in 2010 following adoption of the Paleontological Resources Preservation Act (PRPA) of 2009.	Certification PAL-3 requires that the PRMMP be developed in accordance with the guidelines of the SVP. ⁴⁹
Bureau of Land Management (BLM) Instructional Memorandum 2008-009	Provides up-to-date methodologies for assessing paleontological sensitivity and management guidelines for paleontological resources on lands managed by the Bureau of Land Management. While not required on non-BLM lands, the methodologies are useful for all paleontological studies, regardless of land ownership.	Compliant. All research was conducted in accordance with accepted assessment protocol (BLM 2008 and SVP 2010) to determine whether known paleontological resources exist in the general area. ⁵⁰

With implementation of Conditions of Certification **GEO-1** and **PAL-1** through **PAL-8**, we find that the AEC can be designed and constructed in accordance with all applicable LORS, and in a manner that both protects geologic, mineralogical, and paleontological resources and assures public safety.

AGENCY AND PUBLIC COMMENTS

No agency or public comments on the topic of geology and paleontology were received during the Evidentiary Hearings.

FINDINGS OF FACT

Based on the 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. The Alamitos Energy Center site is mapped as an area with no aggregate significance and no known active areas of mining for mineral resources.
3. The Alamitos Energy Center project will have no effect on oil and gas production or on other geologic resources of commercial value or on the availability of such resources.
4. The Alamitos Energy Center will not have any significant adverse direct, or indirect, impacts to potential geological and mineralogical resources.

⁴⁹ Ex. 2000, p. 5.2-34.

⁵⁰ Ex. 2000, p. 5.2-6.

5. There is a low potential for significant fossils to be encountered in site excavations during construction.
6. Conditions of Certification **PAL-1** through **PAL-8** require a worker education program in conjunction with monitoring of earthwork activities by qualified paleontological resource specialist.
7. A paleontological resource specialist will produce a monitoring and mitigation plan and provide on-site monitoring.
8. Conditions of Certification **PAL-1** through **PAL-8** will mitigate any potential paleontological resource impacts to a less than significant level.
9. No active faults are shown on published maps as crossing the boundary of new construction on the Alamitos Energy Center power plant site or associated linear facilities.
10. It is highly unlikely that the Alamitos Energy Center site will experience surface fault rupture during the project's design life.
11. The potential for and mitigation of the effects of strong seismic shaking during an earthquake must be addressed in a project-specific geotechnical report, as required by the most current version of the California Building Standards Code (California Code of Regulation, Title 24).
12. Condition of Certification **GEO-1 and FACILITY DESIGN** Conditions of Certification **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.
13. Compliance with these Conditions of Certification will ensure the project is built to current seismic standards and potential impacts will be mitigated to insignificant levels in accordance with current standards of engineering practice.
14. Based on the evidence, subsurface conditions at the site are likely to be conducive to liquefaction.
15. Groundwater levels must be confirmed and the liquefaction potential on the Alamitos Energy Center site must be addressed in a project-specific geotechnical report as required by the most recently adopted version of the California Building Standards Code.
16. The entire Alamitos Energy Center site lies at an elevation that is between 8 and 15 feet Above Mean Sea Level.
17. The entire Alamitos Energy Center site would be inundated if a tsunami occurred during Mean High Water conditions or during a "worst case"

scenario seismically-induced tsunamis happen with current sea level conditions.

18. The likelihood of a seiche is considered very low.
19. The Alamos Energy Center site soils are classified as corrosive. Corrosive soil conditions may exacerbate the corrosion hazard to buried conduits, foundations, and other buried concrete or metal improvements, and cause premature deterioration of underground structures or foundations.
20. Corrosive soils on the Alamos Energy Center site must be addressed in a project-specific geotechnical report, pursuant to the most current version of the California Building Standards Code, and Condition of Certification **GEO-1**, and **FACILITY DESIGN** Conditions of Certification **GEN-1**, **GEN-5** and **CIVIL-1**.
21. Compliance with the project-specific geotechnical report, pursuant to requirements of the most current version of the CBSC, Condition of Certification **GEO-1**, and **FACILITY DESIGN** Conditions of Certification **GEN-1**, **GEN-5**, and **CIVIL-1** will ensure that any corrosive soil hazard is mitigated to insignificant levels.
22. The likelihood of geologic hazards such as lateral spreading, dynamic compaction, hydrocompaction, compressible soils, expansive soils, landslide, flooding, seiches, and volcanic hazards occurring at the Alamos Energy Center site is considered low.
23. Operation of the Alamos Energy Center plant facilities will not have any adverse impact on geologic, mineralogical, or paleontological resources.
24. Potential adverse cumulative impacts to potential geologic, mineralogical, and paleontological resources from the construction, operation, and closure of the Alamos Energy Center project, if any, are not cumulatively considerable.
25. The Alamos Energy Center can be designed and constructed in accordance with all applicable laws, ordinances, regulations, and standards (LORS), and in a manner that both protects geologic, mineralogical, and paleontological resources and assures public safety.

CONCLUSIONS OF LAW

1. The Conditions of Certification included in the **FACILITY DESIGN** section of this Decision and those identified as **GEOLOGICAL AND PALEONTOLOGICAL RESOURCES** conditions in **Appendix A** of this Decision ensure that project activities will not cause significant adverse direct, indirect, or cumulative impacts to geologic, mineralogical, or paleontological resources.
2. Compliance with the Conditions of Certification identified as **GEOLOGICAL AND PALEONTOLOGICAL RESOURCES** conditions in **Appendix A** and the **FACILITY DESIGN** Conditions of Certification **GEN-1, GEN-4, GEN-5, and CIVIL-1** will ensure that the Alamos Energy Center conforms to all applicable laws, ordinances, regulations, and standards related to geologic, mineralogical, and paleontological resources as described in the evidentiary record.

VI. LOCAL IMPACT ASSESSMENT

In the following sections of this Decision, we review whether the proposed Alamitos Energy Center (AEC) will result in significant local impacts on nearby population centers, including an excessive burden on community services; unmitigated noise; increased traffic congestion; and/or adverse visual effects. These potential impacts are discussed under the technical topics of **LAND USE, SOCIOECONOMICS, NOISE, TRAFFIC AND TRANSPORTATION**, and **VISUAL RESOURCES**.

A. LAND USE

INTRODUCTION

This land use analysis addresses the AEC's compatibility with existing or reasonably foreseeable¹ land uses; consistency with applicable laws, ordinances, regulations and standards (LORS) of the city of Long Beach, the state, and the federal government; and potential project related direct, indirect, and cumulative environmental effects.²

Evidence on the topic of land use is contained in Exhibits 1016, 1031, 1041, 1050, 1056, 1067, 1070, 1416, 1431, 1500-1508, 2000, 2004, 2006, 2013 and 3043-3047.³

SETTING

The AEC site and the surrounding vicinity has numerous existing industrial operations such as the existing Alamitos Generating Station (AGS), Haynes Power Generating Station, oil storage tank farms, in addition to several major air and ground transportation corridors. The location and setting of the AEC is described in more detail in the **PROJECT DESCRIPTION** section of this Decision.⁴

Existing land uses immediately adjacent to and nearby the proposed AEC site within the city of Long Beach include:

- North: The area immediately adjacent to the project site includes the Southern California Edison 230-kV switchyard and paved open area. There is an existing mini-storage facility adjacent to State Route (SR)-22 between Studebaker Road and the San Gabriel River. Further north of SR-22, land uses transition to residential neighborhoods.

¹ Whether a project is reasonably foreseeable (i.e., a "probable future project") for purposes of cumulative impact analysis depends on the nature of the resource in question, the location of the project, and the type of project. (Cal. Code Regs., tit. 14, §15130(b)(2)).

² Ex. 2000, p. 4.5-1.

³ 11/15/16 RT 26:10 – 32:15.

⁴ Ex. 2000, p. 4.5-2.

- South: There is an oil tank farm directly adjacent to the site extending to 2nd Street. Beyond 2nd Street there is an open area with sporadic oil derricks that end at the San Gabriel River.
- East: The entire eastern portion of the project site is bordered by the San Gabriel River. Across the river to the northeast is a tank farm and to the southeast is the Haynes Power Generating Station owned by the Los Angeles Department of Water and Power (LADWP). Further east of the project site is an active adult community known as Leisure World located within Orange County.
- West: The western edge of the project site is bordered by Studebaker Road. Beyond the road, the northwest portion of the project area is bordered by the Los Cerritos Channel with a residential neighborhood further west. The project area is bordered by estuary land along the southwestern portion of the AEC site beyond the road, eventually ending at the Los Cerritos Channel.⁵

The evidence shows that neither the project site nor the surrounding area contains land identified as Important Farmlands.⁶

General Plan Land Use and Zoning Designations

City of Long Beach General Plan Land Use and Zoning Designations

City of Long Beach General Plan

The City of Long Beach General Plan designates the AEC site, laydown areas, and wastewater pipeline area as a Mixed Use district (Land Use District (LUD) NO. 7). Lands within the Mixed Use designation are a blend of "...different types of land uses that serve to save time and energy in transportation and communications..." The AEC site is also located within the Southeast Area Development Improvement Plan (SEADIP, also known as PD-1), a planned development (PD) district for which specific development standards apply.⁷ Portions of the AEC site are located within the coastal zone, including the entire 10-acre southern laydown area.⁸

City of Long Beach Zoning

For each of the project components, zoning within the SEADIP (PD-1) is:

- PD-1, Subarea 19 (AEC site, offsite laydown area): Land uses are designated industrial. The specific design and development standards require that any project

⁵ Ex. 2000, pp. 4.5-4 – 4.5-5.

⁶ Ex. 2000, p. 4.5-5.

⁷ Ex. 2000, pp. 4.5-5 – 4.5-6.

⁸ Ex. 2000, p. 4.5-6.

conform to the design and development standards of the city's General Industrial (IG) zone.

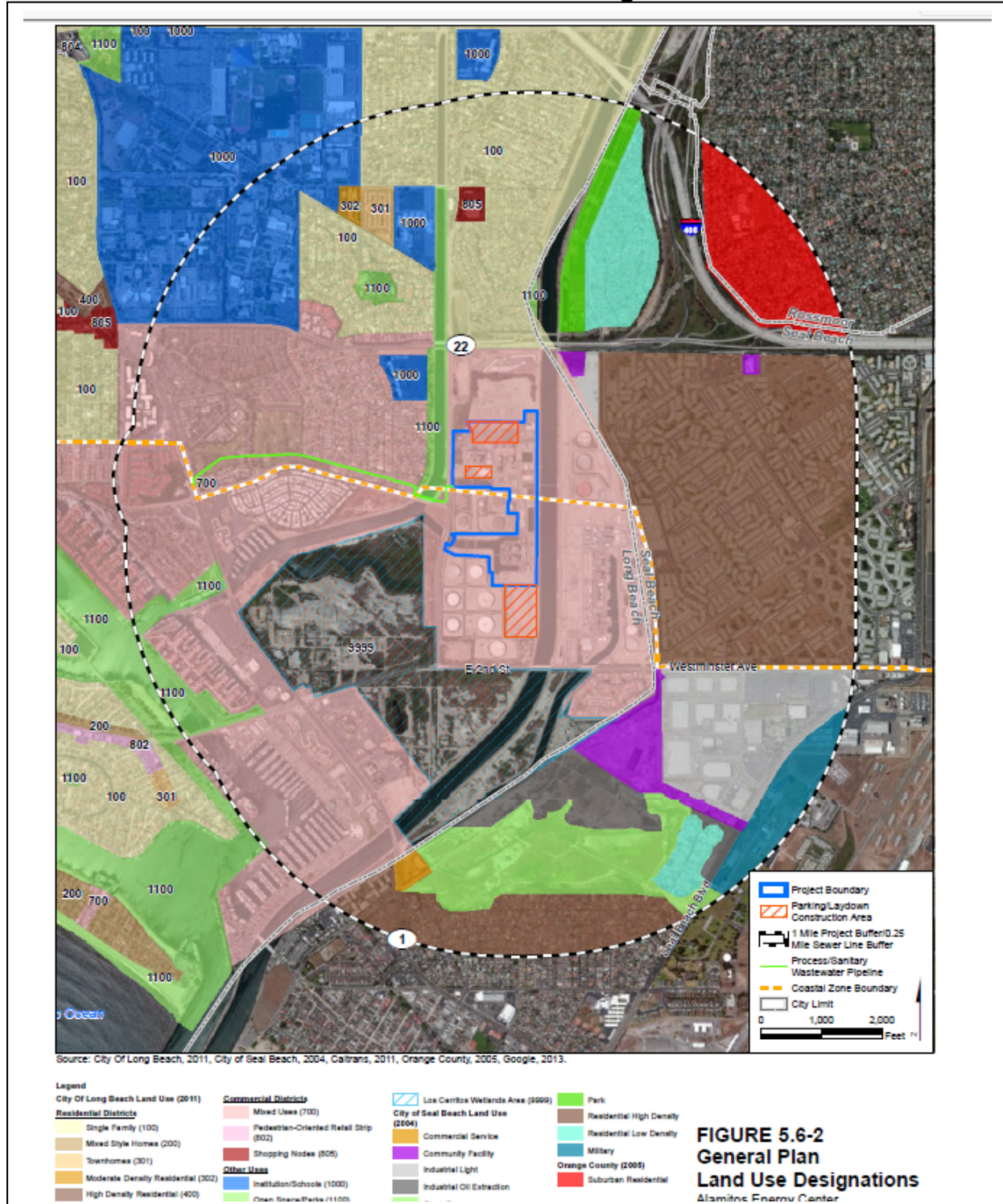
- PD-1, Subarea 9 (wastewater pipeline): Land uses are designated residential, and the area is considered fully developed in accordance with a special permit (No. S-158-62) and two subdivision tracts (No. 24883 and 22087).
- PD-1, Subarea 24 South (wastewater pipeline): Land uses are to be developed as an overlook area and interpretive center for the bordering marsh.⁹

PROJECT DESCRIPTION

For general project description, including location of the facility and the equipment to be installed, please see the “**PROJECT DESCRIPTION**” section of this Decision.

⁹ Ex. 2000, p. 4.5-6.

Land Use Figure 1 **General Plan Land Use Designations**¹⁰



¹⁰ Source: Ex. 1416, Land Use Figure 5.6-2. (Note that the sewer line extends no further than E. Vista Street, near the Long Beach Bikeway Route 10 as shown in Exhibit 1041, p. 3).

14

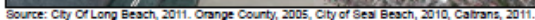


FIGURE 5.6-3
Zoning in
Project Vicinity
Alamitos Energy Center
Long Beach, California

¹¹ Source: Ex. 1416, Land Use Figure 5.6-3. (Note that the sewer line extends no further than E. Vista Street, near the Long Beach Bikeway Route 10 as shown in Exhibit 1041, p. 3).

ENVIRONMENTAL ANALYSIS

Thresholds of Significance

According to the California Environmental Quality Act (CEQA)¹², a project results in significant land use impacts if it would:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.
- Conflict with existing zoning for agricultural use or a Williamson Act contract.
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural uses.
- Physically 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.
- 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.¹³

In addition, a power plant and its related facilities may be incompatible with existing or planned land uses, resulting in potentially significant impacts, if they create unmitigated noise, dust, or a public health or safety hazard or nuisance; result in adverse traffic or visual impacts; or preclude, interfere with, or unduly restrict existing or future uses. Please see other sections of this document, as noted, for a detailed discussion of any

¹² The CEQA statute, California Public Resources Code § 21000 et seq., codifies a statewide policy of environmental protection. The California Resources Agency promulgates the CEQA Guidelines, California Code of Regulations, Title 14, § 15000 et seq., (Guidelines) which detail the protocol by which state and local agencies comply with CEQA requirements. We may refer to the statute and the Guidelines collectively as “CEQA”.

¹³ CEQA Guidelines, tit. 14, App. G, §§ II, X.

additional potential project impacts and recommended mitigation and conditions of certification.¹⁴

Impact Assessment and Mitigation

Conversion of Farmland

The evidence shows that the AEC site does not contain, and would therefore not convert, any farmland that has been designated as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, or Farmland of Local Importance to non-agricultural use.¹⁵

We therefore find that the AEC will have no impact with respect to farmland conversion.

Conflict with existing Agricultural Use Zoning

The evidence shows that none of the AEC, including its temporary laydown area or its related linear facilities (such as the new pipeline) is located in areas that are zoned or currently used for agricultural purposes.¹⁶

We therefore find that the AEC will not conflict with or have an impact on existing agricultural use or zoning and therefore have no impact.

Conflict with Williamson Act Contracts

The California Land Conservation Act, commonly referred to as the Williamson Act, enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space uses.¹⁷ The evidence establishes that the AEC is not located on land that is under a Williamson Act contract.¹⁸

We therefore find that there is no conflict between a Williamson Act contract and the AEC and, accordingly, no significant impact to Williamson Act lands.

Conflict with Timberland Production and Zoning

The evidentiary record establishes that the AEC site is not zoned for forest land, timberland, or for timberland production. In addition, there is no land zoned for such purposes within one mile of the project site.¹⁹

¹⁴ Ex. 2000, pp. 4.5-7 – 4.5-8.

¹⁵ Ex. 2000, p. 4.5-8.

¹⁶ *Id.*

¹⁷ Gov. Code §§ 51200—51207.

¹⁸ Ex. 2000, p. 4.5-8.

¹⁹ *Id.*

Therefore, we find there will be no conflict with, or cause for, rezoning of forest land or timberland and as a result there will be no impact to forest land or timberland.

Physically Divide an Existing Community

The AEC would be located within the boundaries of the existing AGS power plant which has been in its current location since the late 1950s. The site is also within the SEADIP planned development district, and is zoned for industrial use (IG); electrical generating facilities are a conditionally permitted use within IG districts. Access to the AEC would be through existing rights-of-way on Studebaker Road, and no existing roadways or pathways would be blocked or removed from service due to the AEC. Construction and operation of the AEC would not require relocation of community land uses (e.g., residences or schools).²⁰

We therefore find that the AEC will not physically divide or disrupt any community within the city of Long Beach.

Conflict with Habitat Conservation Plan or Natural Community Conservation Plan

The evidence establishes that the AEC is not located within either a Habitat Conservation Plan or a Natural Community Conservation Plan.²¹

We therefore find that there will be no conflicts with a conservation plan as a result of the AEC and thus there is no impact.

Conflict with Any Applicable Land Use Plan, Policy, or Regulation

For a discussion of the AEC's consistency with applicable LORS for land use planning, policy, or regulation, please see the discussion in **Land Use Table 1**, below.

Cumulative Impacts

A project may result in a significant adverse cumulative impact when 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 (1) past projects; (2) other current projects; and (3) probable future projects.²²

There are several large-scale planned and approved projects in the immediate vicinity of the AEC. The "AEC Master Cumulative Project List" is contained in the **PROJECT DESCRIPTION** section of this Decision. Energy Commission staff (Staff) reviewed the AEC Master Cumulative Project List for projects that would contribute land use impacts

²⁰ Ex. 2000, pp. 4.5-8 – 4.5-9.

²¹ Ex. 2000, p. 4.5-9.

²² Title 14, Cal. Code Regs, §§ 15065(a)(3); 15130.

in conjunction with the AEC. The projects Staff considered as part of the cumulative setting are listed in the Final Staff Assessment **Land Use Table 4**.²³

The AEC 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 evidence establishes that the land use effects of the AEC, in combination with past, present, and reasonably foreseeable projects in the area, would not be cumulatively considerable.²⁴

Based on the evidentiary record, we find that cumulative land use impacts of the AEC will be less than significant.

COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

Land Use Table 1 lists the state and local land use LORS applicable to the AEC. The project site does not involve federally managed lands; therefore, there are no identified applicable federal LORS.²⁵

**Land Use Table 1
Laws, Ordinances, Regulations, and Standards**

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
STATE		
California Coastal Act of 1976, Pub. Resources Code § 30000 et seq.	<p>The act establishes a comprehensive scheme to govern land use planning along the entire California coast. The act requires that new development not interfere with the public's right of access to the shoreline. It also encourages the use of existing coastal-dependent industrial sites within the coastal zone instead of using undeveloped areas of the coastal zone.</p> <p>Implementation of Coastal Act policies is accomplished primarily through preparation of local coastal programs</p>	Compliant. See Public Resources Code Section 30000 et. seq. and City of Long Beach Local Coastal Program below.

²³ Ex. 2000, pp. 4.5 -24 - 4.5 -26.

²⁴ Ex. 2000, p. 4.5-27.

²⁵ Ex. 2000, p. 4.5-13.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
	(LCPs) by municipalities located within the Coastal Zone. Portions of the city of Long Beach are within the Coastal Zone. The city adopted its LCP and the Coastal Commission certified it in 1980. As such, coastal development permit authority has been delegated to the city of Long Beach,	
California Coastal Act Public Resources Code Section 30211	Requires that new development not interfere with the public's right of access to the shoreline, where the access has been previously acquired by a federal, state, or local government authorization.	<u>Compliant.</u> The AEC would be developed on the same property as the existing Alamitos Generating Station (AGS) and would not interfere with the public's right of access to the shoreline. ²⁶
California Coastal Act Public Resources Code Section 30212	Requires new development to provide public access from the nearest public roadway to the shoreline and along the coast 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.	<u>Compliant.</u> The project site is approximately two-miles from the shoreline where adequate public access exists nearby in Seal Beach and Long Beach. Part of the project, a portion of Power Block 1, a temporary laydown area, and an underground pipeline, would extend into the coastal zone. None of these components would impede or restrict the existing public access or use of activities in the coastal zone. Therefore, additional access is not necessary. ²⁷
California Coastal Act Public Resources Code Section 30240	Requires development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas to be sited and designed to prevent impacts which would significantly degrade those areas, and be compatible with the continuance of those habitat and recreation areas.	<u>Compliant.</u> The 21-acre proposed AEC would be located entirely within the 71.1-acre existing AGS property and would not be directly adjacent to environmentally sensitive habitat areas and parks and recreation areas. As shown in the PUBLIC HEALTH AND SAFETY, ENVIRONMENTAL ASSESSMENT and LOCAL IMPACT ASSESSMENT sections of this Decision, the AEC will not significantly degrade adjacent

²⁶ Exs. 2000, p. 4.5-13; 2013 p. 15.

²⁷ Ex. 2000, pp. 4.5-10, 4.5-13.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
		environmentally sensitive habitat or parks. ²⁸
California Coastal Act Public Resources Code Section 30250	Requires new residential, commercial, or industrial development, except as otherwise provided in this division, to be located within, contiguous with, or in close proximity to, existing developed areas able to accommodate it or, where such areas are not able to accommodate it, in other areas with adequate public services and where it will not have significant adverse effects, either individually or cumulatively, on coastal resources.	Compliant. By constructing the proposed AEC within the existing AGS property, the project would comply with this section. The project would be located within an existing developed industrial area with adequate resources to accommodate it. The 10-acre laydown area outside of the AGS property would be compatible with the existing zoning of that parcel (IG), and its use would be temporary. ²⁹
Public Resources Code Section 25529	Requires the Energy Commission to establish an area for public use as a condition of certification for a facility proposed in the coastal zone. The area to be established for public use is determined by the Commission. Further requires that any facility to be located along the coast be set back from the shoreline to permit reasonable public use and to protect scenic and aesthetic values.	Compliant. The AEC project site is located entirely within an existing industrial area and predominately within the existing AGS. The project is located 2 miles inland from the coastline and only a portion of the site is within the coastal zone. None of the project components restrict any existing public access or use of activities in the coastal zone. The nearby coastline also provides many public use opportunities (i.e., beaches, etc.) with adequate access to them, so additional access is not necessary. Therefore, consistent with Public Resources Code Section 25529, we make the determination that the area to be acquired is zero (0.00), based upon evidence showing that the fraction of the project within the coastal zone does not necessitate the establishment of an area for public use. Since no land needs to be acquired, there is no need to impose a condition of certification

²⁸ Ex. 2000, p. 4.5-13.

²⁹ *Id.*

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
		<p>pursuant to Section 25529, because such a condition would be moot.</p> <p>The AEC will be set back from the shoreline to permit reasonable public use and to protect scenic and aesthetic values. (See the VISUAL RESOURCES section of this Decision). The AEC will not restrict any existing public access or use of activities in the coastal zone.³⁰</p>
CITY OF LONG BEACH MUNICIPAL CODE ZONING ORDINANCE		
<p>City of Long Beach General Plan Land Use Element July 1, 1989 Revised April 1997 Land Use District No. 7</p>	<p>Goals and Policies that are specific to the PD-1 subareas applicable to the AEC include the following:</p> <p>Provides a blending of different types of land uses that serve to save time and energy in transportation and communications, simplify and shorten transactions of goods and services, vitalize a site, and give it more importance in the urban structure of the city.</p>	<p>Compliant. The AEC would be located within LUD No. 7 (Mixed Use district) and would be consistent with the characteristics of this land use district, because the AEC would be developed on the property where the AGS facility currently operates. Therefore the AEC will not create any incompatibilities with the required provisions of the LUD No. 7 designation.³¹</p>
<p>City of Long Beach Local Coastal Program Adopted February 12, 1980 Certified by California Coastal Commission on July 22, 1980 Amended January 1994</p>	<p>The Southeast Area Development and Improvement Plan (SEADIP) is adopted in this Local Coastal Program (LCP) by reference. LCP goals and policies are provided within the SEADIP, while applicable development and use standards are provided in the City of Long Beach Municipal Code.</p>	<p>Compliant. The AEC would be consistent with the goals and policies of the LCP as provided within the SEADIP, because none of the project components would require changes to the land use or zoning within the SEADIP (see consistency discussion below for the SEADIP). Further, the AEC would be consistent with the development and use standards applicable to the project site per the City of Long Beach Municipal Code (see consistency discussion below for the City of Long Beach Municipal Code). Therefore, the project would not conflict with implementation of the LCP, as prescribed in the SEADIP and the</p>

³⁰ Ex. 2013, pp. 16-17.

³¹ Exs. 2000, pp. 4.5-14 - 4.5-15, Ex. 2013, p. 18.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
		City of Long Beach Municipal Code. ³²
Southeast Area Development and Improvement Plan (SEADIP) Amended January 3, 2006	The SEADIP identifies 33 subareas within its plan area and establishes goals and policies that are specific to each subarea. The AEC site and offsite laydown area would be located within SEADIP Subarea 19. The wastewater pipeline would be located within SEADIP Subareas 9, 22(b), and 24 South. ³³ Goals and Policies that are specific to the PD-1 subareas applicable to the AEC include the following:	
SEADIP, Subarea 9	Land uses are designated residential	Compliant. The project would be consistent with the goals and policies of Subarea 9 as no changes to the land use or zoning along the wastewater pipeline are proposed.
SEADIP, Subarea 19	Land uses are designated industrial.	Compliant. Because the AEC is an industrial use and would be located within a General Industrial (IG) zone, the project would be consistent with the industrial goals and policies of Subarea 19. In addition, the Project design plans in the Supplemental Application for Certification (SAFC) demonstrate compliance with the General Development Standards that apply to the IG zone district, as summarized in the consistency discussion below for the City of Long Beach Municipal Code.
SEADIP, Subarea 24 South	Land uses are to be developed as an overlook area and interpretive center for the bordering marsh.	Compliant. The project would be consistent with the goals and policies of Subarea 24 South because no changes to the land use or zoning in Subarea 24 are proposed.

³² Ex. 2013, pp. 18 – 20.

³³ Ex. 2013, p. 20.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
<p>City of Long Beach Municipal Code Supplement 12 Update 3; Codified through Ordinance No. ORD-16-0001 Enacted January 19, 2016</p>	<p>21.33.020(C)- Development Standards: Chapter 21.33 defines the IG zone as the following: 21.33.020(C) General Industrial: The IG district is considered the city's industrial sanctuary district where a wide range of industries that may not be desirable in other districts may locate. The emphasis is on traditionally heavy industrial and manufacturing uses. The IG district is intended to promote an industrial sanctuary where land is preserved for industry and manufacturing, and where existing industries are protected from non-industrial users that may object to the operating characteristics of industry. Performance standards must still be met, but the development standards are the minimum necessary to assure safe, functional, and environmentally-sound activities.</p> <p>General Development Standards for IG District: -Max. Lot Coverage- 80 percent -Max. Building Height- 65 ft. -Max. Non-Building Structure Height- no restriction -Max. Accessory Office Space- 25 percent of gross floor area -Parking Lot Setback for Yard Fronting on a Street- 5 ft.</p>	<p>Compliant. The project would be consistent with the IG zone standards for the reasons enumerated below. 21.33.020(C): Municipal Code chapter 21.33, Table 33-3, lists permitted uses within industrial zones. Within the IG zone district, electric, gas, and sanitary services are a conditionally permitted use. The proposed AEC would be developed in accordance with the provisions of the IG zone, which are also consistent with PD-1 development and use standards for that site. The proposed AEC would utilize an existing industrial site already developed for power generation and surrounded by other industrial facilities. The project would also utilize existing infrastructure such as the SCE switchyard and transmission facilities, connections to a natural gas pipeline system, water connections, process water supply lines, and certain administrative, maintenance, and warehouse buildings.</p> <p>The proposed AEC would comply with the General Development Standards that apply to the IG zone district, which are also consistent with PD-1 development and use standards for that site. Proposed project features would include the following: Proposed Lot Coverage- 25 percent Proposed Building Heights- 25 ft. Proposed Office Space- 5,000 sq. ft. of office space at the 21-acre site, which is 0.55 percent of the total project area. Parking Lot Setback- no changes are proposed to the location of the parking lot relative to the street.</p>
<p>City of Long Beach Municipal Code Supplement 12</p>	<p>Chapter 21.37 describes requirements for development plans for PD districts, which</p>	<p>Compliant. The proposed AEC site would be located within PD-1, in a subarea (i.e. Subarea 19),</p>

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
Update 3; Codified through Ordinance No. ORD-16-0001 Enacted January 19, 2016	serve as the applicable zoning regulations for a PD zone.	designated for development consistent with the provisions of the IG (General Industrial) zone. As summarized above under the consistency discussion for Municipal Code chapter 21.33, the project would be consistent with the development standards for a PD district because the proposed AEC would be developed in accordance with the provisions of the IG zone (see discussion of IG General Development Standards, above). ³⁴
City of Long Beach General Plan Draft Land Use Element August 2016 (as of January 2017, not adopted)	<p>The Draft Land Use Element defines Place Types that identify permitted land uses, development patterns, streetscapes, and urban form features for specific areas. The proposed AEC would be located within an Industrial Place Type. As stated in the Draft Element, “where the Industrial Place Type is applied, continued industrial activities are strongly encouraged. Industrially-developed lands should be preserved, particularly for the expansion of quality employment opportunities. Conversion of industrial lands to nonindustrial uses is generally discouraged in this plan.”</p> <p>The Draft Element also identifies 9 major areas of change within the city. The AEC would be located in Proposed Area of Change #3, Promote Regional-Serving Uses. An area that contains facilities that generate high-quality jobs that serve regional and larger audiences, while creating additional spin-off employment opportunities.</p>	<p>Compliant. The proposed AEC would be consistent with the Draft Land Use Element given that it would be located on the property of an existing power generating facility and would utilize existing infrastructure. The project would include more streamlined equipment and facilities, such as new stacks with lower overall structure height than currently exist at the AGS property.</p> <p>The proposed AEC would be located within Proposed Area of Change #3 (Promote Regional-Serving Uses). This area would be intended to accommodate future development of facilities (e.g., AES Los Alamitos) in order to promote their continued success in generating exceptional employment opportunities. Project construction and operation would also provide opportunities for employment.³⁵</p> <p>Proposed project features would include the following: Proposed Lot Coverage- 25 percent Proposed Building Heights- 25 ft. Proposed Office Space- 5,000 sq. ft. of office space at the 21-acre site, which is 0.55 percent of the total project area.</p>

³⁴ Ex. 2013, p. 25 – 26.

³⁵ Exs. 1067, pp. 3-4; 2013, pp. 29 – 30.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
	<p>General Development Standards for Industrial Place Type:</p> <ul style="list-style-type: none"> -Allowable Building Height at AEC site: 65 feet. -Allowable Non-Building Structure Height at AEC site: No restriction -Proposed Area of Change at AEC site: Designation #3-Promote Regional-Serving Uses (City of Long Beach Draft Land Use Plan Element, August 2016.) 	<p>Parking Lot Setback- no changes are proposed to the location of the parking lot relative to the street.</p>
<p>Southeast Area Specific Plan (SEASP) Draft EIR July 2016</p>	<p>Land Use Designation: Industrial Use: Provides for general industrial uses including utilities and oil extraction operations. Industrial uses must comply with Long Beach Municipal Code Chapter 21.33, except that:</p> <ul style="list-style-type: none"> - No heavy industrial, commercial, distribution, warehousing or public storage uses are permitted. - Oil and gas operations consistent with Title 12, Oil and Gas Production, of the LBMC and Section 30262, Oil and Gas Development, of the Coastal Act are permitted uses. 	<p>Compliant. The SEASP Draft EIR identifies the AEC project site as an Industrial Use. The AEC project would be consistent with SEASP Draft EIR land use designations given that it would be constructed on the property of an existing power generating facility and would utilize existing infrastructure.³⁶</p>

AGENCY AND PUBLIC COMMENT

No public comments were received on the topic of land use.

FINDINGS OF FACT

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

1. The Alamitos Energy Center will not result in conversion of farmland to non-agricultural uses.
2. The Alamitos Energy Center is not subject to a Williamson Act contract.

³⁶ Ex. 2013, p. 30.

3. The Alamitos Energy Center, a repurposing of an existing industrial use, will not physically divide or disrupt an established community.
4. The Alamitos Energy Center will not conflict with a habitat or conservation plan.
5. The Alamitos Energy Center will be built on private lands.
6. The Alamitos Energy Center will not contribute to a significant cumulative impact to land use inconsistencies within the area surrounding the project site.
7. The construction site has a City of Long Beach General Plan designation of Mixed Use.
8. The Alamitos Energy Center site is contained within the Southeast Area Development and Improvement Plan (SEADIP).
9. A portion of the Alamitos Energy Center is located within the coastal zone.
10. The Alamitos Energy Center is subject to the zoning regulations for General Industrial.

CONCLUSIONS OF LAW

1. The evidentiary record contains an adequate analysis of the land use laws, ordinances, regulations, and standards that are relevant to the project and establishes that the Alamitos Energy Center will not create any unmitigated, significantly adverse land use effects as defined under the California Environmental Quality Act.
2. The Alamitos Energy Center is consistent with the land use policies, plans, and regulations of the city of Long Beach.
3. The Alamitos Energy Center complies with the provisions in Chapter 3 of the Coastal Act.

B. TRAFFIC AND TRANSPORTATION

INTRODUCTION

This section addresses the extent to which the Alamitos Energy Center (AEC or Project) would affect the local transportation network. The evidentiary 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. In addition, we have reviewed the AEC's ability to comply with applicable federal, state, and local laws, ordinances, regulations, and standards (LORS) related to traffic and transportation.

This topic was uncontested. Evidence on the topic of traffic and transportation is contained in Exhibits 1014, 1016, 1032, 1041, 1051, 1052, 1056, 1070, 1422, 1436, 1468, 1500-1508, 2000, 2003, 2004, 2005, 2013, 3000-3015, 3025, and 3043-3047.¹

SETTING

The AEC would be constructed on the site of the existing Alamitos Generating Station (AGS). The AEC would occupy a 21-acre site within a larger 71-acre parcel in the city of Long Beach, Los Angeles County. The AEC project site is located in the southernmost corner of Los Angeles County along the border with Orange County, at the southeast corner of the intersection of State Route (SR) 22 (Garden Grove Freeway/7th Street) and Studebaker Road. Access is provided via one primary security gated entrance on the western side of the site. The gated entrance is accessed via a signalized intersection on Studebaker Road approximately 300 feet south of the Studebaker Road/ SR 22 eastbound on-ramp.²

The regional roadways are shown in **Traffic and Transportation Figure 1**. The local roadways within the project vicinity are shown in **Traffic and Transportation Figure 2**. The key roadways in the area include:

- **Interstate 405 (I-405):** a north-south freeway that provides regional access to the AEC site. This heavily-traveled freeway used by commuters and freight haulers, extends north through Los Angeles County and south through Orange County, roughly following the southern California coastline.

¹ 11/15/16 RT 26:10 – 32:15; 78:18 – 105:11.

² Ex. 2000, p. 4.10-2.

- **Interstate 605 (I-605):** a north-south regional freeway connecting east Long Beach with the San Gabriel Valley to the north.
- **Pacific Coast Highway (PCH, State Highway 1):** a four to six lane major north-south artery connecting Long Beach to Orange County coastal cities to the south. Left turn lanes are provided at major intersections. The posted speed limit in the project vicinity is generally 45 miles per hour (mph).
- **State Route 22 (SR-22, Garden Grove Freeway)/East 7th Street:** State Route 22 is a four to six-lane divided highway that turns into East 7th Street in the city of Long Beach. SR-22 is an east-west highway connecting the Costa Mesa Freeway (SR-55) to Long Beach. The posted speed limit is generally 40 mph.

All of the above freeways and highways are under the Caltrans jurisdiction and are subject to state design standards.

- **Studebaker Road:** Studebaker Road is a generally four-lane divided north-south roadway that connects 2nd Street to Los Coyotes Diagonal within the city of Long Beach. The posted speed limit is 45 mph. The roadway serves as a primary access to SR-22 for southeastern Long Beach and western Orange County coastal cities. North of SR-22, Studebaker Road connects residential communities to SR-22 and I-405. The AEC project site is directly accessed via a three-way signalized intersection on Studebaker Road. Studebaker Road is classified as a minor avenue from Los Coyotes Diagonal to Spring Street and Major Avenue to 2nd Street.
- **2nd Street:** 2nd Street is an east-west oriented six-lane divided roadway that connects with Ocean Boulevard to the west and changes name to Westminster Boulevard at the western city limits of Seal Beach. 2nd Street is in the city of Long Beach and classified as a boulevard.
- **Westminster Boulevard:** Westminster Boulevard is a four-lane divided roadway that changes its name to 2nd Street in the city of Long Beach to the west and to I-405 and western Orange County to the east. Westminster Boulevard is in the city of Seal Beach and classified as a primary roadway facility.
- **Seal Beach Boulevard:** Seal Beach Boulevard is a north-south oriented six-lane divided roadway that connects I-405/ SR-22 in the north, past PCH to Anaheim Bay at the coast. Near the intersection with Westminster Boulevard, the posted speed limit is 50 mph. Seal Beach Boulevard is in the city of Seal Beach and classified as a major roadway facility.³

³ Ex. 2000, pp. 4.10-6 – 4.10-7.

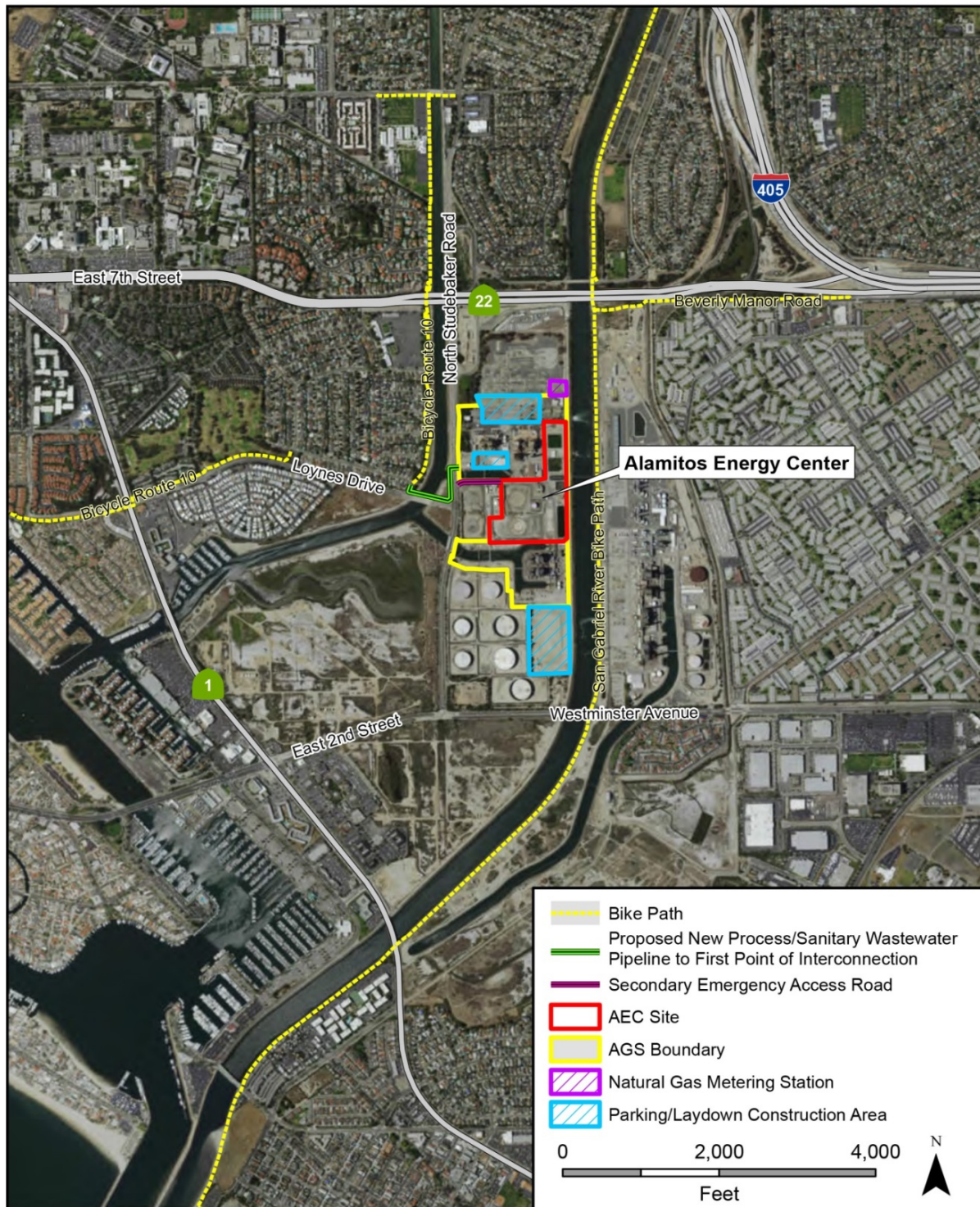
TRAFFIC & TRANSPORTATION - FIGURE 1
Alamitos Energy Center - Regional Transportation Network



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION
 SOURCE: 13-AFC-01 Figure 1.1-3, AEC Data Response Set #6 Figure DR168-1, OSM, Los Angeles County, ESRI Imagery

(Ex. 2000, p. 4.10-47).

TRAFFIC & TRANSPORTATION - FIGURE 2
Alamitos Energy Center - Local Transportation Network



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION
 SOURCE: 13-AFC-01 Figure 1.1-3, AEC Data Response Set #6 Figure DR168-1, OSM, ESRI Imagery

(Ex. 2000, p. 4.10-48).

The California Vehicle Code regulates the use of trucks on state roadways and local jurisdictions regulate the use of trucks on local roadways. Various large components of the AEC (e.g., combustion turbine generators, components of the heat recovery steam generators, transformers, and other oversize and heavy components) will arrive by ship or rail from the Port of Long Beach and then delivered via truck to the AEC site. The planned truck route is listed in **Traffic and Transportation Table 1**.

Traffic and Transportation Table 1
Proposed AEC Heavy / Oversized Haul Route

ROADWAY	APPLICABLE JURISDICTION
Harbor Plaza to Pico Avenue	City of Long Beach/County of Los Angeles
Pico Avenue to West 10th Street	City of Long Beach/County of Los Angeles
10th Street to 9th Street	City of Long Beach/County of Los Angeles
9th Street to Santa Fe Avenue	City of Long Beach/County of Los Angeles
Santa Fe Avenue to West Anaheim Street*	City of Long Beach/County of Los Angeles
West Anaheim Street to Magnolia Avenue	City of Long Beach
Magnolia Avenue to East Ocean Boulevard	City of Long Beach
East Ocean Boulevard to Alamitos Avenue	City of Long Beach
Alamitos Avenue to East Anaheim Street	City of Long Beach
East Anaheim Street to PCH	City of Long Beach
PCH to East. 2 nd Street	Caltrans
East 2 nd Street to Studebaker Road	City of Long Beach
Notes: Bold text indicates the road is a designated truck route or an overweight vehicle special permit route.*West Anaheim Street is an overweight vehicle special permit route from the western city limits of Long Beach to Daisy Avenue and does not extend to Magnolia Avenue.	

(Source: Ex. 2000, p. 4.10-13).

Deliveries would travel to the onsite laydown area (see **Traffic and Transportation Figure 2**) over the anticipated heavy haul route with the necessary heavy/oversized permits from associated agencies for each road section (e.g., city of Long Beach, California Department of Transportation). The segments of the proposed AEC heavy haul route that are truck routes or overweight vehicle special permit routes are indicated in bold font in the above table. The unbolded routes are not but were selected by the Applicant because they can accommodate loads greater than 15 feet tall because they avoid overhead obstructions.⁴

Other Modes of Transportation

Freight and Passenger Rail

The closest freight lines to the AEC project site are approximately six miles away. One line originates from the Port of Long Beach, west of the AEC project site, and the second line

⁴ Ex. 2000, p. 4.10-14.

is east of the project site extending its connection with a north-south route following I-5 in Anaheim, extending roughly southwest through Westminster to Huntington Beach.

Passenger rail service in Long Beach is operated by Los Angeles County Metropolitan Transportation Authority (Metro). The only passenger rail service to Long Beach is the Metro Blue Line, approximately 5 miles west of the AEC site. The Blue Line provides transit service from Downtown Long Beach north to Downtown Los Angeles. From the Blue Line, passengers can access local bus routes in Long Beach.⁵

Bus Service

Public transit services in the area of the AEC project are provided by Long Beach Transit, Metro, Transit Torrance, and the Orange County Transportation Authority (OCTA).

Long Beach Transit operates 34 local bus service routes throughout Long Beach including Passport, a free bus service that connects to various destinations in downtown Long Beach. No direct Long Beach Transit routes are located in the direct vicinity of AEC; however, Routes 121 and 131 provide service along PCH and 2nd Street within one mile of the AEC project site.

Metro provides regional public transportation via local and express stop bus services as well as passenger rail and transit way service within the greater Long Beach and Los Angeles Metropolitan areas. There are a limited number of local buses and an express bus in the city of Long Beach. The express bus (line 577) connects Long Beach northeast to El Monte. Route 232 connects the Los Angeles Airport with Downtown Long Beach. Route 60 extends the daytime Downtown Los Angeles to Compton route to connect with Long Beach via Long Beach Boulevard to Downtown Long Beach.⁶

Transit Torrance operates bus route rapid 3, a limited stop service from Redondo Beach to Downtown Long Beach. OCTA routes 1, 50, and 60 connect Orange County to roadways in close proximity to the AEC project site (PCH, Studebaker Road, and 7th Street, respectively). OCTA Route 1 has a bus stop on Studebaker Road at Loynes Drive. Pedestrian access along Studebaker Road is limited.⁷

Bicycle and Pedestrian Facilities

The city of Long Beach has an extensive network of Class I bike paths (exclusive right-of-way, cross traffic minimized), Class II bike lanes (on-street, striped vehicle/bicycle separation), and Class III bike routes (non-exclusive lane, vehicles and bicycles share the road). Bicycle facilities on the affected roadways include a Class I path on Loynes Drive, a Class II lane on 7th Street, and a Class II lane and a Class III route on Studebaker Road,

⁵ Ex. 2000, p. 4.10 -10.

⁶ Ex. 2000, pp. 4.10-10 – 4.10-11.

⁷ Ex. 2000, p. 4.10 -11.

PCH, and 2nd Street. Along the west bank of the Los Cerritos Channel is a Class I bike path, Long Beach Bikeway Route 10.

Seal Beach Boulevard is an affected roadway in the city of Seal Beach. Seal Beach Boulevard has a Class II bike lane north of PCH and a Class I bike path south of PCH. Westminster has a Class II bike lane. There is a Class I bike path along the San Gabriel River Greenbelt, east bank of the San Gabriel River.

Pedestrian facilities in Long Beach include the Shoreline Pedestrian/Bike Path, a 3.1-mile bicycle and pedestrian path extending along the beach from Alamitos Avenue to 54th Place. Long Beach pedestrian facilities include paths, trails, passageways, and walkways through parks, public spaces, and other properties found across Long Beach.⁸

Airports

The closest airport is the Los Alamitos Army Airfield, a military installation approximately 2.5 miles northeast of the AEC site. The airport operates from sunrise to sunset. Currently, there are seven to eight arrivals/departures per day at Los Alamitos Airfield as one military unit is deployed elsewhere.⁹

The Long Beach Airport is approximately 20,064 feet (3.8 miles) northwest of the AEC and is the nearest public airport to the AEC.¹⁰

PROJECT DESCRIPTION

For general project description, including location of the facility and the equipment to be installed, please see the **PROJECT DESCRIPTION** section of this Decision.

ENVIRONMENTAL ANALYSIS

Thresholds of Significance

The California Environmental Quality Act (CEQA) presents a list of criteria to determine the significance of project impacts in Appendix G of the CEQA Guidelines. The CEQA Guidelines and applicable LORS frame the criteria used in this Decision for evaluating environmental impacts and, specifically, whether the proposed project would result in the following:

1. Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections);
2. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes

⁸ Ex. 2000, p. 4.10 -12.

⁹ *Id.*

¹⁰ Ex. 1500, p.5.12-16.

of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit;

3. Conflict with an applicable congestion management program, including, but not limited to, level of service standards (LOS) and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways;
4. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
5. Result in inadequate emergency access;
6. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities;
7. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risk;
8. Produce a thermal plume or generate glare in an area where flight paths are expected to occur; or
9. Have 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.¹¹

Level of Service (LOS)

The Applicant provided an analysis of area roadways and intersections in the AEC vicinity by using the six levels of service identified in the California Department of Transportation (Caltrans) *Highway Capacity Manual* 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 measurement range of LOS “A” for the best operating conditions to LOS “F” for the worst.¹²

The following is a list of the applicable LOS standards for the AEC:

- Caltrans: PCH and SR 22 are subject to Caltrans LOS criteria. Caltrans establishes a target LOS between C and D for state highways. If an existing State highway facility is operating at less than the appropriate target LOS, the existing measure of effectiveness should be maintained.

¹¹ Ex. 2000, pp. 4.10-5 - 4.10-6.

¹² Ex. 2000, p. 4.10-8.

- Los Angeles County Congestion Management Program (CMP): The Los Angeles County CMP, establishes LOS E as the lowest acceptable performance standard for CMP intersections except where the base year LOS is worse than E. In such cases, the base year LOS is the standard. The project study roadways that are CMP roadways include PCH, State Route 22, and Seventh Street between Alamitos Avenue and PCH.
- City of Long Beach Mobility Element: The Mobility Element establishes a maximum allowable peak hour LOS D for regional corridor, boulevard, and major avenues and LOS C for minor avenue and neighborhood connectors. Impacts are considered significant if an unacceptable LOS at any of the key intersections is projected and if the current LOS is unacceptable, the project increases traffic demand at the study intersection by 2 percent of capacity, or causing or worsening LOS E or F.
- City of Seal Beach Circulation Element: The Circulation Element is a required chapter of the city General Plan which evaluates the long-term transportation needs of the city and provides a plan to accommodate those needs. The circulation element establishes LOS D as the minimum for city roadway segments and intersections during peak hours.
- Seal Beach Traffic Impact Study Guidelines: The city of Seal Beach deems specific increases in Intersection Capacity Utilization (ICU) as significant impacts and requires mitigation (SB Guidelines 2010, pg. 9). Intersections with lower volume to capacity (v/c) ratios for conflicting traffic movements (e.g., 0.0 to 0.69) would need to receive a larger volume of project traffic to result in a significant impact (e.g., 0.06). Conversely, intersections with high v/c ratios for conflicting traffic movements (e.g. 0.90+), would be significantly impacted with a lower volume of project traffic (e.g. 0.01).¹³

IMPACT ASSESSMENT AND MITIGATION

The direct and indirect impacts of the AEC on traffic and transportation discussed in the following section are based upon an analysis comparing pre-AEC and post-AEC conditions. Pre-AEC conditions consider the on-going operations at the existing AGS plant. The AEC's impacts were analyzed for the peak construction month when construction activity and employment would be maximized. The roadway segments and intersections below were selected for evaluation because they provide the most direct route to the AEC site and would most likely be affected by traffic during project construction. Operation roadway conditions were not analyzed because the project would become operational during the same year as peak construction and would have much fewer workers.¹⁴

¹³ Ex. 2000, p. 4.10-10.

¹⁴ Ex. 2000, p. 4.10 -12.

Construction Traffic

Traffic volumes for the affected project intersections and roadway segments were projected based on a 1.2-percent-per-year growth rate estimated in the 2012-2035 Regional Transportation Plan prepared by the Southern California Association of Governments (SCAG). The SCAG growth rate was applied to the existing traffic volumes through 2021. The existing traffic volumes for the study intersections were collected in 2009 and existing roadway segment volumes are from 2014. With the application of the SCAG growth rate to bring the volumes to 2021 volumes, the project's construction trips were then added to the affected project intersections and roadway segments and the LOS was calculated.¹⁵

Workforce Traffic

Construction and site preparation activities are anticipated to last 57 months, from the first quarter of 2017 until the third quarter of 2021. During peak construction month in January 2021 (month 44), 512 workers are anticipated, generating an estimated 1,024 daily round trips (512 workers x 2 trips per worker = 1,024 total trips). The analysis assumes that none of the workers would carpool. Construction would typically occur between 7:00 a.m. and 7:00 p.m. Monday through Friday and between 9:00 a.m. and 6:00 p.m. on Saturday.¹⁶

Heavy/Oversized Haul Routes

Even though the Applicant's proposed route includes some non-designated truck or overweight vehicle special permit routes, it does accommodate loads that are greater than 15 feet tall by avoiding overhead obstructions such as overpasses, which is necessary for the construction of the AEC. Condition of Certification **TRANS-1** requires the project owner to obtain all necessary permits from affected jurisdictions for the transportation of heavy/oversized equipment associated with the AEC project. The final route would be determined once the permits are obtained. The evidence assumes a maximum of two heavy/oversized deliveries per month, both late at night when background traffic would be low enough for these heavy/oversized deliveries.¹⁷

Condition of Certification **TRANS-2** requires the project owner to prepare a Traffic Control Plan (TCP) which would include a heavy haul plan. Condition of Certification **TRANS-3** requires the project owner to restore all public roads, easements, and rights-of-way that have been damaged due to project-related construction activities.¹⁸

Truck Deliveries

¹⁵ Ex. 2000, p. 4.10 -12.

¹⁶ Ex. 2000, p. 4.10 -13.

¹⁷ Ex. 2000, pp. 4.10-13 – 4.10-15.

¹⁸ Ex. 2000, p. 4.10 -15.

Truck deliveries of construction materials and equipment would generally occur on weekdays between 6 a.m. and 6 p.m. The peak truck deliveries would occur during month 42 of the construction schedule, when 28 trucks per day (for a total of 56 truck trips/day) would transport construction equipment and materials. Although the truck trips would peak in month 42, the peak traffic generation (workforce and truck trips combined) would occur during month 44, coinciding with the peak construction workforce. The Applicant assumes that two truck deliveries would occur per peak hour (four trips). A 1.5 passenger car equivalent (PCE) factor per truck trip factor was applied to the equipment deliveries and construction truck trips, consistent with the 2010 Highway Capacity Manual.¹⁹

Total Construction Traffic

Workforce trips were added to the passenger car equivalent delivery truck trips to estimate the total construction trips generated by the project. Project trip estimates in **Traffic and Transportation Table 2** include the estimated average daily trips and trips during the a.m. and p.m. peak hour.

Traffic and Transportation Table 2
One-Way Trips Generated During Construction Period²⁰

Vehicle Type	Average Daily Trips (ADT)	AM Peak Hour ³ Trips			PM Peak Hour ⁴ Trips		
		In	Out	Total	In	Out	Total
Delivery/ Haul Trucks in PCE (1.5) ¹	63	3	3	6	3	3	6
Workers ²	1,024	512	0	512	0	512	512
Total Construction Traffic In PCE	1,087	515	3	518	3	515	518

Notes: ¹ Passenger Car Equivalent (PCE) is a ratio of 1.5 passenger cars for each truck. ² Worker traffic during the peak construction period. These figures assume the worst case traffic scenario of one worker per car. ³ The a.m. peak hour is 7:00 a.m.-9:00 a.m. ⁴ The p.m. peak hour is 4:00 p.m.-6:00 p.m.

The estimated project trips were distributed onto the affected intersections based upon the assumption that:

- One-third of the trips would come from Long Beach, Signal Hill, and communities located west of the AEC site.
- One-third of the trips would come from Lakewood, Los Alamitos, Cypress, Cerritos, and communities located to the north of the AEC site.
- One-third of the trips would come from Garden Grove, Westminster, Fountain Valley, and communities located east and south of the AEC site.

¹⁹ Ex. 2000, p. 4.10 -15.

²⁰ Ex. 2000, p. 4.10-16.

The trips were then distributed on the local roadways based on the routes the workforce and trucks would take. The following are a general description of assumptions of routes that would be taken to the project site:

- 8 percent of the trips would travel from the south on PCH to the site;
- 4 percent of the trips would travel from the northwest on PCH to the site;
- 25 percent of the trips would travel from the east on SR-22 to the site; and
- 63 percent of the trips would travel from the northeast on I-405 to the site.

The intersection of PCH and Seal Beach Boulevard would be significantly impacted with the project traffic added during the morning peak hour. To avoid a worsening of the LOS at this intersection, the traffic control plan (TCP) identified as part of Condition of Certification **TRANS-2**, requires the project owner to monitor the intersection and provide alternate routes, and if necessary, stagger employee shifts or limit employee use of the intersection in the morning peak hour to ensure minimal impacts to local roadways during project construction.

Traffic and Transportation Table 3 provides the existing LOS conditions at several intersections in the project vicinity and the LOS during construction of the AEC. The LOS standards discussed previously under the subsection “Level of Service” are applicable to the study intersections. If several LOS standards apply, the most stringent is applied.²¹

²¹ Ex. 2000, p. 4.10 -16.

Traffic and Transportation Table 3
Study Intersections:
AM and PM Peak Hour Trips and LOS - Existing and Peak Construction²²

Intersection	Existing (2009)		2021		2021 + Project		Change in V/C	Significant Impact?
	ICU*	LOS	ICU	LOS	ICU	LOS		
AM PEAK HOUR								
PCH at 7 th Street	1.090	F	1.235	F	1.235	F	0.000	No
Studebaker Road at SR-22 W/B Ramp	0.600	A	0.669	B	0.827	D	0.158	No
Studebaker Road at SR-22 E/B Ramp	0.492	A	0.544	A	0.669	B	0.125	No
PCH at Loynes Drive	0.907	E	1.023	F	1.036	F	0.013	No
Studebaker Road at Loynes Drive	0.736	C	0.826	D	0.846	D	0.020	No
Studebaker Road at 2 nd Street	1.047	F	1.185	F	1.200	F	0.015	No
PCH at 2 nd Street	0.943	E	1.060	F	1.069	F	0.009	No
Seal Beach Boulevard at PCH	0.865	D	0.983	E	0.995	E	0.012	Yes
PM PEAK HOUR								
PCH at 7th Street	1.012	F	1.145	F	1.149	F	0.004	No
Studebaker Road at SR-22 W/B Ramp	0.831	D	0.936	E	0.937	E	0.001	No
Studebaker Road at SR-22 E/B Ramp	0.674	B	0.754	C	0.754	C	0.000	No
PCH at Loynes Drive	0.796	C	0.896	D	0.896	D	0.000	No
Studebaker Road at Loynes Drive	0.692	B	0.784	C	0.794	C	0.010	No
Studebaker Road at 2 nd Street	1.122	F	1.271	F	1.284	F	0.013	No
PCH at 2 nd Street	0.906	E	1.018	F	1.032	F	0.014	No
Seal Beach Boulevard at PCH	0.742	C	0.841	D	0.853	D	0.012	No

Notes* ICU- Intersection capacity utilization. A method for calculating traffic congestion. **Bold** text indicates unacceptable LOS.

²² Ex. 2000, p. 4.10-17.

Traffic and Transportation Table 4 presents the LOS on the affected roadway segments for existing conditions. The state highways were the only affected project roadway segments selected for analysis as no current daily traffic volumes were available for the other affected project roadways. The city of Long Beach does not identify roadway capacities for their streets so the roadway capacities for the adjacent city of Seal Beach were used due to the similarities in roadway characteristics within the two cities.²³

Traffic and Transportation Table 4
Study Roadway Segments - Existing Conditions²⁴

Roadway	Segment		Daily Vehicle Capacity	Existing (2014)		
	From	To		ADT*	V/C	LOS
PCH	Outer traffic circle/East Atherton Street	East Anaheim Street	37,500	32,250	0.86	D
	East Anaheim Street	SR-22	37,500	34,000	0.907	E
	SR-22	Bellflower Boulevard	56,300	26,000	0.462	A
	Bellflower Boulevard	Orange County Line	56,300	41,000	0.728	C
	Orange County Line	Seal Beach Boulevard	37,500	43,875	1.17	F
SR-22	PCH	Bellflower Boulevard	56,300	58,000	1.03	F
	Bellflower Boulevard	East Campus Road	56,300	61,000	1.083	F
	East Campus Road	Studebaker Road	56,300	68,000	1.208	F
	Studebaker Road	Orange County Line	79,400	96,000	1.209	F
Notes: * ADT- Average Daily Traffic (volume). Bold text indicates unacceptable LOS.						

Traffic and Transportation Table 5 presents the LOS on the affected roadway segments with and without the project trips during peak construction.

²³ Ex. 2000, p. 4.10 -17 – 4.10-18.

²⁴ Ex. 2000, p. 4.10-18.

Traffic and Transportation Table 5
Study Roadway Segments - Peak Construction²⁵

Roadway	Segment		Daily Vehicle Capacity	2021			Project Added Trips	2021 Plus Project			Change in V/C	Significant Impact?
	From	To		ADT*	V/C	LOS		ADT	V/C	LOS		
PCH	Outer traffic circle/ East Atherton Street	East Anaheim Street	37,500	35,058	0.935	D	41	35,099	0.936	D	0.001	No
	East Anaheim Street	SR-22	37,500	36,961	0.986	F	41	37,002	0.987	F	0.001	No
	SR-22	Bellflower Boulevard	56,300	28,264	0.502	A	41	28,305	0.503	A	0.001	No
	Bellflower Boulevard	Orange County Line	56,300	44,570	0.792	C	82	44,652	0.793	C	0.001	No
	Orange County Line	Seal Beach Boulevard	37,500	47,696	1.272	F	82	47,778	1.274	F	0.002	No
SR-22	PCH	Bellflower Boulevard	56,300	63,051	1.120	F	0	63,051	1.120	F	0.000	No
	Bellflower Boulevard	East Campus Road	56,300	66,312	1.178	F	0	66,312	1.178	F	0.000	No
	East Campus Road	Studebaker Road	56,300	73,922	1.313	F	0	73,922	1.313	F	0.000	No
	Studebaker Road	Orange County Line	79,400	104,360	1.314	F	901	105,261	1.326	F	0.011	No

Notes: * ADT- Average Daily Traffic (volume). **Bold** text indicates unacceptable LOS.

²⁵ Ex. 2000, p. 4.10-19.

According to the thresholds described in the “Levels of Service” section above, the intersection of PCH and Seal Beach Boulevard is the only significantly impacted intersection during AEC construction. Based upon the temporary nature of the construction and the requirements of a TCP identified as part of Condition of Certification **TRANS-2**, we find that this traffic impact will be mitigated below significance during project construction.

Transportation of Hazardous Materials and Waste

During construction and operations, generation of hazardous materials at the project site (e.g., oily rags, lead batteries) would be stored at the project site for less than 90 days then transported for disposal to an offsite treatment, storage, and disposal facility by a permitted hazardous waste transporter. The evidence indicates that no acutely hazardous materials would be used or stored on the AEC site during construction. Please refer to the **HAZARDOUS MATERIALS MANAGEMENT** and **WASTE MANAGEMENT** sections of this Decision for a detailed description of hazardous materials and waste associated with the AEC and corresponding conditions of certification. Transportation of the hazardous materials poses a less than significant hazard to the public. Condition of Certification **TRANS-4** requires the project owner to obtain permits and/or licenses from affected jurisdictions, e.g., Caltrans, Los Angeles County, and the city of Long Beach, for transportation of hazardous substances. We find the transportation of hazardous material to and from the AEC is mitigated below significance.²⁶

Linear Facilities

A new 1,000-foot long, 6-inch diameter process/sanitary wastewater pipeline will be installed connecting the project to the first point of interconnection with the existing Long Beach Water Department (LBWD). The new pipeline would begin at the west side of the AEC site near the intersection of Studebaker Road and the northern cooling water canal, cross under Studebaker Road, turn south to the intersection with Lyons Drive, turn west to cross under Los Cerritos Channel where the pipeline would be affixed to the bridge, and then finally turn north on East Vista Street to connect to the first point of interconnection, which is the existing sewer line in the residential subdivision west of the project site. No other offsite linear facilities are proposed for the AFC.²⁷

Traffic and Transportation Figure 2 above shows the alignment of the new wastewater pipeline. Condition of Certification **TRANS-5** ensures necessary

²⁶ Ex. 2000, p. 4.10-20.

²⁷ Ex. 2000, p. 4.10-3.

encroachment permits are obtained and the TCP required by Condition of Certification **TRANS-2** will also mitigate any possible traffic impacts due to offsite linear construction below significance.²⁸

Parking and Laydown Area

The Applicant has set aside an approximately 8-acre onsite parking and laydown area to accommodate the construction workers, the laydown and storage of equipment, and an approximately 10-acre offsite laydown area. Additional parking is available throughout the project site. The onsite parking and laydown area is in the northern portion of the project site and the offsite laydown area is adjacent to the southern project boundary near the San Gabriel River as shown in **Traffic and Transportation Figure 2**. No on-street parking is anticipated, with the exception of workers and construction equipment needed for the offsite wastewater pipeline. The evidence indicates that construction of the wastewater pipeline would take no longer than one month to complete. Parking needs for the AEC will be easily met with the proposed onsite and offsite parking. We find that there will be no parking impacts due to the AEC.²⁹

Potential HBEP Use of AEC Laydown Area

The recently licensed Huntington Beach Energy Project (HBEP) (12-AFC-01) would store heavy and oversized components on an undeveloped 16-acre portion of AGS. The AEC Applicant notes that the first preference for the HBEP heavy/oversized deliveries would be to time the arrival of HBEP deliveries at the Port of Long Beach so they are moved only once from the Port of Long Beach directly to the HBEP site. The heavy haul route identified for HBEP deliveries from the Port of Long Beach to the AEC site is the same route proposed for AEC. The HBEP project owner would need to obtain permits from the appropriate jurisdictions along the proposed for heavy/oversized truck route. The potential need of laydown area to accommodate HBEP deliveries added to the laydown and parking needs of the AEC should be more than adequate to accommodate needs of both projects. As previously noted, Condition of Certification **TRANS-2** requires the project owner to prepare a TCP to ensure all construction worker parking is in appropriate areas. With implementation of the TCP, construction workforce parking impacts would be less than significant.³⁰

²⁸ Ex. 2000, p. 4.10-20.

²⁹ Ex. 2000, p. 4.10 -21.

³⁰ *Id.*

Emergency Vehicle Access

Emergency vehicles will be able to access the project site through the main entrance off Studebaker Road. There is a secondary emergency access road off Studebaker Road with a locked gate and concrete aprons. See **Traffic and Transportation Figure 1** for the location of the existing secondary emergency access road. This access road will be widened and upgraded for AEC. See the **WORKER SAFETY AND FIRE PROTECTION** section in this Decision for more details about emergency vehicle access.³¹

Airports

Title 14, Part 77.9 of the Code of Federal Regulations requires Federal Aviation Administration (FAA) notification for any construction or alteration within 20,000 feet of a public use or military airport which exceeds a 100:1 surface from any point on the runway of each airport with at least one runway more than 3,200 feet.³² The longest runway at the Long Beach Airport is approximately 20,064 feet to the northwest of the AEC, and is therefore not further analyzed.

The Los Alamitos Army Airfield is approximately 14, 256 feet (2.5 miles) from the AEC; therefore, the navigable airspace above the AEC begins at 132 feet above ground level (AGL). There are two exhaust stacks at 140 feet AGL that would penetrate the Los Alamitos Army Airfield navigable airspace. All other structures are below 132 feet AGL. If any construction equipment used at AEC is 132 feet or taller, a Form 7460-1 (Notice of Proposed Construction or Alteration) would need to be filed with the FAA. Condition of Certification **TRANS-6** requires this FAA notification. The Applicant submitted Form 7460-1 to the FAA for the exhaust stacks and air cooled condenser and received a Determination of No Hazard to Air Navigation. The Determination also stated that lighting and marking are not necessary for aviation safety.³³

Part 77.9 requires FAA notification for any proposed structure that is 200 feet AGL or taller, regardless of the distance from an airport. Activities occurring during construction could require the use of tall equipment, such as cranes and derricks, on the project site, but the Applicant does not know at this time whether any construction equipment used for construction of AEC would be 200 feet AGL or taller. Condition of Certification **TRANS-6** requires FAA notification for any construction equipment 132 feet AGL or taller. Also, Condition of Certification

³¹ Ex. 2000, p. 4.10 -21.

³² Ex. 2000, p. 4.10 - 22.

³³ *Id.*

TRANS-7 requires marking and/or lighting for any construction equipment used for AEC that is 200 feet AGL or taller.³⁴

The evidence indicates that no flights to or from the Los Alamitos Army Airfield will pass over the AEC project site.³⁵

AEC Construction Impacts Conclusion

Conditions of Certification **TRANS-1** and **TRANS-5** require the project owner to obtain all encroachment permits and roadway use permits from the relevant jurisdictions, and ensure compliance with all limitations on vehicle sizes and weights, driver qualifications, and truck routes. Condition **TRANS-2** mandates the contents of the TCP, including travel routes, timing of heavy hauling, parking, staging, and notifications to the public. Additionally, Condition **TRANS-2** staggers the arrival time of workforce and delivery vehicles to times outside of the morning peak period, particularly to avoid a worsening of LOS for the intersection of PCH and Seal Beach Boulevard. Condition **TRANS-3** requires the project owner to restore any damage to roads and transportation infrastructure caused by the project, and Condition **TRANS-4** mandates compliance with regulations governing the transportation of hazardous materials. With the imposition and implementation of the Conditions of Certification **TRANS-1** through **TRANS-5** discussed in this Decision, we find that construction of the AEC will not result in significant impacts to the traffic and transportation system in the vicinity of the project.

Operational Traffic

Operations of the AEC would employ 36 operations staff, but all the operations staff will be reassigned workers currently employed at the AGS. AEC will not add new workers for its operations. Therefore, we find the AEC operations workforce will have a less than significant impact on operations traffic.³⁶

Truck Traffic

The two deliveries per day estimated for AEC operations is a minimal amount in light of all the other vehicles and movement in the region. Therefore we believe this impact to be less than significant.³⁷

³⁴ Ex. 2000, p. 4.10 - 22.

³⁵ *Id.*

³⁶ Ex. 2000, p. 4.10 - 23.

³⁷ *Id.*

Transportation of Hazardous Materials and Waste

AEC will require deliveries of aqueous ammonia. Regulations ensure the transportation of hazardous materials and waste are carried out in accordance with state law. Delivery of aqueous ammonia may be hazardous to the public if a spill were to occur. Condition of Certification **TRANS-4** ensures that the project owner contracts with licensed hazardous materials and waste hauler companies that comply with all applicable regulations. For more information on the risks associated with the management and transportation of hazardous materials during project operation and conditions of certification that mitigate these risks, see the **HAZARDOUS MATERIALS MANAGEMENT** section of this Decision.³⁸

For the reasons discussed regarding AEC construction above, the transportation of hazardous materials during AEC operation poses a less than significant hazard to the public with the implementation of Condition of Certification **TRANS-4**.³⁹

Parking

No impacts from operational workforce parking are anticipated because no new employees will be hired for the AEC (the AEC will be staffed by existing AGS employees). The existing parking at the project site exceeds the minimum required parking and is sufficient for the number of employees, visitors, etc. Therefore, there will be no significant impacts to operational workforce parking.⁴⁰

Emergency Vehicle Access

A secondary emergency access road off Studebaker Road, shown on **Traffic and Transportation Figure 2**, would be widened and upgraded for the AEC. Condition of Certification **TRANS-2** requires a TCP demonstrating and ensuring sufficient access. Onsite circulation of emergency vehicles will be subject to a site plan review by the Long Beach Fire Department under Conditions of Certification **WORKER SAFETY-6** and **-7** in the **WORKER SAFETY AND FIRE PROTECTION** section of this Decision.⁴¹

Thermal Plumes

The AEC gas turbines (exhaust stacks), air cooled condenser (ACC), and proposed auxiliary boiler have the potential to generate thermal plumes during worst case conditions. These conditions would occur during full operation of the

³⁸ Ex. 2000, p. 4.10 – 23 - 4.10 - 24.

³⁹ Ex. 2000, p. 4.10 - 24.

⁴⁰ *Id.*

⁴¹ *Id.*

AEC during periods of calm winds and/or cool temperatures. Thermal plume velocities would be greatest at the discharge point, with plume velocities decreasing with increasing altitude. High velocity thermal plumes have the potential to affect aviation safety and the FAA has amended the Aeronautical Information Manual to establish thermal plumes as flight hazards (FAA 2015). Aircraft flying through thermal plumes may experience significant air disturbances, such as turbulence and vertical shear. Since there is one airport within 2.5 miles of the AEC (Los Alamitos Army Airfield), there is a potential for low flying aircraft to be affected by the thermal plumes.⁴²

The evidence indicates that the most severe thermal plume would be generated by the ACC exceeding an average of 4.3 m/s up to an altitude of 2,180 feet AGL. At altitudes higher than approximately 2,180 feet AGL, thermal plume-average velocity will be below the average 4.3 m/s.⁴³

Under the FAA's amended Aeronautical Information Manual, pilots are advised to fly upwind of sources of exhaust plumes, such as smokestacks or cooling towers. Condition of Certification **TRANS-8** will notify pilots of the location of the AEC and help them to avoid flying directly over the facility. The project owner must request the FAA to file notices advising pilots of the potential overflight hazard associated with thermal plumes generated by the AEC.⁴⁴

The AGS and nearby Los Angeles Department of Water and Power Haynes Generating Station power plants have been in operation for many years. Pilots would be aware of the presence of these power plants and may have even encountered thermal plumes. According to evidence, there is no need to light and mark the exhaust stacks and ACC to identify the thermal plume sources at night.⁴⁵

Condition of Certification **TRANS-8** will assist pilots' ability to identify the power plant site and avoid direct overflight consistent with the Aeronautical Information Manual. With implementation of Condition of Certification **TRANS-8**, impacts to aviation safety will be less than significant.

AEC Operation Impacts Conclusion

Project traffic, emergency access, parking, hazardous materials and waste transportation, and truck deliveries for operation of the AEC will have a less than significant impact with the implementation of the traffic and transportation

⁴² Ex. 2000, p. 4.10 - 24.

⁴³ Ex. 2000, p. 4.10 - 25.

⁴⁴ *Id.*

⁴⁵ *Id.*

conditions of certification. Impacts to aviation safety, including impacts from thermal plumes, will also be less than significant.

Cumulative Impacts

A project may result in a significant adverse cumulative impact when 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 (1) past projects; (2) other current projects; and (3) probable future projects.⁴⁶

In a traffic and transportation analysis, cumulative impacts could occur when projects generate traffic that contributes to increased traffic volumes on the AEC study intersections and roadways. Projects with overlapping construction activities with the AEC could pose a cumulative impact through additional construction traffic and project-related road closures or rerouting of traffic. Projects generating a large number of trips during operation can contribute to higher traffic volumes along AEC study roadway segments and at study intersections.⁴⁷

The AEC Master Cumulative Project List is reproduced in the **PROJECT DESCRIPTION** section of this Decision. Energy Commission staff (Staff) reviewed the AEC Master Cumulative Project List for projects that would contribute traffic on the AEC study intersections and roadways or create impacts from traffic detours onto AEC study intersections and roadways. The projects considered by Staff as part of the cumulative setting are listed in the **FSA Traffic and Transportation Table 11**.⁴⁸

AEC construction will typically occur between 7:00 a.m. and 7:00 p.m. Monday through Friday and between 9:00 a.m. and 6:00 p.m. on Saturday. Peak AEC traffic generation will occur around January 2021. The intersection of PCH and Seal Beach Boulevard will be significantly impacted by the project construction traffic during the morning peak hours. The AEC construction traffic will also contribute to the failing LOS at the following six study intersections and six study roadway segments:

- PCH at 7th Street in a.m. and p.m. peak hours,
- Studebaker Road at SR-22 W/B Ramp in p.m. peak hour,
- PCH at Loynes Drive in a.m. peak hour,

⁴⁶ Title 14, Cal. Code Regs, §§ 15065(a)(3); 15130.

⁴⁷ Ex. 2000, p. 4.10 - 26.

⁴⁸ Ex. 2000, p. 4.10 -26 - 4.10 -30.

- Studebaker Road at 2nd Street in a.m. and p.m. peak hours,
- PCH at 2nd Street in a.m. and p.m. peak hours,
- Seal Beach Boulevard at PCH in a.m. peak hour,
- PCH,
 - East Anaheim Street to SR-22
 - Orange County line to Seal Beach Boulevard
- SR-22; and
 - PCH to Bellflower Boulevard
 - Bellflower Boulevard to East Campus Road
 - East Campus Road to Studebaker Road
 - Studebaker Road to Orange County line.⁴⁹

Trips generated by the cumulative projects cited above occur within the transportation network used by AEC and may combine with AEC trips to result in cumulative impacts to the LOS of nearby highways, roadways, and intersections. Any incremental increase in traffic at the intersections and roadway segments listed above could result in unacceptable LOS standards and significant impacts. Condition of Certification **TRANS-2** requires the project owner to prepare and implement a TCP, which would address the movement of AEC workers, vehicles, and materials, including arrival and departure schedules related to the AEC in order to avoid impacts to traffic and transportation routes. Although construction impacts for the AEC cover several years in duration, the mitigated construction impacts are still temporary in nature and will be fully eliminated when the AEC commences operations. We have already found that there will be no traffic impacts from the operation of the AEC. Therefore, we find that with implementation of Condition of Certification **TRANS-2**, the incremental cumulative construction impacts of the AEC will be reduced to a less than cumulatively considerable level.⁵⁰

COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

Traffic and Transportation Table 5 provides an assessment of the AEC's compliance with applicable LORS pertaining to traffic and transportation.

⁴⁹ Ex. 2000, p. 4.10 - 31.

⁵⁰ *Id.*

Traffic and Transportation Table 5
Laws, Ordinances, Regulations, and Standards⁵¹

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
FEDERAL		
Title 14, Code of Federal Regulations, Section 77.13 (1)	Requires notification of the Federal Aviation Administration (FAA) of construction or alteration of more than 200 feet above the ground level at its site.	Compliant. Condition of Certification TRANS-6 requires the project owner or contractor(s) to notify FAA for any construction equipment for AEC 200 feet above ground level or taller. ⁵²
Title 14, Code of Federal Regulations, Section 77.13 (2)(i)	Requires notification of the FAA of any construction or alteration of greater height than an imaginary surface extending outward and upward at a slope of 100 to 1 for a horizontal distance of 20,000 feet from the nearest point of the nearest runway of an airport with at least one runway more than 3,200 feet in length.	Compliant. The Applicant submitted FAA Form 7460-1 for the two 140-ft and two 80-ft. exhaust stacks and the 104-ft. air cooled condenser proposed for AEC. The Applicant received a Determination of No Hazard to Aviation. The Applicant will file another 7460-1 form if the construction crane is 132 feet above ground level or taller. ⁵³
Title 49, Code of Federal Regulations, Parts 171-177	Requires proper handling and storage of hazardous materials during transportation.	Compliant. Condition of Certification TRANS-4 requires the project owner to contract with licensed hazardous material and waste hauler companies. ⁵⁴
STATE		
California Department of Transportation CA Manual of Uniform Traffic Control Devices (MUTCD) Part 6 (Traffic Manual)	Provides traffic control guidance and standards for continuity of function (movement of traffic, pedestrians, bicyclists, transit operations), and access to property/utilities when the normal function of a roadway is suspended.	Compliant. Condition of Certification TRANS-2 requires the project owner to prepare and implement a Traffic Control Plan (TCP). ⁵⁵

⁵¹ Ex. 2000, pp. 4.10-32 - 4.10-35.

⁵² Ex. 2000, p. 4.10-32.

⁵³ Ex. 2000, pp. 4.10-22; 4.10-32.

⁵⁴ *Id.*

⁵⁵ *Id.*

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
California Health and Safety Code, Section 25160	Addresses the safe transport of hazardous materials.	Compliant. Condition of Certification TRANS-4 requires the project owner to secure the proper permits and/or licenses from the California Highway Patrol, Caltrans and all other relevant jurisdictions for the transport of hazardous materials. ⁵⁶
California Streets and Highways Code, Sections 660, 670, 672, 1450, 1460, 1470, 1480 et seq., 1850-1852	Requires encroachment permits for projects involving excavation in state and county highways and city streets.	Compliant. Condition of Certification TRANS-5 requires the project owner to coordinate with all relevant jurisdictions, obtain all required encroachment permits, and comply with all applicable regulations. ⁵⁷
California Vehicle Code, Sections 13369, 15275, 15278	Requires licensing of drivers and the classification of license for the operation of particular types of vehicles. A commercial driver's license is required to operate commercial vehicles. An endorsement issued by the Department of Motor Vehicles (DMV) is required to drive any commercial vehicle identified in Section 15278.	Compliant. Condition of Certification TRANS-1 requires the project owner to comply with driver licensing limitations. ⁵⁸
California Vehicle Code, Sections 31303-31309	Requires transportation of hazardous materials to be on the state or interstate highway that offers the shortest overall transit time possible.	Compliant. Condition of Certification TRANS-4 requires the project owner to secure the proper permits and/or licenses from the California Highway Patrol, Caltrans and all other relevant jurisdictions for the transport of hazardous materials. As part of the permitting process, the proposed route would be reviewed for the shortest overall transit time. ⁵⁹

⁵⁶ Ex. 2000, p. 4.10-32.

⁵⁷ *Id.*

⁵⁸ Ex. 2000, p. 4.10 - 33.

⁵⁹ *Id.*

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
California Vehicle Code, Sections 32100-32109	Requires shippers of inhalation hazards in bulk packaging to comply with rigorous equipment standards, inspection requirements, and route restrictions.	Compliant. Condition of Certification TRANS-4 requires the project owner to secure the proper permits and/or licenses from the California Highway Patrol, Caltrans and all other relevant jurisdictions for the transport of hazardous materials. As part of the permitting process, route restrictions could be imposed. ⁶⁰
California Vehicle Code, Sections 34000-34100	Establishes special requirements for vehicles having a cargo tank and for hazardous waste transport vehicles and containers, as defined in Section 25167.4 of the Health and Safety Code.	Compliant. Condition of Certification TRANS-4 requires the project owner to secure the proper permits and/or licenses from the California Highway Patrol, Caltrans and all other relevant jurisdictions for the transport of hazardous materials. The permits and/or licenses would incorporate the necessary special requirements. ⁶¹
California Vehicle Code, Sections 35550-35551	Provides weight guidelines and restrictions vehicles traveling on freeways and highways.	Compliant. Condition of Certification TRANS-1 requires the project owner to comply with limitations on vehicle sizes and weights, driver licensing, and truck routes. ⁶²
California Vehicle Code, Section 35780	Requires a single-trip transportation permit to transport oversized or excessive loads over state highways.	Compliant. Condition of Certification TRANS-1 requires the project owner to comply with limitations on vehicle sizes and weights, driver licensing, and truck routes. ⁶³
LOCAL		
2010 Los Angeles County Congestion Management Program (CMP)	LOS E is the lowest acceptable performance standard for CMP intersections except where the base year LOS is worse than E.	Compliant. The AEC would not cause a project study intersection with a CMP roadway to become worse than

⁶⁰ Ex. 2000, p. 4.10 - 33.

⁶¹ Ex. 2000, p. 4.10-33.

⁶² *Id.*

⁶³ Ex. 2000, p. 4.10-34.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
	In these cases, the base year LOS is the standard.	the lowest acceptable performance standard. ⁶⁴
City of Long Beach General Plan, Mobility Element	The Mobility Element is a required chapter of the General Plan which evaluates the transportation needs of the city and provides a transportation plan to meet those needs. The maximum allowable peak hour LOS is D for regional corridor, boulevard, and major avenues. Impacts are significant if an unacceptable LOS (E or F) at any of the key intersections is projected and if current LOS is unacceptable, the project increases traffic by 2 percent of capacity, causing or worsening LOS E or F.	Compliant. The addition of AEC project trips to the traffic volumes estimated on the study roadways and intersections in the city of Long Beach during the AEC peak construction period (January 2021) does not create a significant impact. The AEC is consistent with LOS standards for the city of Long Beach. ⁶⁵
City of Seal Beach General Plan, Circulation Element	Establishes LOS standards for local city streets and intersections. The minimum LOS standard for city roadway segments and intersections during peak hours is D.	Compliant: The city of Seal Beach's Circulation Element in the General Plan identifies a minimum standard of LOS D during peak hours for city roadways and intersections (Ex. 2000, p. 4.10-9; Seal Beach General Plan, Circulation Element, p. C-50). Traffic volumes representing the existing conditions for the intersection of Pacific Coast Highway and Seal Beach Boulevard were obtained from a traffic study based on counts taken in 2009. This intersection in 2009 had an LOS of D. A growth rate of 1.2 percent (consistent with Southern California Association of Governments 2012-2035 Regional Transportation Plan) was applied to the volume at this intersection to bring volumes to 2021 estimated conditions. The year 2021 is when peak project construction activities would occur. Without the project trips added, this

⁶⁴ Ex. 2000, p. 4.10-34.

⁶⁵ *Id.*

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
		<p>intersection is estimated to operate at LOS E in 2021. The addition of the project trips would not worsen the LOS from E, but would change the volume to capacity ratio (V/C) by 0.012 during the a.m. peak period (as shown in Traffic and Transportation Table 5, pg. 4.10-17). The city's Traffic Impact Study Guidelines considers a project-related Intersection Capacity Utilization (ICU) V/C increase of 0.01, at intersections with an existing V/C of 0.90+, to be a significant impact requiring mitigation (FSA Part 1 Traffic and Transportation section, pg. 4.10-10 and City of Seal Beach Traffic Impact Study Guidelines, pg. 9).</p> <p>This impact can be mitigated with Condition of Certification TRANS-2, which requires the applicant to stagger the arrival time of the project workforce during the a.m. peak period as part of the TCP. Implementation of the TCP would reduce the number of project trips at this intersection during the a.m. peak period to within Seal Beach standards; therefore, the project would be consistent with this standard and would not result in a project-related Intersection Capacity Utilization increase over the threshold of 0.01.⁶⁶</p>
City of Seal Beach Traffic Impact Study Guidelines	Identifies the minimum requirements for a Traffic Impact Study submitted to the city of Seal Beach. These guidelines specify increases in ICU that are considered significant and require mitigation.	Compliant: See the discussion in City of Seal Beach General Plan, Circulation Element, above. ⁶⁷

⁶⁶ Ex. 2000, p. 4.10-34; Ex. 2013 pp. 35 - 36.

⁶⁷ *Id.*

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
	An intersection with a v/c ratio of 0.90+ would be significantly impacted if increased by 0.01 or more from project traffic.	
CITY OF LONG BEACH MUNICIPAL CODE		
Title 10 Vehicles and Traffic, Chapter 10.18.10 Vehicles restricted from streets- Vehicles prohibited in central traffic district	Prohibits specific vehicles (freight vehicles) in the central traffic district between 7:00 a.m. and 6:00 p.m.	Compliant. While the Applicant's proposed heavy haul route includes the use of the section of Ocean Boulevard in the central traffic district, heavy haul trips are typically permitted for late night and would be outside of the restricted hours for this district. ⁶⁸
Title 10 Vehicles and Traffic, Chapter 10.41 Use of streets by Overweight Vehicles. 10.41.020 Special Permit Required	Requires an oversize vehicle permit for vehicles, mobile equipment or loads which exceed the requirements of the Vehicle Code.	Compliant. TRANS-1 requires the project owner to obtain necessary transportation permits from all relevant jurisdictions. ⁶⁹
Title 18 Buildings and Construction, Chapter 18.17 Transportation Improvement Fee	The Transportation Improvement Fee is imposed on new development in the city of Long Beach. The fee assures the transportation level of service goals are met with respect to the additional demands placed on transportation system by traffic generated by new development.	Compliant. The Transportation Improvement Fee would be collected at the time an encroachment permit is obtained. Condition of Certification TRANS-5 requires consultation with the city of Long Beach to obtain an encroachment permit. ⁷⁰
City of Seal Beach, Municipal Code Title 8 Vehicles and Traffic, Section 8.10.135 Movement of Oversize Vehicles.	Requires an oversize vehicle permit for vehicles, mobile equipment or loads which exceed the requirements of the Vehicle Code.	Compliant. Condition of Certification TRANS-1 requires the project owner to obtain necessary transportation permits from all relevant jurisdictions. ⁷¹
Los Angeles County Municipal Code, Title 16- Highways, Division 1- Highway Permits,	Requires an oversize vehicle permit for vehicles, mobile equipment or loads which	Compliant. TRANS-1 requires the project owner to obtain necessary transportation

⁶⁸ Ex. 2000, p. 4.10-35.

⁶⁹ *Id.*

⁷⁰ *Id.*

⁷¹ *Id.*

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
Chapter 16.22 Moving Permits, 16.22.030 Moving Permit issuance conditions for overweight loads.	exceed the requirements of the Vehicle Code.	permits from all relevant jurisdictions. ⁷²

AGENCY AND PUBLIC COMMENTS

We received no public comment on traffic and transportation.

FINDINGS OF FACT

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

1. Construction of the Alamitos Energy Center will add traffic to local roadways during the construction period.
2. Construction traffic will not significantly reduce the Level of Service at any area intersection or impact Level of Service on area roadways except for Seal Beach Boulevard at Pacific Coast Highway, which will temporarily decrease from existing Level of Service D to Level of Service E during morning peak hours.
3. The project owner will provide a Traffic Control Plan to mitigate any Level of Service impacts in the project area.
4. The Traffic Control Plan will ensure that the Alamitos Energy Center does not significantly degrade the Level of Service 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 Traffic Control Plan required by Condition of Certification **TRANS-2** will mitigate any possible traffic impacts due to offsite linear construction below significance.
7. Transportation of hazardous material, including aqueous ammonia to and from the Alamitos Energy Center is mitigated below significance with Condition of Certification **TRANS-4**.
8. The Alamitos Energy Center has adequate onsite and offsite parking for workforce needs.

⁷² Ex. 2000, p. 4.10-35.

9. The Alamitos Energy Center has adequate laydown area to accommodate its needs as well as any storage needs of the Huntington Beach Energy Project.
10. The project owner will comply with the California Department of Transportation and all other relevant jurisdictional requirements for any encroachment into public rights-of-way during construction as required by Condition of Certification **TRANS-5**.
11. The project owner will comply with the California Department of Transportation and all other relevant jurisdictional requirements for oversized vehicles as required by Condition of Certification **TRANS-1**.
12. The project owner will repair any damage to roads, easements and public rights-of-way affected by construction activity as required by Condition of Certification **TRANS-3**.
13. The Los Alamitos Army Airfield is located approximately 2.5 miles from the Alamitos Energy Center site.
14. Aircraft connected with the Los Alamitos Army Airfield will not fly over the Alamitos Energy Center site.
15. The project owner will consult with the Federal Aviation Administration to ensure that a Notice to Airmen is provided to pilots to avoid flying over the Alamitos Energy Center site.
16. Condition of Certification **TRANS-6** requires Federal Aviation Administration notification for any construction equipment 132 feet above ground level or taller.
17. Condition of Certification **TRANS-7** requires marking and/or lighting for any construction equipment used for Alamitos Energy Center that is 200 feet above ground level or taller.
18. Alamitos Energy Center will not add new workers for its operations; therefore, the Alamitos Energy Center will have a less than a significant impact on operations traffic.
19. There is no evidence that the Alamitos Energy Center will result in long-term significant direct, indirect, or cumulative traffic and transportation impacts.

CONCLUSIONS OF LAW

1. The Alamitos 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 Alamitos Energy Center project will not result in a significant adverse traffic impact on the local and regional road/highway network.

C. SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

INTRODUCTION

This section evaluates the proposed Alamos Energy Center's (AEC) induced changes from construction and operation on existing populations, employment patterns, local communities and their services and resources, and law enforcement services. It analyzes whether the project is located near an environmental justice (EJ) population as defined by *Environmental Justice: Guidance Under the National Environmental Policy Act*. The socioeconomic impact analysis includes an evaluation of estimated beneficial economic effects and addresses the AEC's ability to comply with applicable federal, state, and local laws, ordinances, regulations, and standards (LORS) related to socioeconomic impacts.¹

This topic was uncontested. Evidence on the topic of socioeconomic is contained in Exhibits 1014, 1041, 1056, 1070, 1420, 1464, 1465, 1500-1508, 2000, 2004, 2013, and 3043-3047.²

SETTING

For detailed information regarding the setting of the Project, please refer to the "Project Description" section of this Decision.

PROJECT DESCRIPTION

For general project description, including location of the facility and the equipment to be installed, please see the **PROJECT DESCRIPTION** section of this Decision.

ENVIRONMENTAL ANALYSIS

Thresholds of Significance

The California Environmental Quality Act (CEQA) requires a list of criteria to determine the significance of identified impacts. Appendix G of the CEQA Guidelines specifies that a project could have a significant effect on population, housing, and law enforcement services, schools and parks if it would:

- Induce substantial population growth in an area, either directly or indirectly;
- Displace substantial numbers of people and/or existing housing, necessitating the construction of replacement housing elsewhere; or

¹ Ex. 2000, pp. 4.8-1; 4.8-4.

² 11/15/16 RT 26:10 – 32:15.

- Adversely impact acceptable levels of service for law enforcement, schools, and parks and recreation.³

The determination of the significance of any impacts on population, housing, police protection, schools, and parks and recreation is based on expert testimony, including input from local and state agencies, and the industry-accepted two-hour commute range for construction workers and one-hour commute range for operational workers.⁴

Impact Assessment and Mitigation

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 EJ screening analysis to determine whether the project will result in disproportionate impacts upon minority and/or low-income populations. Second, it enables a determination as to 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.⁵

Environmental Justice

Energy Commission staff's (Staff) demographic screening identifies the presence of minority and below-poverty-level populations within a six-mile radius⁶ of the project site based upon the U.S. Census Bureau's 2010 decennial data and current (2010 – 2014) American Community Survey data.⁷

³ Ex. 2000, p. 4.8-7.

⁴ *Id.*

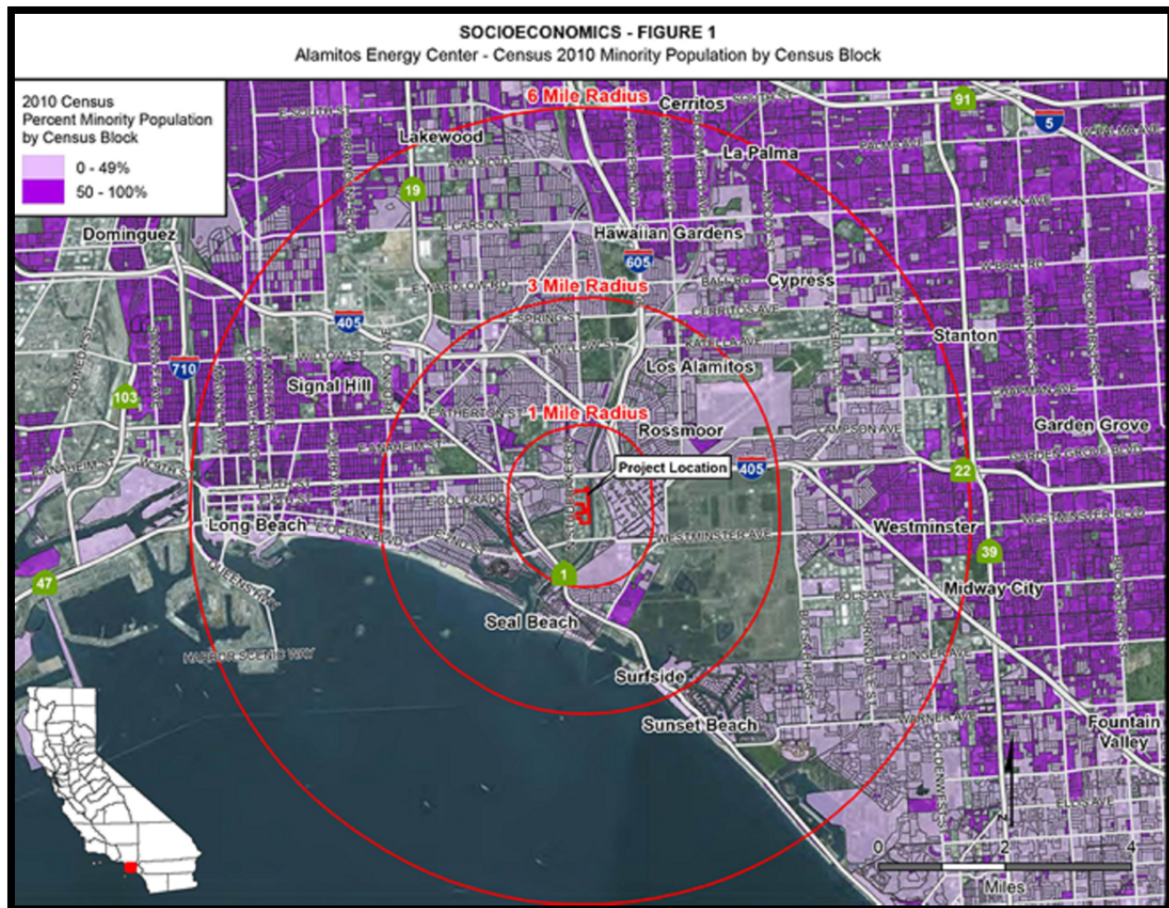
⁵ Ex. 2000, p. 4.8-3.

⁶ *Id.* The six-mile radius is based on air quality modeling, as described in the Air Quality section of the Decision. No other technical area has identified potential impacts that might exceed this distance. Therefore, Staff used a six-mile radius from the project to obtain data to gain a better understanding of the demographic makeup of the communities potentially impacted by the project. If an EJ population is identified, 11 technical disciplines consider the project's effects on the EJ population.

⁷ *Id.*

According to *Environmental Justice: Guidance Under the National Environmental Policy Act*, minority individuals are defined as American Indian or Alaskan Native, Asian or Pacific Islander, Black (not of Hispanic origin) or, Hispanic.⁸

An EJ population is identified when one or more U.S. Census blocks⁹ in the six-mile radius have a minority population greater than or equal to 50 percent. **Socioeconomics Figure 1** (with a one-, three-, and six-mile radius) identifies the EJ populations near the AEC based on race and ethnicity.¹⁰



Source: (Ex. 2000, p. 4.8-32.)

Socioeconomics Table 1 shows poverty data for the cities in the project's six-mile radius and the reference geographies.

⁸ Ex. 2000, p. 4.8-4.

⁹ Ex. 2000, p. 4.8-3. A Census block is the lowest-level geographic entity for which the Census Bureau tabulates sample data from the decennial census.

¹⁰ *Id.*

Socioeconomics Table 1
Poverty Data within the Project Area

Area	Total Population	Persons with income in the past 12 months below-poverty-level	Percent of population below-poverty-level (%)
	Estimate*	Estimate	Estimate
CITIES IN THE SIX-MILE RADIUS			
Cypress	48,608 ±112	3,289 ±632	6.80 ±1.3
Hawaiian Gardens	14,373 ±58	4,134 ±799	28.80 ±5.5
Lakewood	80,717 ±184	6,688 ±881	8.30 ±1.1
Long Beach	462,140 ±544	95,719 ±3,731	20.70 ±0.8
Seal Beach	24,214 ±198	2,208 ±390	9.10 ±1.6
REFERENCE GEOGRAPHY			
Long Beach-Lakewood CCD	570,158 ±634	108,344 ±4,118	19.00 ±0.7
North Coast CCD	373,008 ±1,432	42,153 ±2,396	11.30 ±0.6
Anaheim-Santa Ana-Garden Grove CCD	1,657,735 ±2,854	257,082 ±5,859	15.50 ±0.3

Notes: * Population for whom poverty status is determined. Staff's analysis of the 2010 – 2014 estimates returned CV values less than 15, indicating the data is reliable. Data for the cities of Los Alamitos and Signal Hill is not reported. (CV values greater than 15.) **Source:** Ex. 2000, p. 4.8-6.

Socioeconomics Table 1 indicates that the below-poverty-level for Hawaiian Gardens and Long Beach is approximately ten and two percent higher, respectively, than the reference geography with the highest below-poverty-level (Long Beach-Lakewood Census County Division (CCD)).¹¹ Therefore, the evidence shows that the below-poverty-level population in the cities of Hawaiian Gardens and Long Beach constitute an EJ population as defined by *Environmental Justice: Guidance Under the National Environmental Policy Act*.¹²

We have determined, based upon the evidence in the record that the AEC will have no unmitigated, significant direct, indirect or cumulative impacts on public health or the environment. As there will be no unmitigated, significant impacts to any populations, we find there will be no disproportionate impacts to the EJ population within a six-mile radius of the AEC project.

¹¹ Ex. 2000, p. 4.8-7.

¹² Council on Environmental Quality, *Environmental Justice: Guidance Under the National Environmental Policy Act*, December 10, 1997, http://www3.epa.gov/environmentaljustice/resources/policy/ej_guidance_nepa_ceq1297.pdf>

Workforce and Inducement of Substantial Population Growth

The phrase “induce substantial population growth” (for purposes of this analysis) is defined as workers moving into the project area because of project construction and operation, thereby encouraging construction of new homes or extension of roads or other infrastructure. To determine whether the AEC would induce population growth, the record analyzes the availability of the local workforce and the population within the region.¹³

The workforce is considered local if the construction workforce resides within a two-hour commute of a project and the operations workforce resides within a one-hour commute (commute times are industry accepted assumptions).¹⁴ The AEC commute area encompasses the following:

- Los Angeles-Long Beach-Glendale Metropolitan Division (Los Angeles County);
- Anaheim- Santa Ana-Irvine Metropolitan Division (Orange County); and
- Riverside-San Bernardino-Ontario Metropolitan Statistical Area (Riverside and San Bernardino counties).¹⁵

Induce Substantial Population Growth

The phrase “induce substantial population growth” (for purposes of this analysis) is defined as workers moving into the project area because of project construction and operation, thereby encouraging construction of new homes or extension of roads or other infrastructure. To determine whether the AEC would induce population growth, the record analyzes the availability of the local workforce and the population within the region.¹⁶

The workforce is considered local if the construction workforce resides within a two-hour commute of a project and the operations workforce resides within a one-hour commute (commute times are industry accepted assumptions).¹⁷ The AEC commute area encompasses the following:

- Los Angeles-Long Beach-Glendale Metropolitan Division (Los Angeles County);

¹³ Ex. 2000, p. 4.8-8.

¹⁴ Ex. 2000, p. 4.8-7.

¹⁵ Ex. 2000, p. 4.8-8.

¹⁶ *Id.*

¹⁷ Ex. 2000, p. 4.8-7.

- Anaheim- Santa Ana-Irvine Metropolitan Division (Orange County); and
- Riverside-San Bernardino-Ontario Metropolitan Statistical Area (Riverside and San Bernardino counties).¹⁸

Socioeconomics Table 2 shows the historical and projected populations for cities within the six-mile radius, plus Los Angeles and Orange counties for reference. Population projections between 2010 and 2035 show a growth of 12 percent in the cities within and around the six-mile radius. The cities of Long Beach, Signal Hill, and the county of Los Angeles have the highest projected growth with 16, 17, and 16 percent, respectively.¹⁹

The evidentiary record contains an analysis of the total labor available within the project study area. The undisputed evidence demonstrates that the total labor supply in the study area compared to the project labor needs for the construction of the AEC is more than adequate to provide construction labor for the project.²⁰

**Socioeconomics Table 2
Historical and Projected Populations**

	2000 ¹	2010 ²	2020 ³	2035 ³	Projected Population Change 2010-2035	
					Number	Percent
Cities in the Project Study Area: (Total)	646,901	650,994	685,400	731,400	80,406	12.35
Cypress	46,229	47,802	50,300	51,400	3,598	7.53
Hawaiian Gardens	14,779	14,254	14,800	15,600	1,346	9.44
Lakewood	79,345	80,048	80,500	80,600	552	0.69
Long Beach	461,522	462,257	491,000	534,100	71,843	15.54
Los Alamitos	11,536	11,449	12,000	12,000	551	4.81
Seal Beach	24,157	24,168	25,000	24,800	632	2.62
Signal Hill	9,333	11,016	11,800	12,900	1,884	17.10
Counties						
Los Angeles County	9,519,338	9,818,605	10,404,000 ³ 10,435,991 ⁴	11,353,000 ³ 11,123,113 ⁴	1,534,395*	15.63
Orange County	2,846,289	3,010,232	3,266,000 ³ 3,243,261 ⁴	3,421,000 ³ 3,410,509 ⁴	410,768*	13.65

Notes: *Calculated using the highest 2035 population projection. **Source:** Ex. 2000, p. 4.8-8.

The Applicant expects project construction and site preparation activities to last approximately 57 months, from the second quarter of 2017 until the third quarter of 2021. The AEC combined-cycle gas turbine (CCGT) construction would begin in the second quarter of 2017 and be operational before May 1, 2020. The AEC simple-cycle gas turbine (SCGT) construction would begin in the second quarter of 2020 and begin commercial operation in the third quarter of 2021. No

¹⁸ Ex. 2000, p. 4.8-2.

¹⁹ Ex. 2000, p. 4.8-7.

²⁰ *Id.*

construction overlap is expected between the AEC CCGT and the AEC SCGT power blocks.²¹

The primary trades required for the project would include boilermakers, carpenters, electricians, ironworkers, laborers, millwrights, operators, and pipefitters. The project's site preparation activities would average 75 workers over the five-month period and peak with 91 workers in January through March 2017. The project would have an average workforce over the approximate 57-month construction period of 191 workers and is anticipated to reach a peak workforce with 512 workers in January 2021 (month 44). The peak construction workforce and duration of construction by phase is presented in **Socioeconomics Table 3**.²²

The Applicant assumes that 90 percent of the construction workforce would reside in Los Angeles County, but workers would also be drawn from the neighboring counties of Orange, Ventura, Kern, San Bernardino, and a portion from other nearby counties in southern California. Workers from Ventura, Kern, and San Bernardino counties would be considered non-local and likely seek lodging during the week closer to the project site and return to their primary residence on weekends. The evidence shows that there is a more than sufficient supply of union members available within commuting distance of the AEC. The evidence indicates that the majority of construction workers would commute daily to the project site and only about ten percent would come from outside of the local commute area. During the peak construction period, approximately 52 workers could come from outside of the local commute area, with an average of 20 workers during the 51-month construction period.²³

The 36 operational staff needed for the AEC will come from the existing 66-member AGS staff. Since no new workers will be hired, no new residents would be added.²⁴

Based upon the evidence, we find the project's construction and operation workforces would not directly or indirectly induce a substantial population growth in the project area, and therefore, the project would create a less than significant impact under this criterion.

²¹ Ex. 2000, p. 4.8-12.

²² *Id.*

²³ Ex. 2000, p. 4.8-13.

²⁴ *Id.*

Housing Supply

Socioeconomics Table 3 presents housing supply data for the project area. The table shows a 6.4 percent vacancy rate. The evidence establishes that five percent vacancy is a largely industry-accepted minimum benchmark for a sufficient amount of housing available for occupancy. The housing counts in the project area indicate a sufficient supply of available housing units within a six-mile radius of the project site.²⁵

Socioeconomics Table 3
Housing Supply Estimates in the Project Area

Subject	Area					
	Cities in a Six Mile Radius of Project Site*		Los Angeles County		Orange County	
	Number	Percent	Number	Percent	Number	Percent
OCCUPANCY STATUS						
Total housing units	246,575	100	3,445,076	100	1,048,907	100
--Occupied housing units	230,676	93.6	3,241,204	94.1	992,781	94.6
--Vacant housing units	15,899	6.4	203,872	5.9	56,126	5.4
VACANCY STATUS						
Vacant housing units	15,899	100	203,872	100	56,126	100
--For rent	8,471	53.28	104,960	51.5	25,254	45.0
--For sale only	1,964	12.35	26,808	13.1	8,434	15.0
--For seasonal, recreational, or occasional use	1,656	10.42	19,099	9.4	10,806	19.3
--Other**	3,808	23.95	53,005	26.0	11,632	20.72

Notes: *Cities include Long Beach, Signal Hill, Lakewood, Hawaiian Gardens, Cypress, Los Alamitos, and Seal Beach.** Other includes rented, not occupied; sold, not occupied; migratory workers, and other vacant.

Source: Ex. 2000, p. 4.8-14.

Given the large supply of lodging choices in Long Beach, Los Angeles and Orange counties, and the estimated low number of non-local project construction workers (peak estimate 52 workers), we find that there will be no new housing required as a result of project construction, nor will there be new operations workers to impact housing supply.

Based on the evidentiary record, we find the AEC project's construction and operation workforce will not have a significant adverse impact on the housing supply in the project area, Long Beach, Los Angeles and Orange counties, and therefore, the project will create a less than significant impact on the housing supply. Further, we find that the AEC project will have no impact on area housing as the project will not displace any people or necessitate the construction of replacement housing elsewhere.²⁶

²⁵ Ex. 2000, p. 4.8-14.

²⁶ Ex. 2000, pp. 4.8-14 – 4.8-15.

Impacts to Services from Law Enforcement, Schools, and Parks and Recreation

Law Enforcement

The AEC site is located within the jurisdiction of the City of Long Beach Police Department (LBPD) East Division. The East Division substation is located 3.4 miles from the project site at 4800 Los Coyotes Diagonal. LBPD's East Division staff includes 105 sworn police officers and 2 civilians. The estimated response time for emergency calls in the East Division is 4.5 minutes and the estimated response time for non-emergency calls is 16 minutes. The East Division service levels currently meet the needs of the area. LBPD has existing mutual aid agreements with all regional law enforcement agencies, and any support requests are coordinated by the Los Angeles County Sheriff's Office.²⁷

The California Highway Patrol (CHP) is the primary law enforcement agency for state highways and roads. The City of Long Beach includes a small segment of the Pacific Coast Highway (PCH or State Route 1). Both CHP and LBPD serve the portion of PCH within the City of Long Beach. Studebaker Road is already a heavily used access route to the I-405 freeway. If repeated traffic jams occur on Studebaker Road, additional traffic officers may be required on an "as needed" basis to help unclog the thoroughfare. However, the evidence indicates that the LBPD could accommodate additional officers, if necessary, and would not need to increase staffing.²⁸

Condition of Certification **TRANS-2** requires preparation and implementation of a traffic control plan to address the movement of workers, vehicles, and materials, including arrival and departure schedules and designated workforce and delivery routes. See the **TRAFFIC AND TRANSPORTATION** section of this Decision for a full assessment of impacts related to traffic and transportation.²⁹

The Supplemental Application for Certification includes security measures during operations such as site fencing and security gate; evacuation procedures; a protocol for contacting law enforcement in the event of conduct endangering the facility, its employees, its contractors, or the public; and a fire alarm monitoring system. Also proposed, are measures to conduct site personnel background checks, including employee and routine onsite contractors; site access protocol for vendors; and a protocol for hazardous materials vendors for security plan preparation and personnel background security checks. The security plan may include one or more of the following: security guards; security alarm for critical

²⁷ Ex. 2000, p. 4.8-15.

²⁸ Ex. 2000, pp. 4.8-15 – 4.8-16.

²⁹ Ex. 2000, p. 4.8-16.

structures; perimeter breach detectors and onsite motion detectors; and video or still camera monitoring system.³⁰

Conditions of Certification **HAZ-7** and **HAZ-8** require the preparation of site security plans to provide for security during all phases of this project. The construction site security plan would be implemented before construction commences, and includes a protocol for contacting law enforcement and the Energy Commission compliance project manager (CPM) in the event of suspicious activity or emergency. See the **HAZARDOUS MATERIALS MANAGEMENT** section of this Decision for a full assessment of impacts related to hazardous materials.³¹

Based on the evidentiary record, we find the AEC project will not result in law enforcement response times exceeding adopted response time goals. We also find that the project will not necessitate alterations to police station or the construction of a new police station to maintain acceptable response times for law enforcement services; therefore, no associated physical impact will result. Thus, the project will have a less than significant impact on law enforcement.³²

Education

The California Government Code sets forth the exclusive methods of considering and mitigating impacts on school facilities. Section 65995 expressly provides that, “[t]he payment or satisfaction of a fee, charge, or other requirement levied or imposed pursuant to Section 17620 of the Education Code in the amount specified in Section 65995... are hereby deemed to be full and complete mitigation of the impacts of any legislative or adjudicative act, or both, involving but not limited to, the planning, use, or development of real property, or any change in governmental organization...on the provision of adequate school facilities.”³³ Accordingly, we find the AEC project will not result in significant impacts to school facilities. Please see the discussion of school impact fees in the “Compliance with LORS” subsection below.³⁴

Parks

The City of Long Beach has 162 parks with 26 community centers, two historic sites, two major tennis centers, a municipal golf system with five courses, the

³⁰ Ex. 2000, p. 4.8-16.

³¹ *Id.*

³² *Id.*

³³ Cal. Gov. Code § 65995.

³⁴ Ex. 2000, p. 4.8-16.

Long Beach Animal Care Services Bureau, a municipally operated marina system with 3,677 boat slips, and six miles of beaches. More than 3,100 acres within the City of Long Beach are developed for recreation. The closest park to the project site is the Edison Park in the City of Seal Beach. The closest park in the City of Long Beach to the project site is the Bixby Village Golf Course.³⁵

The City of Long Beach has a park standard of eight acres per 1,000 residents. The evidence indicates that approximately 3,749 acres of parks would be needed to meet the park standard. The city has approximately 3,100 acres of parks, equating to approximately 6.62 acres per 1,000 residents. As noted above, there will not be a large number of workers moving into the AEC project area during project construction and no workers moving to the project area for operations. Therefore, there would be little, if any, increase in the usage of or demand for parks or other recreational facilities.³⁶

Based on the evidentiary record, we find that the AEC project will not result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities in order to maintain acceptable service ratios, response times, or other performance objectives with respect to parks. The project will not increase the use of neighborhood or regional parks or recreational facilities to the extent that substantial physical deterioration would occur or accelerate. The AEC does not propose any park facilities or necessitate the construction of new parks in the area. Therefore, we find that the AEC project will have a less than significant impact on neighborhood or regional parks and recreational facilities.

Cumulative Impacts

A project may result in a significant adverse cumulative impact when 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 (1) past projects; (2) other current projects; and (3) probable future projects.³⁷

For purposes of analyzing the socioeconomic effects of the AEC project, 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

³⁵ Ex. 2000, p. 4.8-17.

³⁶ *Id.*

³⁷ Cal. Code Regs., tit. 14, § 15130.

housing, schools, parks and recreation, law enforcement, fire, and medical services.³⁸

Staff used Los Angeles and Orange counties and the cities in proximity to the AEC site as the geographic scope for cumulative impacts. Staff considered projects within these search parameters that would likely employ a similar workforce to the AEC and that could have construction schedules overlapping with the AEC. The Applicant anticipates that if the AEC is approved, the project's approximate 57-month site preparation and construction would begin soon after in 2017. The projects that were considered part of the cumulative setting for socioeconomic resources are included in the **Cumulative Projects Table 8** in the **SOCIOECONOMICS** section of the FSA.³⁹

AEC will employ an average of 75 workers per month during the approximate five-month site preparation period and an average of 191 workers during the approximate 51-month construction period. The construction workforce will peak during month 44 with 512 workers onsite. Approximately 10 percent of the construction workforce will be non-local and will likely relocate closer to the project site. Once operational, the AEC will permanently employ 36 workers, drawn from the existing 66-member AGS staff. No additional staff will be required. **Socioeconomics Table 4** presents the total labor force for the crafts specifically needed for the construction of AEC. As shown in the table, the labor force within the Los Angeles-Long Beach-Glendale metropolitan divisions and the surrounding areas are more than sufficient to accommodate the labor needs for construction of the AEC, including other future planned projects identified in the AEC Master Cumulative Project List in the **PROJECT DESCRIPTION** section of this Decision.⁴⁰

Socioeconomics Table 4
Total Labor Supply for Selected MSA⁴¹/MD⁴²

Total Labor for Selected MSAs/MD (Construction Workforce)*	Total Workforce for 2012	Total Projected Workforce for 2022	Growth from 2012	Percent Growth from 2012
Los Angeles-Long Beach-Glendale Metropolitan Division	109,930	132,620	22,690	20.6
Santa Ana-Anaheim-Irvine MSA	58,480	75,580	17,100	29.4
Riverside-San Bernardino-Ontario MSA	54,640	77,390	22,750	41.6

³⁸ Ex. 2000, p. 4.8-18.

³⁹ Ex. 2000, pp. 4.8-18 – 4.8-21.

⁴⁰ Ex. 2000, p. 4.8-22.

⁴¹ Metropolitan Statistical Area.

⁴² Metropolitan Division.

Total Labor for Selected MSAs/MD (Construction Workforce)*	Total Workforce for 2012	Total Projected Workforce for 2022	Growth from 2012	Percent Growth from 2012
TOTALS	223,050	285,590	62,540	28.0

Notes: Total workforce includes only the crafts specifically needed for the AEC. *See **Socioeconomics Table 5** for a list of crafts included in the total construction workforce figures. **Source:** Ex. 2000, p. 4.8-16.

The AEC project will not have a significant adverse impact on area lodging or housing supply, but could have a temporary incremental impact when combined with the projects identified in **Table 8** in the **SOCIOECONOMICS** section of the FSA.⁴³

However, as there is a large supply of lodging choices and sufficient housing supply in the City of Long Beach and in Los Angeles and Orange counties, the project's slight increase in area population during project construction will not create a significant reduction in lodging and housing supply. As no additional operational workers will be hired for the AEC, no new children will be added to the LBUSD, thus creating no incremental impact on schools.

The project will not have a significant adverse impact on neighborhood or regional parks or other recreational facilities. Construction workers who seek lodging closer to the project do not bring their families with them and generally return to their residences during weekends. Because they are not likely to spend time at neighborhood parks and recreational facilities, the AEC project will not have an incremental impact on neighborhood or regional parks or other recreational facilities.

The project will not result in law enforcement response times being affected and will not increase the demand for law enforcement services. Thus, the project will not have an incremental impact on law enforcement services.⁴⁴

Based on the foregoing, we find that the construction or operation of the AEC will not make a cumulatively considerable contribution to any significant adverse cumulative impacts on population, housing, schools, parks and recreation, or law enforcement.

Conclusions Regarding AEC'S Environmental Impacts

The AEC will not cause a significant adverse socioeconomic impact as a result of the construction or operation of the AEC project, or contribute to any significant cumulative socioeconomic impacts, for the following reasons:

⁴³ Ex. 2000, pp. 4.8-19 – 4.8-22.

⁴⁴ Ex. 2000, p. 4.8-22.

1. The project's construction and operation workforce will not directly or indirectly induce a substantial population growth in the project area.
2. The project's construction and operation workforce will not have a significant impact on housing within the project area and will not displace any people or housing, or necessitate construction of replacement housing elsewhere.
3. The project will not result in significant physical impacts associated with the provision of new or physically altered government facilities in order to maintain acceptable service ratios, response times, or other performance objectives with respect to law enforcement service, education, or parks and recreation.
4. The project will have no significant adverse direct, indirect, and cumulative socioeconomic impacts. Therefore, the project will have a less than significant socioeconomic impact on any population, including the environmental justice population represented in **Socioeconomics Figure 1** and **Table 1**.

COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

Socioeconomics Table 5 provides an assessment of the AEC's compliance with applicable LORS pertaining to the socioeconomic effects of the AEC project.

Socioeconomic Table 5
Laws, Ordinances, Regulations, and Standards⁴⁵

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
STATE		
California Education Code, Section 17620	The governing board of any school district is authorized to levy a fee, charge, dedication, or other requirement for the purpose of funding the construction or reconstruction of school facilities.	Compliant. School fees are applied to the new construction or reconstruction of existing building for industrial use. The fees are assessed on the area of covered and enclosed space and are calculated prior to the issuance of building permits during plan review. The AEC site is located within the Long Beach Unified School District (LBUSD). The rate for the 2015-2016 fiscal year for new or commercial or industrial development for the LBUSD is \$0.56 per square foot of covered and enclosed, non-residential space. Based on the preliminary project design, approximately

⁴⁵ Ex. 2000, pp. 4.8-1 – 4.8-2; 4.8-23.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
		5,000 square feet of the administration building, 5250 square feet of the water treatment building, and 6,000 square feet of the warehouse will be subject to assessment. Based on this estimate, approximately \$9,100 in school fees will be assessed for LBUSD. Condition of Certification SOCIO-1 ensures the payment of fees to the Long Beach Unified School District. AEC will comply with Section 17620 of the Education Code through the one-time payment of statutory school impact fees to the LBUSD. ⁴⁶
California Government Code, Sections 65995-65998	Except for a fee, charge, dedication, or other requirement authorized under Section 17620 of the Education Code, state and local public agencies may not impose fees, charges, or other financial requirements to offset the cost for school facilities.	Compliant: No fees, charges, or other financial requirements to offset the cost for school facilities will be imposed.
LOCAL		
Long Beach Municipal Code (LBMC) Chapter 18.22	A Police Facilities Impact Fee is imposed on residential and nonresidential development for the purpose of assuring that the impacts created by said development pay its fair share of the costs required to support needed police facilities and related costs necessary to accommodate such development.	Compliant. Police facility impact fees are applied to all new residential or nonresidential development in Long Beach. The fees are assessed on the area of enclosed spaces at the time of issuance of the applicable building permit. The rate for the 2015/2016 fiscal year for new industrial development is \$0.218 per square foot on enclosed industrial space. Based on the preliminary project design, approximately 5,000 square feet of the administration building, 5,250 square feet of the water treatment building, and 6,000 square feet of the warehouse will be subject to assessment. Based on this estimate, the Applicant will be assessed approximately \$3,542.50 in police facility fees. Condition of Certification SOCIO-2 ensures payment of fees to the city of Long Beach. The AEC will comply with Chapter 18.22 of the LBMC through the one-time payment of statutory police facility impact fees to the City of Long Beach. ⁴⁷

⁴⁶ Ex. 2000, p. 4.8-23.

⁴⁷ *Id.*

NOTEWORTHY PUBLIC BENEFITS

For purposes of socioeconomic impacts analysis, noteworthy public benefits include changes in local economic activity and local tax revenue that will result from project construction and operation. To assess the gross economic value of the AEC project the Applicant developed an economic computer database and modeling system to create an input output model which was reviewed by Staff.⁴⁸

Impact estimates reflect two scenarios: a construction phase and an operations phase of the project. For both phases, the analysis estimated the total direct, indirect, and induced economic effects on employment and labor income.⁴⁹

Direct economic effects represent employment, labor income, and spending associated with construction and operation of the AEC. Indirect economic effects represent expenditures on intermediate goods made by suppliers who provide goods and services for the project. Induced economic effects represent changes in household spending that occur due to the wages, salaries, and proprietor's income generated through direct and indirect economic activity.⁵⁰

Socioeconomics Table 6 reports the Applicant's estimates of the economic impacts/benefits that will accrue to Los Angeles County due to project construction and operation. The Applicant assumes the following:

- 100 percent of the materials and equipment spending for construction will occur within Los Angeles County.
- 90 percent of the construction labor and associated payroll will come from within Los Angeles County.
- 100 percent of the operations payroll will occur within Los Angeles County (36 operations workers coming from existing 66-member AGS workforce).
- 100 percent of the annual operations and maintenance expenditures will be made within Los Angeles County.

(Note: Some portion of the annual operations and maintenance budget may be spent in neighboring counties).⁵¹

⁴⁸ Ex. 2000, p. 4.8-23.

⁴⁹ Ex. 2000, pp. 4.8-23 – 4.8-24.

⁵⁰ Ex. 2000, p. 4.8-24.

⁵¹ Ex. 2000, p. 4.8-24.

Socioeconomics Table 6
AEC Economic Benefits (2014 dollars)

TOTAL FISCAL BENEFITS	
Estimated annual property taxes	Increase in property taxes - \$7.9 million to \$9.8 million
State and local sales taxes:	
Construction	\$11.9 million total, \$992,124 local
Operation	\$748,080 total, \$187,020 local
School Impact Fees	\$9100
Police Facilities Impact Fee	\$3542.50
Total Non-Fiscal Benefits	
Total capital costs	\$940 million to \$1.11 billion
Construction payroll (incl. benefits)	\$315.55 million
Operations payroll (incl. benefits)	\$4,469,090
Construction materials and supplies	\$132.29 million
Operations and maintenance supplies	\$8,312,000
TOTAL DIRECT, INDIRECT, AND INDUCED BENEFITS	
Estimated Direct Benefits	
Construction Jobs	191 (average), 512 (peak)
Operation Jobs	0 new jobs (36 from existing 66-member AGS workforce)
Estimated Indirect Benefits	
Construction Jobs	125
Construction Income	\$6,513,950
Operation Jobs	14
Operation Income	\$2,007,560
Estimated Induced Benefits	
Construction Jobs	464
Construction Income	\$20,168,770
Operation Jobs	13
Operation Income	\$669,190
SUMMARY OF LOCAL BENEFITS (to LA County)¹	
Estimated Direct Benefits	
Construction payroll (incl. benefits) (represents 90 percent to LA County)	\$284 million
Operations payroll (incl. benefits) (represents 100 percent to LA County)	\$4,469,090
Construction materials & supplies (represents 100 percent to LA County)	\$132.29 million
Operations & maintenance supplies (represents 100 percent to LA County)	\$8,312,000

Note: ¹ Based on Applicant's estimates. **Source:** (Ex. 2000, p. 4.8-25.)

Property Tax

For a power plant producing 50 megawatts (MW) or greater, the Board of Equalization (BOE) has jurisdiction over the valuation of a power-generating facility for tax purposes. For a power plant producing less than 50 MW, the county has jurisdiction over the valuation. The AEC will be a nominal 1,040 MW electrical generating facility; therefore, BOE is responsible for assessing property value. The property tax rate is set by the Los Angeles County Auditor-Controller's office. Property taxes are collected and distributed at the county level.⁵²

Assuming a capital cost of \$940 million to \$1.11 billion and a property tax rate consistent with the current rate for the comparable AGS site (1.122072 percent), the AEC will generate \$10.5 million to \$12.5 million in property taxes during the first operation year of the project. For comparison, the property taxes assessed on the existing AGS during its first operation year (FY 2011-2012) were \$2.63 million. The revenue collected from property taxes will be distributed among school districts, special districts, redevelopment agencies, unincorporated areas, and incorporated areas in Los Angeles County. The remaining property tax generated above 1 percent (0.122072 percent) will be distributed in whole to the City of Long Beach.⁵³

AGENCY AND PUBLIC COMMENTS

Keith Harkey, a Business Agent for the Iron Workers Local 433,⁵⁴ **Tony Gentile**, of the Peninsula Beach Preservation Group,⁵⁵ **Andrew Mayorga**, from Laborers' International Union of North America,⁵⁶ **Neal Lauzon**, International Brotherhood of Electrical Workers Local 441⁵⁷ and **Lara Laramendi**, Advocacy Director for Los Angeles County Business Federation,⁵⁸ all spoke in favor of the AEC project as a source of high paying jobs and the benefits to the local community.

No negative comments regarding the socioeconomic impacts of the AEC were received.

⁵² Ex. 2000, p. 4.8-26.

⁵³ *Id.*

⁵⁴ 11/15/16 RT 127:2 – 128:7.

⁵⁵ 11/15/16 RT 131:2 – 132:5.

⁵⁶ 11/15/16 RT 132:23 – 133:15.

⁵⁷ 11/15/16 RT 134:20 – 135:24.

⁵⁸ 11/15/16 RT 135:13 – 138:1.

FINDINGS OF FACT

Based on the evidence, we make the following findings:

1. We have considered environmental justice factors in our analysis of the evidence.
2. The below-poverty-level population in the cities of Hawaiian Gardens and Long Beach constitute an Environmental Justice population within six miles of the Alamitos Energy Center.
3. The Alamitos Energy Center will not cause disproportionate significant socioeconomic impacts to any population in the project vicinity.
4. A large, skilled labor pool is available in Los Angeles County and the Los Angeles-Long Beach-Glendale Metropolitan Statistical Area.
5. The Alamitos Energy Center will draw primarily upon the local work force from nearby counties for construction.
6. The Alamitos Energy Center will not cause an influx of a significant number of construction or operation workers into the local area.
7. 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.
8. The Alamitos Energy Center will not result in significant adverse effects on local employment, housing, schools, public utilities, parks and recreation, law enforcement, or emergency services.
9. The Alamitos Energy Center will have a construction payroll of approximately \$315.55 million.
10. The Alamitos Energy Center will result in local direct construction expenditures of up to \$1.11 billion.
11. The Alamitos Energy Center will generate increased annual property tax revenues of approximately \$7.9 – \$9.8 million.
12. Project construction will generate about \$11.9 million in state and local sales tax revenue.
13. When operational, the Alamitos Energy Center will provide about \$748,080.00 a year in state and local sales taxes.
14. The anticipated construction and operation payrolls, the local purchases of materials and supplies, and the sales and property tax revenues

generated by the Alamos Energy Center will have a beneficial impact on the Los Angeles County economy.

15. Neither the construction nor the operation of the Alamos Energy Center will create an additional demand for housing or public services.
16. The available workforce is sufficient to accommodate the labor demands of the Alamos Energy Center and other reasonably foreseeable projects.
17. The Alamos Energy Center will not make a cumulatively considerable contribution to any significant adverse cumulative impacts on population, housing, schools, parks and recreation, or law enforcement.

CONCLUSIONS OF LAW

The 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.

No significant adverse socioeconomic impacts will occur as a result of construction and operation of the Alamos Energy Center.

D. NOISE AND VIBRATION

INTRODUCTION

The construction and operation of a 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. In this section, we evaluate whether noise and vibration produced during the construction (including demolition of the remaining portions of Unit 7) and operation of the Alamitos Energy Center (AEC) will be mitigated sufficiently to comply with applicable laws, ordinances, regulations, and standards (LORS) and avoid the creation of significant impacts.

This topic was contested. Evidence and analysis on the topic of noise and vibration is contained in Exhibits 1032, 1041, 1056, 1070, 1072, 1417, 1432, 1460-1462, 1500-1508, 2000, 2002, 2004, 2005, 2013, 3000-3015, and 3043-3047.¹

SETTING

The AEC site and the surrounding vicinity have numerous existing industrial operations such as the existing Alamitos Generating Station (AGS), other power generation facilities, oil storage tank farms, in addition to several major air and ground transportation corridors.

The closest residence to the noise-producing equipment (combustion turbine) at the AEC site is located approximately 1,500 feet to the west on East Eliot Street. Rosie the Riveter Charter High School, a privately owned and operated school, is located on the existing AGS site.²

PROJECT DESCRIPTION

For detailed information regarding the design and features of the Project, please refer to the **PROJECT DESCRIPTION** section of this Decision.

ENVIRONMENTAL ANALYSIS

Thresholds of Significance

Federal and State laws regulate worker noise exposure. The City of Long Beach Municipal Code sets noise limits within the boundaries of city land use districts. The AEC site is located in District 4 (predominantly industrial with other land use types

¹ 11/15/16 RT 26:10 – 32:15; 78:18 – 105:19.

² Ex. 2000, p. 4.6-6.

present) and residences are located outside the District 4 boundary in District 1 (predominantly residential with other land use types present). Long Beach Municipal Code Title 8, § 8.80.160 limits exterior noise levels in District 4 to 70 dBA L₅₀ for all times of the day, and limits exterior noise levels in District 1 to a nighttime noise level of 45 dBA L₅₀ and a daytime level of 50 dBA L₅₀. The City of Long Beach Municipal Code limits disturbing or offensive construction noise to the hours between 7:00 a.m. and 7:00 p.m. on weekdays, and 9:00 a.m. and 6:00 p.m. on Saturdays. It prohibits such noise on Sundays.³

California Environmental Quality Act (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.”⁴ In accordance with this standard, the Energy Commission uses the significance threshold of 5 dBA when project-related noise emissions exceed existing ambient noise levels at the nearest sensitive receptor. Thus, an increase in background noise levels of up to 5 dBA in a residential setting is insignificant but an increase of greater than 5 dBA may be considered adverse, but could be either significant or insignificant depending upon the particular circumstances of a given case.⁵

Factors considered in determining the significance of an adverse impact include: (1) the resulting noise level; (2) the character of the noise; (3) the time the noise is produced (day or night); (4) the duration and frequency of the noise; and (5) the land use designation of the affected receptor sites and the type of receptor (residential, commercial, etc.). Noise due to construction activities is usually considered insignificant in terms of CEQA compliance if the construction activity is temporary and the use of heavy equipment and noisy activities is limited to daytime hours.⁶

The evidence consists, in part, of an ambient noise survey conducted by Applicant from August 23 through August 31, 2011. This survey established a baseline for comparison of predicted project noise to existing ambient levels. This noise survey monitored existing noise levels at three locations, labeled M1, M2, and M3, identified below in **Noise and Vibration Table 1:**

³ Ex. 2000, p. 4.6-4 - 4.7-5.

⁴ Cal. Code Regs., tit. 14, § 15000 et seq., App. G, Section XI.

⁵ Ex. 2000, p. 4.6-6.

⁶ Ex. 2000, pp. 4.6-6 – 4.6-7.

Noise and Vibration Table 1
Noise Monitoring Results

Receptor	Description	Daytime		Nighttime		
		L _{eq} Daytime Average dBA	L ₅₀ Daytime Average dBA	L _{eq} Nighttime Average dBA	L ₅₀ Nighttime Average dBA	L ₉₀ Nighttime Average dBA
M1	Residence at 6333 Eliot Street, Long Beach	55	53	52	51	50
M2	Residence at 6810 East Septimo Street, Long Beach	59	57	53	52	48
M3	Residence at the intersection of El Dorado Drive and Nassau Drive, Seal Beach	57	51	49	48	47

Sources: AEC 2015f, AFC Section 5.7.3.2, Table 5.7-4, and AEC 2015d, Appendix 5.7A. (Ex. 2000, p. 4.6-8)..

Receptor M1 (6333 Eliot Street), Receptor M2 (6810 East Septimo Street), and Receptor M3 (corner of El Dorado Drive and Nassau Drive in Seal Beach) are approximately 1,500 feet, 2,500 feet, and 2,100 feet respectively from the AEC construction and demolition site.⁷

The evidence further describes the effects the project's short-term construction activities and its long-term operation will have upon ambient noise levels.

Impact Assessment and Mitigation

Construction

Construction noise is a temporary event. In this case, the combined demolition of the existing AGS Unit 7 and construction of the AEC project will be typical of similar projects in terms of equipment used and types of activities. The site preparation and construction phase (including the demolition of the remaining portions of Unit 7) will last approximately 57 months. The project expects to begin in the first quarter of 2017 with the demolition of retired AGS Unit 7 and other ancillary structures to make room for the construction of AEC Power Blocks 1 and 2. The construction of Block 1 is scheduled to commence in the second quarter of 2017, and construction of Block 2 is scheduled to commence in the second quarter of 2020. The demolition of all other existing AGS units is not required to construct AEC. AGS Units 1-6 would be demolished after construction of the AEC has been completed and operation of the new facility has commenced.⁸

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)

⁷ Ex. 2000, p. 4.6-9.

⁸ Ex. 2000, pp. 4.6-8; 4.7-22.

metric. Aggregate construction noise is predicted to reach levels as high as 61 dBA L_{eq} at Receptors M1 and M2, and 60 dBA at the M3 residential property line. This amounts to an increase of 6 dBA during daytime at Receptor M1 and an increase of less than 5 dBA for Receptors M2 and M3. See **Noise and Vibration Table 2** below.⁹

Noise and Vibration Table 2
Predicted Daytime Construction Worst Case Noise Levels

Activity	Receptor	Daytime Ambient Noise L_{eq} (dBA)	Receptor Distance to Construction/ Demolition Activity (feet)	Daytime Construction/ Demolition Noise ^a (dBA)	Daytime Cumulative Noise ^b (dBA)	Daytime Change ^c (dBA)
Demo Unit 7, Const Block 1 & 2	M1	55	1,500	59	61	6
	M2	59	2,500	55	61	2
	M3	57	2,100	56	60	3

Source: AEC 2015f, Table 5.7-6, and Staff derived. (Ex. 2000, p. 4.6-14).

Notes:

- a. Daytime construction and demolition noise are estimated to be 71 dBA at 375 feet. Daytime construction and demolition noise at nearby receptors are calculated using the noise distance logarithm.
- b. Daytime cumulative noise is calculated by adding the noise generated from construction and demolition to the daytime ambient noise using the noise addition logarithm.
- c. The daytime change is the difference between the daytime cumulative noise and the daytime ambient noise.

Energy Commission staff (Staff) testified that a potential for a significant noise impact exists when the long-term noise of the project plus the background exceeds the background by more than 5 dBA at the nearest residential receptors in the late night and early morning hours when people are generally asleep. **Noise and Vibration Table 2** shows that the noise impacts associated with construction/demolition could result in a potentially significant impact for the M1 receptor location. Therefore, we impose Condition of Certification **NOISE-6**, which restricts construction (except concrete pouring) to daytime (7:00 a.m. to 7:00 p.m. for weekdays, 9:00 a.m. to 6:00 p.m. for Saturdays, and no construction on Sundays) and would require construction equipment and trucks to avoid generating excessive and unnecessary noise.¹⁰ However, some construction activities would require noisy activities outside of the above construction restrictions (e.g., concrete pours for foundations). **NOISE-6** requires that the project owner notify the CPM and notify the residents and property owners within one-half mile of the project site of when the activities would occur and state that the construction activities would be carried out in a manner that avoids excessive noise as much as practicable.

⁹ Ex. 2000, p. 4.7-10.

¹⁰ Ex. 2000, p. 4.6-11.

The evidence indicates that an extended or continuous concrete pour will likely carry over to nighttime (10:00 p.m. – 7:00 a.m.). The record shows that concrete pouring will result in increases of 1-2 dBA in nighttime ambient levels at M1, M2, and M3. Since the increase will be less than 5 dBA, this nighttime activity will be less than significant. Also, concrete pouring is only required for some of the major equipment (mainly, the gas turbines, heat recovery steam generators (HRSGs), and steam turbines) and the entire pour is expected to last no more than two weeks at each power block.¹¹

The AEC will install a new 1,000-foot-long, 6 inch-diameter pipeline to connect to the existing Long Beach Water Department (LBWD) sewer system. Construction of linear facilities typically moves along at a rapid pace, thus not subjecting any one receptor to noise impacts for more than two or three days. Again, these construction activities will be limited to the days and hours stated in **NOISE-6** and in compliance with the laws, ordinances, regulations, and standards (LORS).¹²

Pile driving will be required. Noise from this activity is projected to reach 70 dBA at M2, 71 at M3 and 74 dBA at M1 (the nearest residential receptor). Adding pile driving noise to the daytime ambient levels could thus produce increases of 11 dBA, 14 dBA, and 19 dBA, respectively. These increases confirm that unsilenced pile drivers can cause a significant noise impact at the nearest noise-sensitive receptors. However, several methods are available that can reduce pile driving noise by 8-15 dBA.¹³

Condition of Certification **NOISE-8** requires the project owner to submit to the Compliance Project Manager (CPM), a description of the pile driving technique to be used, including calculations showing its projected noise impacts at monitoring locations M1, M2, and M3. Condition of Certification **NOISE-6** ensures that pile driving will be limited to the days and times stated in **NOISE-6**.¹⁴

The Applicant has acknowledged the need to protect construction workers from noise hazards and has recognized applicable LORS that would protect construction workers. To ensure construction workers are, in fact, adequately protected, Condition of Certification **NOISE-3** requires the project owner to implement a noise control program consistent with OSHA and Cal/OSHA requirements.¹⁵

Typically, the loudest noise encountered during construction, inherent in building any project incorporating a steam turbine, is created by the steam blows. Steam blows are required to clean out the steam system. A series of short steam blows, lasting two or

¹¹ Ex. 2000, pp. 4.6-11 – 4.6-12.

¹² Ex. 2000, p. 4.6-13.

¹³ *Id.*

¹⁴ *Id.*

¹⁵ Ex. 2000, p. 4.6-14.

three minutes each, are performed several times daily over a period of two or three weeks. At the end of this procedure, the steam lines are connected to the steam turbine, which is then ready for operation. Alternatively, high pressure compressed air can be substituted for steam.¹⁶

Steam or air blows could be very disturbing at the nearest noise-sensitive receptors, depending on the frequency, duration, and noise intensity of venting. High pressure steam or air blows, if unsilenced, can typically produce noise levels well above 89 dBA. Condition of Certification **NOISE-7** requires the project owner to use a silencer and limit steam blow noise to 89 dBA at 50 feet. Steam blows are limited to daytime hours, Monday through Saturday.¹⁷

As shown in **Noise and Vibration Table 3** below, this silenced steam blow would amount to a range of 56-61 dBA at M1 through M3 with a 2-6 dBA increase over the existing ambient levels at these locations, therefore, steam blow activity would be less than significant.

**Noise and Vibration Table 3
Predicted Steam Blows Noise Levels**

Daytime (L_{eq})					
Receptor	Daytime Ambient Noise L_{eq} (dBA)	Receptor Distance to Power Block (feet)	Daytime Steam Blows Noise ^a (dBA)	Daytime Cumulative Noise ^b (dBA)	Daytime Change ^c (dBA)
M1	55	1,500	60	61	6
M2	59	2,500	55	61	2
M3	57	2,100	57	60	3

Source: Ex. 2000, p. 4.6-15.

Notes:

1. Steam Blows would be limited to 89 dBA at 50 feet. The noise produced by steam blows at nearby receptors is calculated using the noise distance logarithm.
2. Cumulative noise is calculated by adding the noise created by steam blows at nearby receptors to the daytime ambient noise using the noise addition logarithm.
3. The daytime change is the difference between daytime cumulative noise and daytime ambient noise.

The number of vehicles required for material delivery and worker commute will increase the roadway traffic around the project. Truck trips transporting demolition waste and construction equipment and material deliveries are expected to peak in month 42 with 28 trucks per day (for a total of 56 truck trips per day). The corresponding expected increase in traffic along the Pacific Coast Highway and California State Route 22, which are the main routes for access to the project site, would be no more than 1 percent.

¹⁶ Ex. 2000, pp. 4.6-14 - 4.6-15.

¹⁷ Ex. 2000, pp. 4.6-15; 4.6-39.

AEC traffic will not measurably increase the existing ambient noise levels in the neighboring communities. Therefore, this noise impact will not be significant.¹⁸

We have adopted several Conditions of Certification to ensure that the project's temporary construction noise levels are reduced to the levels practicable. Conditions of Certification **NOISE-1** and **NOISE 2** establish a complaint and notification process to resolve issues arising from excessive construction noise. Condition of Certification **NOISE-6** generally limits construction to the periods specified in the City of Long Beach's Municipal Code. Conditions of Certification **NOISE-7** and **NOISE-8** require the use of a silencer for pile driving and steam blows. We find that the AEC construction noise impacts, including demolition of AGS Unit 7 and vehicle traffic, will be mitigated to less than significant levels at affected sensitive noise receptors.

Operations

The noise emanating from a power plant is unique. It is generally broadband and steady in nature. This noise contributes to, and becomes part of, the background noise level when most intermittent noises cease. The primary noise sources of the AEC project, when operational, will be the combustion turbine generators, HRSGs, exhaust stacks, combustion air inlets, air cooled condensers, steam turbine generators, electric transformers, and various pumps and fans.¹⁹

The evidence identifies various mitigation measures which the Applicant will use to reduce operational noise, including the use of large noise barriers, enclosures around major equipment and lagging or enclosing of the air-cooled condenser ductwork and high-noise piping. In addition, steam vent silencers, additional equipment silencers, and low noise valves and fans may be used to further reduce operational noise.²⁰

The City of Long Beach maximum exterior level for District 4 is 70 dBA at the boundary of the district for all times of the day. The LORS maximum exterior level in District 1 (predominantly residential with other land use types), which represents M1, and M2, is 50 dBA for daytime (7:00 a.m. – 10:00 p.m.) and 45 dBA for nighttime (10:00 p.m. – 7:00 a.m.). The LORS maximum exterior level for Seal Beach, Zone 1, which represents M3, is 55 dBA for daytime (7:00 a.m. – 10:00 p.m.) and 50 dBA for nighttime (10:00 p.m. – 7:00 a.m.).²¹

If the existing ambient noise levels already exceed the applicable LORS limits, then the allowable noise exposure standard is increased in five dBA increments in each category

¹⁸ Ex. 2000, p. 4.6-16.

¹⁹ Ex. 2000, pp. 4.6-17; 4.6-19.

²⁰ Ex. 2000, p. 4.6-17.

²¹ Ex. 2000, p. 4.6-17.

as appropriate to encompass or reflect the ambient noise level.²² The applicable noise limits are provided in **Noise and Vibration Table 4** below.²³

Noise and Vibration Table 4
LORS Limits

Receptor	Daytime			Nighttime		
	L ₅₀ Daytime Average dBA	LORS Limit Daytime (dBA)	Applicable Daytime Noise Limit (dBA)	L ₅₀ Nighttime Average dBA	LORS Limit Nighttime (dBA)	Applicable Nighttime Noise Limit (dBA)
M1	53	50 ^a	55 ^c	51	45 ^a	55 ^c
M2	57	50 ^a	60 ^c	52	45 ^a	55 ^c
M3	51	70 ^b	70	48	70 ^b	70

Source: AEC 2015f, Appendix 5.7A, and Long Beach Municipal Code § 8.80.160, Ex. 2000, p. 4.6-18.

Notes:

- a. Receptors M1 and M2 are located in Long Beach, District 1 and are subject to the limits within that district.
- b. Receptor M3 is located in Seal Beach. Therefore, the AEC is subject to the District 4 limits at the District 4 boundary. Because the ambient noise levels already exceed the permissible noise limits, 5 decibel increments are added to encompass or reflect the ambient noise level.

The noise impact results and determination of compliance with applicable LORS are provided in **Noise and Vibration Table 5** below.

Noise and Vibration Table 5
Predicted Operational Noise Levels at Sensitive Residential Receptors

Receptor	Daytime			Nighttime		
	Plant Noise L ₅₀ (dBA)	Applicable Daytime Noise Limit (dBA)	Compliant With Daytime LORS (YES/NO)	Plant Noise L ₅₀ (dBA)	Applicable Nighttime Noise Limit (dBA)	Compliant With Nighttime LORS (YES/NO)
M1	55	55	YES	55	55	YES
M2	51	60	YES	51	55	YES
M3	53	70	YES	53	70	YES

Source: AEC 2015f, Section 5.7, Table 5.7-10, Ex. 2000, p.4.6-18.

As shown in **Noise and Vibration Table 5**, the modeled plant operating noise levels comply with the respective LORS noise limits at all receptors. To ensure that the AEC will comply with the above noise level limits, we impose Condition of Certification **NOISE-4** which requires an operational noise survey to ensure project compliance. Condition of Certification **NOISE-2** establishes a noise complaint process requiring the project owner to resolve any problems that may be caused by operational noise.²⁴

²² Long Beach Municipal Code Title 8, Chapter 8.80.150 (C).

²³ Ex. 2000, p. 4.6-17.

²⁴ Ex. 2000, p. 4.6-18.

With implementation of these conditions of certification, we find noise due to project operation will comply with the applicable LORS.

In many cases, a power plant operates around the clock for much of the year. AEC is expected to operate as an intermediate load and peaking facility, and it will likely operate at night, which could affect nearby residences if the noise impacts are left unmitigated. The potential for public annoyance from power plant noise is greatest at night while people are trying to sleep. Nighttime ambient noise levels are typically lower than daytime levels and differences in background noise levels of 5 to 10 dBA are common. Adverse impacts on residential receptors can be identified by comparing predicted power plant noise levels with the nighttime ambient background noise levels at the nearest sensitive residential receptors. The Applicant has predicted operational noise levels by modeling the plant operation, which is summarized in **Noise and Vibration Table 6** for Receptors M1, M2, and M3.²⁵

Noise and Vibration Table 6
Predicted Operational Noise Levels at Sensitive Residential Receptors

Receptor	Plant Noise L ₅₀ (dBA)	Measured Ambient Nighttime Avg L ₉₀ (dBA)	Cumulative Nighttime Noise Level (dBA)	Change in Nighttime Ambient (dB)
M1	55	50	56	6
M2	51	48	53	5
M3	53	47	54	7

Source: AEC 2015f, Section 5.7, Table 5.7-10 and Appendix 5.7A, Tables 5.7A-1 through 5.7A-3. (Ex. 2000, p. 4.6-19).

An increase of above 5 dBA in existing nighttime ambient levels at residential receptors could be either significant or less than significant depending upon the circumstances of a particular case. As shown in **Noise and Vibration Table 6** the change in nighttime ambient noise at receptors M1 and M3 would be 6 dBA and 7 dBA, respectively. However, the evidence indicates that the AEC will not cause a significant impact partly because it will replace an existing noise source, the AGS facility. The AEC may create lower noise levels than AGS since it will run newer, more modern equipment than the older AGS facility.²⁶

Furthermore, the recently repowered Haynes Generating Station, which is located between AEC and receptor M3, may make it difficult to meet the noise limits specified in Condition of Certification **NOISE-4** due to the Haynes Generating Station's contribution to baseline levels. Therefore, we find that the AEC's noise levels of 55 dBA at M1, 51 dBA at M2, and 53 dBA at M3 will create a less-than-significant impact. Nevertheless,

²⁵ Ex. 2000, p. 4.6-19.

²⁶ Ex. 2000, p. 4.6-20.

we impose Condition of Certification **NOISE-4** to ensure that the changes in noise levels due to project operation will neither cause the cumulative effect of operational noise to exceed the LORS limits nor cause a significant impact at the nearest sensitive receptors. Condition of Certification **NOISE-4** requires an operational noise survey when the plant achieves a minimum of 85 percent of its rated capacity (between 85 and 100 percent of the rated capacity, the change in the overall plant noise would not be measurable at the project's noise sensitive receptors).²⁷

One possible source of public annoyance could be strong tonal noises, which, while not louder than permissible levels, stand out in sound quality. To ensure that tonal noises do not cause public annoyance, Condition of Certification **NOISE-4** requires mitigation measures, if necessary, to ensure the project will not create tonal noises.²⁸

The evidence shows that the AEC's pipelines and transmission lines will not cause significant noise impacts. The project will not cause perceptible airborne vibration effects. Within the AEC site, signs will be posted in areas of the plant with noise levels exceeding 85 dBA (the level that OSHA recognizes as a threat to workers' hearing), and hearing protection would be required and provided. Condition of Certification **NOISE-5** ensures that plant operation and maintenance workers are adequately protected from plant noise.²⁹

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 (1) past projects; (2) other current projects; and (3) probable future projects.³⁰

In a noise and vibration analysis, cumulative impacts are two or more individual impacts that, when considered together, are significant or that compound or increase other environmental impacts.³¹

The **PROJECT DESCRIPTION** section of this Decision contains the "AEC Master List of Cumulative Projects" which includes projects for consideration in conjunction with the AEC for cumulative effects based upon proximity (approximate nine mile radius), size and possible construction schedule. The evidence indicates that generated noise would

²⁷ Ex. 2000, p. 4.6-20.

²⁸ Ex. 2000, p. 4.6-21.

²⁹ *Id.*

³⁰ Cal. Code Regs., tit. 14, § 15130.

³¹ Ex. 2000, p. 4.6-21.

only have a measureable cumulative impact within one mile of the project site³² which therefore reduced the number of projects to be considered to five:

1. Demolition of existing AGS Units 1-6

The separate project of decommissioning and demolishing existing AGS Units 1-6 is proposed to commence once construction of the AEC has been completed and operation has begun. The existing AGS Units 1-6 range in distance from 0.06 to 0.24 miles from the proposed AEC. Although noise impacts on nearby residential receptors from the demolition of existing AGS Units 1-6 may be higher than the noise impacts evaluated as part of construction of the AEC due to the fact that AGS Units 1-6 are located closer to residential receptors, the cumulative impacts are expected to be similar to the construction of the AEC. In other words, the cumulative noise impacts from construction of the AEC with concurrent operation of the existing AGS, is expected to be similar to demolition of the existing AGS Units 1-6 with concurrent operation of the AEC. Because all construction/demolition and concurrent operation will occur within the same project boundary, the cumulative impacts from both projects are expected to be similar, and therefore less than significant.³³

Intervenor, Los Cerritos Wetlands Land Trust (LCWLT), argues that the demolition of existing AGS Units 1-6 is part of the AEC project.³⁴ This matter has already been fully adjudicated and decided by the Committee which found that the demolition of existing AGS Units 1-6 is not a reasonably foreseeable consequence of the AEC and, therefore, not part of the AEC project.³⁵ The Committee further found that demolition of existing AGS Units 1-6 is a reasonably foreseeable project within one mile of the AEC and, therefore, should be included in the cumulative noise analysis.

LCWLT also argues that the cumulative analysis in the record is inadequate.³⁶ We disagree.

Staff performing the noise analysis reasonably assumed that if construction of AEC in combination with operations of AGS resulted in no significant impacts, then operation of AEC during the demolition of AGS would also result in no significant cumulative impacts.³⁷ This assumption is based on the fact that construction and demolition utilize

³² Ex. 2000, p. 4.6-21.

³³ Ex. 2000, p. 4.6-22.

³⁴ Exs. 3004, pp. 9 – 10; 3005, pp. 1 – 5.

³⁵ Ex. 2002.

³⁶ Exs. 3004, pp. 9 – 10; 3005, pp. 1 - 5

³⁷ Ex. 2000, p. 4.6-22.

similar types of equipment with similar noise profiles and both facilities are in close proximity to each other on an industrial site.³⁸

In this case, demolition of AGS Units 1-6 is a future project and the time frame and methodologies of demolition are unknown beyond that the demolition of AGS Units 1-6 will occur sometime after the AEC commences its operational phase.³⁹ But the analysis of cumulative impacts need not be conducted at the same level of detail as would the direct and indirect effects attributable to the AEC project alone.⁴⁰ Therefore it is appropriate for Staff to make assumptions and offer a more qualitative analysis because cumulative discussions should be guided by the standards of practicality and reasonableness.⁴¹

LCWLT submitted evidence speculating that implosion, similar to the demolition of the South Bay power plant, could be the method of demolition.⁴² While it is unknown whether implosion would be the means of demolition given the close proximity to the new AEC facility, Staff considered the hypothetical and provided additional analysis to address LCWLT's concerns.⁴³ Staff found that the operational noise from AEC would not contribute to the short term noise of an implosion and demolition of AGS Units 1-6 in a manner that would impact nearby habitat or sensitive receptors because of the temporary nature of demolition and the existing industrial nature of the site.⁴⁴ We find that the contribution of noise from AEC during the demolition of the AGS Units 1-6 will not be cumulatively considerable with implementation of Conditions of Certification **NOISE-1** through **NOISE-8**.

2. Los Cerritos Wetlands Conceptual Restoration Plan & Mitigation Bank

Synergy Oil & Gas, LLC intends to establish a mitigation bank and wetlands habitat restoration area on the Synergy Oil Field in the City of Long Beach. The project would be located approximately 0.22 miles from the AEC site, east of Studebaker Road. The project includes removing 58 oil wells from the wetland habitat restoration area and drilling new wells on a 5-acre site that would be obtained from the Los Cerritos Wetlands Authority (LCWA). It would also include construction of public access improvements, such as trails and a parking lot on existing disturbed areas, and

³⁸ Ex. 2000, p. 4.6-22; 11/15/16 RT. 82:20 – 82:25, 83:1 - 84: 13.

³⁹ Ex. 2000, pp. 3-1 - 3-2.

⁴⁰ CEQA Guidelines, tit. 14 Cal. Code Regs. § 15130(b)

⁴¹ *Id.*

⁴² Exs. 3006 and 3007.

⁴³ Ex. 2004.

⁴⁴ Ex. 2004, pp. 7; 23-24.

conversion of an existing building for use as a visitor's center, within approximately 4-acres of the Synergy Oil Field.⁴⁵

It is uncertain whether there would be an overlap in construction activities between the Los Cerritos Wetlands Conceptual Restoration Plan & Mitigation Bank and the AEC, and if so, what activities would occur. It is also unclear if there would be any potential for an overlap of operational noise impacts. As part of the CEQA review, the City of Long Beach, as lead agency, would evaluate any potential noise and vibration impacts, including cumulative impacts, and require necessary mitigation to reduce the proposed project's impacts to a level of less than significant.⁴⁶

3. AES Recharge Battery Building

The AES Battery Energy Storage System (BESS) project would include three 100-MW containment buildings, constructed in sequential phases from east to west located approximately 0.25 miles from the proposed AEC. Each building would be 50 feet tall, 270 feet long and 165 feet wide (44,550 square feet). Construction of the proposed BESS is expected to start the third quarter of 2019, after major mechanical completion of the AEC Power Block 1. Completion of the first 100-MW building is planned for late 2020. The second and third energy storage buildings are expected to be constructed and operational in 2021 and 2022, respectively.⁴⁷

LCWLT again argues that the BESS project is part of the AEC based upon uncorroborated hearsay regarding the South Bay power plant. We take official notice of the fact that the South Bay's AFC was withdrawn and terminated without an Energy Commission decision.⁴⁸ As is more fully explained in the **PROJECT DESCRIPTION** section of this Decision, we find that the BESS project is not a part of the AEC project for the same reasons that the demolition of the AGS Units 1-6 is not a part of the AEC project; that is, the BESS is not a reasonable foreseeable consequence of the AEC. However, it is appropriate to consider only the cumulative impacts of the AEC in combination with the construction and operation of the BESS project.⁴⁹ Based upon the evidence, we find that with the implementation of the noise mitigation measures contained in Conditions of Certification **NOISE-1** through **NOISE-8**, the AEC's impacts will be sufficiently minimized to avoid cumulatively contributing to the noise impacts of the BESS.

⁴⁵ Ex. 2000, p. 4.6-23.

⁴⁶ Ex. 2000, p. 4.6-23.

⁴⁷ Ex. 2000, p. 4.6-23.

⁴⁸ Ex.3005; see 93-AFC-01 South Bay Repower (http://www.energy.ca.gov/sitingcases/pre1999_page/index.php?xkm=ajdkha2385duhkasd149dsasjd5598fhajkhs)

⁴⁹ See Discussion in the **PROJECT DESCRIPTION** section of this Decision, pp. 2.9 – 2.10.

4. Alamitos Barrier Improvement Project

The Alamitos Barrier Improvement Project involves the construction and operation of up to 20 injection wells, 4 monitoring wells and 4 piezometers along the Alamitos Barrier, within the City of Seal Beach, to help minimize saltwater intrusion into the Orange County Groundwater Basin. The project would be located approximately 0.40 miles from AEC. A Final Environmental Impact Report has been completed for the Orange County Water District for the Alamitos Barrier Improvement Project that highlights expected noise impacts during construction and operation and the recommended mitigation for such impacts.⁵⁰

Project construction would occur just west of the Los Alamitos Channel north of 2nd Street and is expected to occur between 2016 and 2018. The injection wells and monitoring wells would require approximately 4 days each of continuous 24-hour drilling. Construction impacts for each group of similar well sites have been analyzed by the Orange County Water District. Where possible significant impacts are shown, mitigation is being proposed to reduce the impacts to a level of less than significant. Mitigation measures that would be required include temporary noise barriers, written notification to nearby residents about construction activities, and construction equipment that use noise reduction features.

The evidence indicates that the operation of the wells and piezometers at the Alamitos Barrier Improvement Project would not increase existing noise levels in the AEC project area and would therefore not have a significant cumulative impact with the AEC project.⁵¹

5. Los Angeles Department of Water and Power Haynes Generating Station

The Los Angeles Department of Water and Power's (LADWP) Haynes Generating Station, which is located approximately 0.64 miles from the AEC, is a natural gas and steam power plant located in the City of Long Beach that was built in the mid-1960s. In 2005, LADWP repowered Units 3 and 4 utilizing combined cycle technology. "Repowering" is a common term among electric utilities that refers to rebuilding power plants by taking an old generating unit out of commission, dismantling it, and building a new, modern one at the same site. LADWP plans to repower the Haynes Generating Station in several phases: Units 5 and 6 were repowered in 2013 and Units 1 and 2 are expected to be repowered in 2023.⁵²

The testimony indicates that the repowering of the remaining units at the Haynes Generating Station may increase the future ambient noise levels in the area, but with

⁵⁰ Ex. 2000, p. 4.6-24.

⁵¹ *Id.*

⁵² Ex. 2000, p. 4.6-25.

the noise mitigation measures contained in Conditions of Certification **NOISE-1** through **NOISE-8**, the AEC's impacts will be sufficiently minimized.⁵³

We conclude that the evidence adequately addresses potential cumulative noise impacts and that the AEC's contribution to cumulative noise impacts will not be cumulatively considerable.

COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

The federal, state, and local laws and policies in **Noise and Vibration Table 7** address noise that would be caused by the AEC's construction and operation. The record examines the project's compliance with these requirements.

Noise and Vibration Table 7
Laws, Ordinances, Regulations, and Standards

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
FEDERAL		
Occupational Safety & Health Act (OSH Act), Title 29, Code of Federal Regulations, § 1910.95	Protects workers from the effects of occupational noise exposure.	Compliant. Within the AEC site, signs will be posted in areas of the plant with noise levels exceeding 85 dBA (the level that OSHA recognizes as a threat to workers' hearing), and hearing protection will be required and provided. Conditions of Certification NOISE-3 and NOISE-5 ensure that plant operation and maintenance workers are adequately protected from plant noise. See also the Worker Safety and Fire Protection section of this Decision. ⁵⁴
U.S. Environmental Protection Agency Guidelines	Assists state and local government entities in development of state and local LORS for noise.	Compliant. See state and local LORS below. As there are existing local LORS that apply to this project, the USEPA guidelines are not applicable. There are no federal laws governing off-site (community) noise. ⁵⁵

⁵³ Ex. 2000, p. 4.6-25.

⁵⁴ Ex. 2000, pp. 4.6-21; 4.6-37 – 4.6-38.

⁵⁵ Ex. 2000, p. 4.6-4.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
Federal Transit Administration Guidelines	Establishes thresholds for ground-borne vibration associated with construction of rail projects; also applied to other types of projects.	Compliant. Power plants operating under Energy Commission jurisdiction have not resulted in ground-borne or airborne vibration impacts. Uncontested evidence establishes that ground-borne vibration from the AEC project would be undetectable by any likely receptor. ⁵⁶
STATE		
California Government Code, section 65302(f)	Encourages each local governmental entity to perform noise studies and implement a noise element as part of its general plan.	Compliant. The State of California, Office of Noise Control, prepared the Model Community Noise Control Ordinance, which provides guidance for acceptable noise levels in the absence of local noise standards. See local LORS below. ⁵⁷
California Occupational Safety & Health Act (Cal-OSH Act): Title 8, California Code of Regulations, sections 5095-5099 (Article 105)	Protects workers from the effects of occupational noise exposure. The California Occupational Safety and Health Administration (Cal-OSHA) has adopted occupational noise exposure regulations that set employee noise exposure limits. These standards are equivalent to federal OSHA standards.	Compliant. Within the AEC site, signs will be posted in areas of the plant with noise levels exceeding 85 dBA (the level that OSHA recognizes as a threat to workers' hearing), and hearing protection would be required and provided. Condition of Certification NOISE-5 ensures that plant operation and maintenance workers are adequately protected from plant noise. See also the Worker Safety and Fire Protection section of this Decision. ⁵⁸

⁵⁶ Ex. 2000, p. 4.6-21.

⁵⁷ Ex. 2000, p. 4.6-4.

⁵⁸ Ex. 2000, p. 4.6-21.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
California Department of Transportation (Caltrans), Transportation and Construction Vibration Guidance Manual, September 2013	Establishes guidelines for assessing the impacts of ground-borne vibration associated with pile driving.	Compliant. Power plants operating under Energy Commission jurisdiction have not resulted in ground-borne or airborne vibration impacts. Uncontested evidence establishes that ground-borne vibration from the AEC project would be undetectable by any likely receptor. ⁵⁹
LOCAL		
City of Long Beach Municipal Code – Noise Ordinance, Title 8: Health and Safety, Chapter 8.80.150 Exterior noise limits – Sound levels by receiving land use district	<p>The following noise standards for the various land use districts apply to all such property within a designated district:</p> <p>A. The noise standards for the various land use districts identified by the noise control office as presented in Table A in Section 8.80.160 shall, unless otherwise specifically indicated, apply to all such property within a designated district.</p> <p>B. No person shall operate or cause to be operated any source of sound at any location within the incorporated limits of the city or allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, which causes the noise level when measured from any other property, either incorporated or unincorporated, to exceed:</p> <ol style="list-style-type: none"> 1. The noise standard for that land use district as specified in Table A in Section 8.80.160 for a cumulative period of more than thirty (30) minutes in any hour; or 2. The noise standard plus five (5) decibels for a cumulative period of more than fifteen (15) minutes in any hour; or 3. The noise standard plus ten (10) decibels for a cumulative period of more than five (5) minutes in any hour; or 	Compliant. If the measured ambient level exceeds what is permissible within any of the first four noise limit categories in Subsection B of Section 8.80.150 of the City of Long Beach Municipal Code, the allowable noise exposure standard shall be increased in five dBA increments in each category as appropriate to encompass or reflect the ambient noise level. The applicable noise limits are provided in Noise Table 4 above. As shown in Noise Table 5 , the modeled plant operating noise levels would comply with the respective LORS noise limits at all receptors. To ensure that the project would comply with the above noise level limits, Condition of Certification NOISE-4 requires an operational noise survey to ensure project compliance. Condition of Certification NOISE-2 establishes a noise complaint process requiring the Applicant to resolve any problems that may be caused by operational noise. With implementation of these conditions of certification, the evidence indicates that AEC will comply with the applicable LORS. ⁶⁰

⁵⁹ Ex. 2000, p. 4.6-21.

⁶⁰ Ex. 2000, p. 4.6-18.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
	<p>4. The noise standard plus fifteen (15) decibels for a cumulative period of more than one (1) minute in any hour; or</p> <p>5. The noise standard plus twenty (20) decibels or the maximum measured ambient, for any period of time.</p> <p>C. If the measured ambient level exceeds that permissible within any of the first four (4) noise limit categories in Subsection B of this Section, the allowable noise exposure standard shall be increased in five (5) decibels increments in each category as appropriate to encompass or reflect the ambient noise level. In the event the ambient noise level exceeds the fifth noise limit category in Subsection B of this Section, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level.</p> <p>D. If the measurement location is on a boundary between two (2) different districts, the noise level limit applicable shall be the arithmetic mean of the two (2) districts.</p> <p>E. If possible, the ambient noise shall be measured at the same location along the property line utilized in Subsection B of this Section, with the alleged offending noise source inoperative. If for any reason the alleged offending noise source cannot be shut down, then the ambient noise must be estimated by performing a measurement in the same general area of the source but at a sufficient distance such that the offending noise from the source is inaudible. If the difference between the noise levels with noise source operating and not operating is six (6) decibels or greater, then the noise measurement of the alleged source can be considered valid with a small correction applied to account for the contribution of the ambient noise. The correction is to be applied in accordance with data shown in Table B in Section 8.80.160.</p>	

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS																		
City of Long Beach Municipal Code – Noise Ordinance, Title 8: Health and Safety, Chapter 8.80.160 Exterior noise limits – Correction factor for character of sound	<p>In the event that alleged offensive noise contains a steady audible tone such as a whine, screech, or hum, or is a repetitive noise such as hammering or riveting or contains music or speech conveying informational content, the standard limits set forth in Table A shall be reduced by five (5) decibels.</p> <p>Table A Exterior Noise Limits (dBA)</p> <table> <tr> <th>Receiving Land Use District</th><th>Noise Level (dBA)</th><th>Time Period</th></tr> <tr> <td>District One^a</td><td>45 50</td><td>10 p.m. – 7 a.m. 7 a.m. – 10 p.m.</td></tr> <tr> <td>District Two^b</td><td>55 60</td><td>10 p.m. – 7 a.m. 7 a.m. – 10 p.m.</td></tr> <tr> <td>District Three^c</td><td>65</td><td>Any time</td></tr> <tr> <td>District Four^d</td><td>70</td><td>Any time</td></tr> <tr> <td>District Five^e</td><td colspan="2">Regulated by other agencies and laws</td></tr> </table> <p>Notes:</p> <ul style="list-style-type: none"> a. District One: Predominantly residential with other land use types also present. b. District Two: Predominantly commercial with other land use types also present. c. District Three and Four: Predominantly industrial with other land use types also present. Limits are intended primarily for use at boundaries rather than for noise control within these districts. District Five: Airport, freeways and waterways regulated by other agencies. 	Receiving Land Use District	Noise Level (dBA)	Time Period	District One ^a	45 50	10 p.m. – 7 a.m. 7 a.m. – 10 p.m.	District Two ^b	55 60	10 p.m. – 7 a.m. 7 a.m. – 10 p.m.	District Three ^c	65	Any time	District Four ^d	70	Any time	District Five ^e	Regulated by other agencies and laws		<p>Compliant. As shown in Noise Table 5, the modeled plant operating noise levels comply with the respective LORS noise limits at all receptors. To ensure that the project would comply with the above noise level limits, Condition of Certification NOISE-4 requires an operational noise survey to ensure project compliance. Condition of Certification NOISE-2 establishes a noise complaint process requiring the Applicant to resolve any problems that may be caused by operational noise. With implementation of these conditions of certification, the evidence indicates that AEC will comply with the applicable LORS.⁶¹</p>
Receiving Land Use District	Noise Level (dBA)	Time Period																		
District One ^a	45 50	10 p.m. – 7 a.m. 7 a.m. – 10 p.m.																		
District Two ^b	55 60	10 p.m. – 7 a.m. 7 a.m. – 10 p.m.																		
District Three ^c	65	Any time																		
District Four ^d	70	Any time																		
District Five ^e	Regulated by other agencies and laws																			
City of Long Beach Municipal Code – Noise Ordinance, Title 8: Health and Safety, Chapter 8.80.202 Construction activity – Noise	Prohibits construction between 7 p.m. and 7 a.m. on Mondays through Fridays, and federal holidays; prohibits construction before 9 a.m. and after 6 p.m. on Saturdays; and prohibits construction on Sundays.	<p>Compliant. Condition of Certification NOISE-6 would require updating construction equipment and trucks, acoustic barriers, reorienting equipment, and relocating construction</p>																		

⁶¹ Ex. 2000, p. 4.6-18.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
regulations		staging areas when possible to reduce the noise. Additionally, Condition of Certification NOISE-6 requires the project owner to submit a request to the CPM for review and approval for any heavy equipment operation or noisy construction activities that would occur outside the allowable daytime hours listed in section 8.80.202. The request would specify the activities that need to occur outside of the restricted days and times set forth; the need for such activities; the days, dates, and times during which these activities would occur; the approximate distance of activities to residential and other sensitive receptors; the expected sound levels at these receptors; and a statement that the activities would be performed in a manner to ensure excessive noise is prohibited as much as practicable. The project owner would notify the residents and property owners within one-half mile of the project site of the request. In this notification, the project owner would state that it will perform this activity in a manner to ensure excessive noise is prohibited as much as practicable. The evidence indicates that the AEC would comply with all applicable noise and vibration LORS. ⁶²

The evidence indicates and we find that construction and operation of the AEC project will comply with all applicable LORS regarding noise and vibration impacts.

AGENCY AND PUBLIC COMMENT

Lenny Arkenstahl,⁶³ CEO and founder of the Los Cerritos Wetlands Stewards, spoke in support of the AEC and commented that the project will reduce noise. **Keith**

⁶² Ex. 2000, pp. 4.6-34 – 4.6-35.

⁶³ 11/15/16 RT.132:8 – 132:19.

Simmons,⁶⁴ President of the Los Cerritos Wetlands Land Trust commented that the noise of the generators along with air emissions falling on the wetlands is a constant source of habitat degradation that impairs restoration.

Response to Comments: The evidence indicates that the AEC will not be built on coastal wetlands, but on a brownfield within the parcel encompassing the existing AGS. The evidence cited above indicates that noise impacts will not differ substantially from baseline conditions, and the AEC's contribution to these impacts will not be cumulatively considerable, which supports the finding that noise impacts from the AEC will be less than significant. See also the **BIOLOGICAL RESOURCES** and **AIR QUALITY** sections of this Decision.

FINDINGS OF FACT

Based on the evidence, we make the following findings.

1. The closest sensitive receptor (Receptor M1 at 6333 Eliot Street) is approximately 1,500 feet from the AEC site.
2. Construction noise is a temporary event.
3. The construction phase will last approximately 57 months.
4. The Alamos Energy Center expects to begin in the first quarter of 2017 with the demolition of retired Alamos Generating Station Unit 7 and other ancillary structures to make room for the construction of Alamos Energy Center Blocks 1 and 2.
5. The construction of Block 1 is scheduled to commence in the second quarter of 2017.
6. Construction of Block 2 is scheduled to commence in the second quarter of 2020.
7. Alamos Generating Station Units 1-6 will be demolished sometime after construction of the Alamos Energy Center has been completed and operation of the new facility has commenced.
8. Aggregate construction noise is predicted to reach levels as high as 61 dBA L_{eq} at Residence M1 and M2 and 60 dBA at the M3 residential property line: an increase of 6 dBA during daytime at Receptor M1 and an increase of less than 5 dBA for M2 and M3.
9. Condition of Certification **NOISE-6** restricts construction (except concrete pouring) to daytime hours of 7:00 a.m. to 10:00 p.m. and requires construction equipment and trucks to avoid generating excessive and unnecessary noise.

⁶⁴ 11/15/16 RT.128:10 – 130:20.

10. Condition of Certification **NOISE-6** ensures that pile driving will be limited to daytime hours between 7:00 a.m. to 10:00 p.m.
11. Condition of Certification **NOISE-3** requires the project owner to implement a noise control program consistent with OSHA and Cal/OSHA requirements.
12. Condition of Certification **NOISE-7** requires the project owner to use a silencer and limits steam blow noise to 89 dBA at 50 feet. Steam blows are limited to daytime hours.
13. Alamitos Energy Center traffic will not measurably increase the existing ambient noise levels in the neighboring residential communities; thus, this noise impact will not be significant.
14. Conditions of Certification **NOISE-1** and **NOISE-2** establish a complaint and notification process to resolve issues arising from excessive construction noise.
15. During operations, the Alamitos Energy Center's noise levels of 55 dBA at M1, 51 dBA at M2, and 53 dBA at M3 will create a less-than-significant impact.
16. Condition of Certification **NOISE-4** ensures that the changes in noise levels due to project operation will neither cause the cumulative effect of operational noise to exceed the laws, ordinances, regulations, and standards nor cause a significant impact at the nearest sensitive receptors.
17. Condition of Certification **NOISE-4** requires mitigation measures, if necessary, to ensure the project will not create tonal noises.
18. The operation of the Alamitos Energy Center's pipelines and transmission lines will not cause significant noise impacts.
19. The Alamitos Energy Center will not cause perceptible airborne vibration effects.
20. Condition of Certification **NOISE-5** ensures that plant operation and maintenance workers are adequately protected from plant noise.
21. The Alamitos Energy Center's contribution to cumulative noise impacts will not be cumulatively considerable.

CONCLUSIONS OF LAW

1. The Commission concludes that implementation of the Conditions of Certification set forth in the pertinent portion of **Appendix A** of this Decision will ensure that the Alamitos Energy Center will comply with the applicable laws, ordinances, regulations, and standards on noise and vibration.
2. The project will not cause significant indirect, direct, or cumulative adverse noise impacts.

E. VISUAL RESOURCES

INTRODUCTION

Visual resources are the natural and cultural features of the landscape that contribute to the visual character or quality of the environment. The California Environmental Quality Act (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.¹

The evidence describes the visual resources in the vicinity of the project site, assesses the potential for adverse impacts, and determines whether mitigation measures are necessary to mitigate the identified adverse impacts. Conditions of certification are also proposed to mitigate potential environmental impacts and ensure compliance with applicable laws, ordinances, regulations and standards (LORS).

This topic was uncontested. Evidence on the topic of visual resources is contained in Exhibits 1015, 1041, 1056, 1070, 1423, 1432, 1447, 1500-1508, 2000, 2001, 2004, 2013, 3025, and 3043-3047.²

SETTING

The Alamitos Energy Center (AEC) site is located on 21 acres within the existing 71.1 acre Alamitos Generating Station (AGS) site. The AGS is situated on a flat coastal plain with a site elevation of approximately 8 to 15 feet above mean sea level.³ The site is located between the San Gabriel River and Los Cerritos Channel. The ridgeline of the hills beyond San Pedro to the northwest and the Santa Ana Mountains to the southeast are visible in background views from the project area. Roughly, the southern half of the existing AGS site, which would include the proposed AEC Power Block 1 and the construction access road, is located within the coastal zone, as mapped by the state legislature. The northern half of the site is outside of the coastal zone.⁴

The AEC site is located in an area of existing energy facilities that is surrounded by residential neighborhoods, open spaces, commercial developments, transportation corridors, and a marina and harbor area.⁵

¹ Cal. Code Regs., tit. 14 § 15382 and Appendix G, Part I.

² 11/15/16 RT 26:10 – 32:15.

³ 12/20/16 RT 18:17 – 19:19.

⁴ Ex. 2000, p. 4.12-3.

⁵ Ex. 2000, p. 4.12-4.

The San Gabriel River Bike Trail parallels both banks of the San Gabriel River adjacent to the AEC site. The Los Angeles Department of Water and Power (LADWP) Haynes Generating Station occupies a large site on the east side of the San Gabriel River and east of the AEC site. Immediately beyond the Haynes Generating Station is the senior residential community known as Leisure World.⁶

The AEC site is located within the existing AGS site. There are six AGS exhaust stacks over 200 feet tall and the generating units behind the stacks, are approximately 750 feet from the nearest residential neighborhood (University Park Estates located west across the Los Cerritos Channel). Compared to other development in the surrounding area, the AGS, SCE switchyard transmission structures, and LADWP Haynes Generating Station are the most visually prominent, built features in the project area.⁷

The northwest corner near the main entrance to the AGS site is landscaped with trees and shrubs. Views of the AEC site from the north, west, and south are partially limited because of tree and shrub landscaping along adjacent roadways (i.e., Studebaker Road, Westminster Avenue, Highway 22).⁸

Existing AGS structures are equipped with red flashing aviation safety lights atop the exhaust stacks. Exposed stairways and scaffolding are illuminated with bright, unshielded bulbs.⁹

The AGS produces visually prominent water vapor plumes from the exhaust stacks under certain weather conditions. Water vapor plumes form more frequently and are most visible during daytime hours in the winter when the sky is relatively clear. Highly visible water vapor plumes slightly increase the industrial character and appearance of the site.¹⁰

PROJECT DESCRIPTION

For general project description, including location of the facility and the equipment to be installed, please see the **PROJECT DESCRIPTION** section of this Decision.

The dimensions and surface appearance of the prominent AEC project structures are listed in **Visual Resources Table 1**.

⁶ Ex. 2000, p. 4.12-4.

⁷ *Id.*

⁸ *Id.*

⁹ *Id.*

¹⁰ *Id.*

Visual Resources Table 1
Visually Prominent Proposed AEC Structures¹¹

Project Feature	Length (feet)	Width (feet)	Height (feet)	Diameter (feet)	Color	Materials	Finish
Combined-Cycle Power Block 1							
Administration Building	100	50	25	---	Tan		Flat / Untextured
Water Treatment Building	75	70	20	---	Tan	Ribbed Sheet Steel	Flat / Untextured
Warehouse Building	100	60	25	---	Tan	Ribbed Sheet Steel	Flat / Untextured
Gas Compressor Building	100	62	25	---	Tan	Ribbed Sheet Steel	Flat / Untextured
Air Cooled Condenser	299	211	104	---	Gray	A-36 Steel Shapes	Flat / Untextured
Demin Water Storage Tank	---	---	25	28	Gray	A-36 Steel	Flat / Untextured
Steam Turbine and Generator (STG)	90	33	62	---	Gray	A-36 Steel Plate	Flat / Untextured
STG Step-Up Transformer	28	16	25	---	Gray	Mid Steel Plate	Flat / Untextured
Combustion Turbine	56	25	29	---	Gray	Steel	Flat / Untextured
Combustion Turbine Generator (CTG)	37	18	28	---	Gray	Steel	Flat / Untextured
Air Inlet Filter	45	25	40	---	Gray	Custom Steel Shape	Flat / Untextured
Fuel Gas Filter/Separator	11	11	22	18	Gray	Custom Steel Shape	Flat / Untextured
Generator Breaker	19	15	28	---	Gray	Mid Steel Plate	Flat / Untextured

¹¹ Ex. 2000 pp. 4.13-8 - 4.13-9.

Project Feature	Length (feet)	Width (feet)	Height (feet)	Diameter (feet)	Color	Materials	Finish
CTG Step-Up Transformer	30	23	25	---	Gray	Custom Steel Shape	Flat / Untextured
Heat recovery steam generator (HRSG)	139	57	95	38	Gray	A-36 Steel Plate	Flat / Untextured
Stack	---	---	140	20	Gray	A-36 Steel Plate	Flat / Untextured
Blowdown Tank	---	---	20	9	Gray	A-36 Steel	Flat / Untextured
Auxiliary Boiler and Associated Equipment	40	41	38	---	Gray	Ribbed Sheet Steel	Flat / Untextured
Air Cooled Heat Exchanger	81	56	35	---	Gray	Mild Steel Plate	Flat / Untextured
Waste Water Tank	---	---	25	28	Gray	A-36 Steel	Flat / Untextured
Condensate Tank	---	---	25	28	Gray	A-36 Steel	Flat / Untextured
Transformer Wall	50	40	28	---	Untinted	Concrete	Flat / Untextured
Acoustical Barrier	262	182	35	---	Untinted	Concrete	Flat / Untextured
Single-Cycle Power Block 2							
Fin Fan Cooler	151	130	32	---	Gray	A-36 Steel Shapes	Flat / Untextured
Site Fence	---	---	7	---	Gray	Steel	Flat / Untextured
Combustion Turbine	60	20	15	---	Gray	Steel	Flat / Untextured
Combustion Turbine Generator	28	22	28	---	Gray	Steel	Flat / Untextured
Air Inlet Filter	48	35	14	---	Gray	Custom Steel Shape	Flat / Untextured

Project Feature	Length (feet)	Width (feet)	Height (feet)	Diameter (feet)	Color	Materials	Finish
Fuel Gas Compressors	42	27	18	---	Gray	Ribbed Sheet Steel	Flat / Untextured
Intercooler Skid	50	31	14	---	Gray	Structural Steel Shape	Flat / Untextured
Stack	---	---	80	13.5	Gray	A-36 Steel Plate	Flat / Untextured
Selective Catalytic Reduction (SCR) Unit	37	23	38	---	Gray	Mid Steel Plate	Flat / Untextured
Combustion Turbine VBV Silencer Stack	---	---	48	11	Gray	A-36 Steel Plate	Flat / Untextured

ENVIRONMENTAL ANALYSIS

Thresholds of Significance

CEQA requires analysis of the public's "enjoyment of aesthetic, natural, scenic...qualities."¹² According to the environmental checklist in the "Aesthetics" section of Appendix G of the CEQA Guidelines,¹³ an impact on visual resources is considered significant if the project would:

1. Have a substantial adverse effect on a scenic vista;
2. Substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway;
3. Substantially degrade the existing visual character or quality of the site and its surroundings, or;
4. Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area.¹⁴

A vista can be defined as a distant view through or along an avenue or opening. For this visual resources analysis, the definition of a "scenic vista" is expanded to include remarkable or memorable scenery or views of a natural or cultural feature that is indigenous to the area. The evidence shows that no particular view in the project vicinity

¹² Pub. Resources Code § 21001 (b)

¹³ Title 14 Cal. Code Regs. § 15000, et seq.

¹⁴ Ex. 2000, p. 4.12-5.

has a level of scenic appeal that could distinguish it as a scenic vista. Because the AEC will have no impact on a scenic vista, no further analysis of the project relating to this first criterion is necessary. Also, the record establishes that there are no scenic resources on the AEC site that could be damaged by the proposed project. Therefore, no further analysis of the project relating to the second criterion is necessary. The analysis below is focused on **Appendix G** criteria 3 and 4.

The record describes the method of analysis of impacts to visual resources. The process to evaluate potential impacts on visual resources from construction and operation of the AEC involves four general steps. First, the visual environment is defined based on computer viewshed analysis and mapping. Secondly, sensitive viewpoints and key observation points (KOP) are selected. Next, an evaluation of the potential effects of the project on visual resources based on the estimated visual sensitivity of the viewing public, the probability that the project would cause a noticeable visual impact, and the estimated magnitude of the visual change due to project construction and operation. Finally, an evaluation of whether the project will comply with applicable LORS for protection of visual and aesthetic resources.¹⁵

The evidence describes the visual sphere of influence (VSOI). The limits of the VSOI for the project generally extend to encompass the furthest distance at which potentially significant visual impacts could occur. For views of the AEC, this distance was determined by Energy Commission staff (Staff) to be approximately 1.5 miles. At greater distances, the mass of project structures in the views would be much less dominant compared to views at closer distances.¹⁶

Key Observation Points (KOP)

Results of the VSOI analysis and photographic survey for the AEC resulted in selection of four critical viewpoints to represent views from areas with relatively higher levels of visual sensitivity. KOPs were selected to represent viewing conditions from nearby residential neighborhoods and recreation areas. **Visual Resources Figure 1** shows the results of the viewshed analysis and the KOPs for the AEC project. The four KOPs selected for this analysis are:

KOP 1 – View from Channel View Park / Long Beach Bikeway Route 10;

KOP 2 – View from University Park Estates;

KOP 3 – View from Marine Stadium Park; and

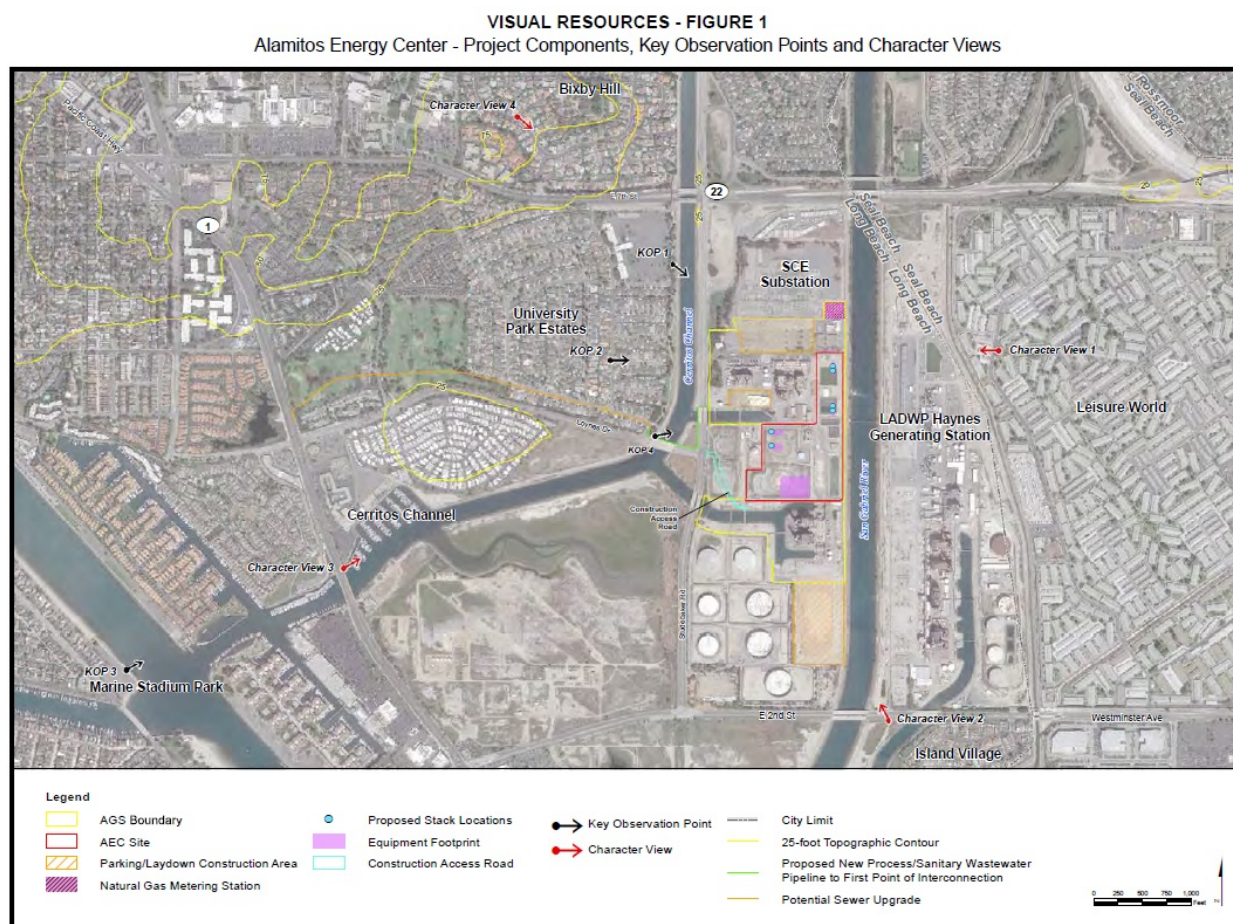
¹⁵ Ex. 2000, p. 4.12-6.

¹⁶ Ex. 2000, p. 4.12-7.

KOP 4 – View from Loynes Drive.¹⁷

Staff's assessment of visual impacts is based on the change that would occur from the introduction of new built elements in the VSOI. The overall visual change is typically based on an average of the values for contrast, dominance, and view blockage for each KOP. The rating scale to assess visual sensitivity and visual change ranges from low to high for each factor. The ratings for overall visual sensitivity and overall visual change are combined to determine the visual impact significance for each KOP.¹⁸

Visual Resources Figure 1 – KOP Map¹⁹



Impact Assessment and Mitigation

KOP 1– View from Channel View Park / Long Beach Bikeway Route 10

¹⁷ Ex. 2000, p. 4.12-7.

¹⁸ Ex. 2000, p. 4.12-10.

¹⁹ Ex. 2000, p. 4.12-33.

Visual Resources Figure 2 shows the AEC as it would appear at the completion of construction for a viewer at Channel View Park across the Los Cerritos Channel from the Project site. The new AEC stacks will be hidden behind the tree line extending along the western perimeter of the project site and will be obstructed by the AGS infrastructure. The AEC will not be a dominant feature and would not disrupt any portion of the skyline at the tree line because the AEC stacks and HRSG units will not be visible features in the view from this location. Thus, the skyline will remain the same from this viewpoint.²⁰

The overall visual change is typically based on an average of the values for contrast, dominance, and view blockage. Although overall visual sensitivity for KOP 1 is considered moderate, the overall visual change for views at or near KOP 1 as a result of the proposed AEC compared to existing conditions would be low (none). Compared to existing conditions, implementation of the AEC will not change the existing visual character and quality of the site and its surroundings. Therefore, we find the impact is less than significant.²¹

²⁰ Ex. 2000, p. 4.12-15.

²¹ *Id.*

Visual Resources Figure 2

Alamitos Energy Center - KOP-1 View from Channel View Park/Long Beach Bikeway Route 10

KOP-1. Existing view toward the project site from Channel View Park and Long Beach Bikeway Route 10.



KOP-1. Simulated view toward the project site after the addition of new AEC structures. New facilities will not be visible in this view.



Source: (Ex. 2000, p. 4.12-35).

KOP 2– View from University Park Estates

The visual simulation for KOP 2 shows the AEC as it would appear at the end of construction activities for a viewer at the intersection of Silvera Street and Eliot Street within the University Park Estates residential neighborhood (see **Visual Resources Figure 3**).²²

The AEC air-cooled condensers, HRSG units, and stacks will be shorter than the existing AGS structures, and would be mostly hidden behind the houses and vegetation in the foreground of the view. The AEC will not change the contrast in the view nor change the overall dominance of power plant structures in the view. To the extent that they are visible, the air-cooled condensers, HRSG units, and stacks will create a solid line of developed features that will appear through breaks in trees located in Channel View Park. However, views of these structures will not extend above the highest portion of the tree line.

The AGS tall stacks and scaffold-covered structures, which are currently the most visually discordant elements in the backdrop of the view, will not be removed as part of the AEC project, but will eventually be removed from view at a future date. The new AEC stacks and HRSG units will then appear lower than the trees and in line with residential rooftops, creating the appearance of an intact skyline.

The evidence indicates that the overall visual sensitivity for KOP 2 is considered moderate and the overall visual change caused by the AEC compared to existing conditions will be low. The testimony shows that from this viewpoint, constructing new angular, metallic power plant structures will not change visual resource conditions to a notable or significant degree. Therefore, implementation of the AEC will only slightly change the existing visual character and quality of the site and its surroundings for views at or near KOP 2. We find the impact is less than significant.²³

²² Ex. 2000, p. 4.12-16.

²³ *Id.*

Visual Resources Figure 3

Alamitos Energy Center - KOP-2 View from University Park Estates

KOP-2. Existing view toward the project site from a street in University Park Estates, the residential area closest to the project site. A boiler and stacks that are part of the ALamitos Generating Station that surround the project are visible extending above the trees in the background of the view.



KOP-2. Simulated view toward the project site after the addition of new AEC structures. After the addition of AEC structures, two stacks will be partially visible in the right portion of the view.



Source: (Ex. 2000, p. 4.12-36).

KOP 3– View from Marine Stadium Park

The visual simulation for KOP 3 shows the fully constructed AEC from Marine Stadium Park across Alamitos Bay and down the Los Cerritos Channel from the project site (see **Visual Resources Figure 4**).²⁴

As shown in the **Visual Resources Figure 4**, the existing assemblage of structures and stacks will not be removed as part of the AEC project. However, the new elements as part of the AEC will appear similar in scale to the existing AGS features.²⁵

Features of the AEC will appear equal in dominance with the existing AGS power plant structures in the open view across Alamitos Bay and down the Los Cerritos Channel. Similarly, the AEC structures will not change the contrast in the view because features of the AEC structures will not appear strikingly different from the existing AGS. The AEC structures and stacks will increase the visual intactness of manmade structures across the horizontal plane. Structures of the AGS will continue to be silhouetted against the sky and viewable in the distance from Marine Stadium Park and nearby residences fronting the water. Construction of the AEC project will intensify the view of manmade structures in a continual horizontal pattern across the center view.²⁶

From this KOP, constructing new power blocks with angular, metallic power plant structures will change visual resource conditions to a noticeable degree. The evidence indicates that the overall visual change caused by the AEC compared to existing conditions will be moderate. Within the context of moderate to high visual sensitivity at KOP 3, this level of visual change compared to existing conditions would be considered a potentially significant impact.

Condition of Certification **VIS-2** requires a Compliance Project Manager (CPM)-approved Surface Treatment Plan that describes the colors and finishes to be used on visible project structures to minimize the visual impact. Implementation of Condition of Certification **VIS-2** will minimize the potential for visual intrusion and reduce contrast by blending with the existing visual environment in the project area. Therefore, we find that the visual impacts of AEC from KOP 3 will be less than significant with implementation of Condition of Certification **VIS-2**.²⁷

²⁴ Ex. 2000, p. 4.12-16.

²⁵ *Id.*

²⁶ Ex. 2000, p. 4.12-17.

²⁷ *Id.*

Visual Resources Figure 4

Alamitos Energy Center - KOP-3 View from Marine Stadium Park

KOP-3. Existing view toward the project site from Marine Stadium Park. The Alamitos Generating Station that surrounds the project site is visible in the left half of the view as the two power units with the large, scaffold-covered boilers as well as the tops of two white appearing stacks in the center-right of the view which are partially obscured behind commercial development. The stacks and generating units that extend along the horizon in the right half of the view are all part of the LADWP Haynes Generating Station.



KOP-3. Simulated view toward the project site after the addition of new AEC structures. The AEC structures will be visible in the distance at the far end of the channel in the center of the view.



Source: (Ex. 2000, p. 4.12-37).

KOP 4 - View from Loynes Drive

The visual simulation for KOP 4 shows the AEC as it would appear at the completion of construction for a viewer on Loynes Drive at the bridge crossing over the Los Cerritos Channel (see **Visual Resources Figure 5**).²⁸

As shown in **Visual Resources Figure 5**, the two stacks, HRSG units, and the Air Cooled Condenser (ACC) associated with AEC Power Block 1, along with an assemblage of structures and stacks of the existing AGS, will be visible across the view. Two of the stacks in Power Block 2 are barely visible immediately to the left of the simulated Power Block 1 structures. The existing stacks and scaffolding at the LADWP Haynes Generating Station will remain partially visible in the background.

Features of the AEC will appear equal in dominance with the existing AGS power plant. The AEC structures will not change the contrast in the view because features of the AEC structures will not appear strikingly different from the existing AGS and Haynes power plants and the overall industrial nature of structures in the view. Construction of the AEC would intensify the view of manmade structures in the center view.²⁹

From this KOP, the new structures associated with the AEC will change visual resource conditions to a considerable degree. The evidence shows that although the overall visual change will be moderate to high, within the context of the low visual sensitivity at KOP 4, the visual impacts of the AEC will be less than significant.³⁰ Therefore, we find that the visual impacts of AEC from KOP 4 would be less than significant.

²⁸ Ex. 2000, p. 4.12-17.

²⁹ *Id.*

³⁰ Ex. 2000, p. 4.12-18.

Visual Resources Figure 5

Alamitos Energy Center - KOP-4 View from Loynes Drive

KOP-4. Existing view toward the project site from Loynes Drive



KOP-4. Simulated view toward the project site after the addition of new AEC structures.



Source: (Ex. 2000, p. 4.12-38).

Project Construction Visual Impacts

The construction activities at the project site will occur on a single shift composed of a 10-hour workday, Monday through Friday, and a single 8-hour shift on Saturday. Construction would typically take place between the hours of 7:00 a.m. and 7:00 p.m., Monday through Friday, and 9:00 a.m. and 6:00 p.m. on Saturday.³¹

The AEC project will require several areas for construction worker parking, storage, and laydown during site construction activities. Parking for workers would include an 8-acre area on the eastern and southern portions of the project site and a 10-acre area adjacent to the south of the project site. Existing vegetation and fencing will form a visual buffer and screening for views toward these open lots, which would presumably be full of vehicles during daylight hours and sometimes at night while construction progressed on the AEC.

The intensity of the long-term construction impact on visual resources would be greatest for sensitive viewer groups, primarily residents and recreationists, at the closest viewing distances to the project site. Construction activities would increase the presence and movement of heavy construction equipment and vehicles, large-scale construction work, and generation of dust over an approximately 5-year construction time frame at the project site. Existing landscaped areas and the ground surface of areas at or near the AEC site would not be permanently impacted by construction or operations of the AEC. The AEC is located at or below the elevation of adjacent neighborhoods that surround the site which limits direct, unobstructed views of the construction areas. Neighborhoods located at an elevation above the AEC are located at a distance that substantially limits the ability of viewers to distinguish between construction equipment parked onsite and existing utility facilities.³²

The AEC is in an area with existing and former utility uses, and use of the 10-acre open lot at the AEC site for construction laydown would be a relatively minor change in visual resources conditions at this location. The evidence shows that long-term construction impacts at the AEC site will not substantially alter the visual character or quality of the site or surrounding area. Therefore, we find that there will be no significant impacts on visual resources during construction.³³

³¹ Ex. 2000, p. 4.12-18.

³² *Id.*

³³ Ex. 2000, p. 4.12-19.

Lighting and Glare Effects

Project Construction Lighting

The record indicates that although most construction activities will occur during daytime hours, additional hours could be necessary to make up schedule deficiencies or to complete critical construction activities. During some construction periods and the project commissioning/startup phase, work will continue 24 hours per day, 7 days per week. The project site could appear as a brightly lit area for limited times during project construction and commissioning. The SAFC states that nighttime construction and commissioning lighting will be shielded and directed toward the center of the construction activity. Task-specific lighting will be used to the extent practicable and in compliance with worker safety regulations. The evidence indicates that there is no expectation for placing lighting on tall structures (e.g., cranes) during construction activities unless required for safety.³⁴

Condition of Certification **VIS-1**, includes measures to minimize the potential impacts of long-term lighting for construction and commissioning work, such as preventing light to spill outside project boundaries, using task-specific lighting and motion sensors. We find that implementation of **VIS-1** will reduce lighting impacts during construction below a significant level.³⁵

Project Operation Lighting

The amount of lighting in the area will increase marginally with the operation of AEC. The SAFC states that exterior lights for project operation will be hooded and directed onsite to minimize glare and light spillage beyond the project site. The AEC will use low-pressure sodium lamps and/or efficient LED lighting with non-glare fixtures, and “switched lighting circuits” for areas not requiring continuous illumination. In addition, the SAFC states the HRSG and air-cooled condenser structures will require little to no external lighting. External lighting would be primarily restricted to the platforms on the tops of the HRSG structures. The project’s lighting fixtures will conform to standards for minimizing offsite lighting effects.

Condition of Certification **VIS-4** ensures that operational lighting result in less than significant effects. After the AGS generating units are retired, the AGS lighting will be

³⁴ Ex. 2000, p. 4.12-19.

³⁵ *Id.*

turned off. At that time, the amount of lighting on the site, even with the lighting required by the AEC, would be less than at present.³⁶

Structure Surface Glare

The potential for glare from AEC structures to adversely affect daytime views in the project area is considered a potentially significant impact. Condition of Certification **VIS-2** requires preparation and implementation of a Surface Treatment Plan to reduce the effects of glare from project surfaces to less than significant.³⁷

Visible Plumes

When a thermal power generation facility such as AEC, is operated at times when the ambient temperature is low and relative humidity is high, the water vapor in the exhaust condenses as it mixes with the cooler ambient air, resulting in formation of a visible plume. The AEC would use dry cooling for heat rejection with no possibility of forming water vapor plumes. Based on the AEC's exhaust gas characteristics and ambient air conditions, Staff concluded that conditions would be unlikely to cause formation of visible plumes above the project's exhaust stacks. No impact on visual resources will occur pertaining to visible plumes.³⁸

Cumulative Impacts

A project may result in a significant adverse cumulative impact when 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 (1) past projects; (2) other current projects; and (3) probable future projects.³⁹ 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.⁴⁰

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. The geographic scope of the area that could be subject to a cumulative visual effect is limited to the area very near the proposed AEC. The evidence indicates

³⁶ Ex. 2000, pp. 4.12-19 – 4.12-20.

³⁷ Ex. 2000, p. 4.12-20.

³⁸ *Id.*

³⁹ (Cal. Code Regs., tit. 14, § 15130).

⁴⁰ Ex. 2000, p. 4.12-21.

that the distance between the AEC site and other current and probable future projects is of such distance to prevent a cumulative visual effect. In other words, an observer at any given location would be unable to see the AEC in combination with any current or probable future project. For this reason, the AEC will not contribute considerably to a cumulatively significant effect for visual resources.⁴¹

Summary of Project Environmental Effects

The significance of impacts on visual resources is based on the environmental checklist form in Appendix G of the State CEQA Guidelines. The evidence establishes that there is no particular view in the project vicinity that has the level of scenic appeal that could distinguish it as a scenic vista. Therefore, the AEC project will have no impact on a scenic vista.⁴²

AEC will not substantially damage scenic resources, including trees, rock outcroppings, and historic buildings within a state scenic highway because the Pacific Coast Highway is not an officially designated state scenic highway in the region, and the project site does not contain scenic resources, including trees, rock outcroppings, or historic buildings.⁴³

The AEC will not substantially degrade the existing visual character or quality of the site and its surroundings because the visual character of the existing AGS site and adjacent areas are dominated by large-scale electric generation and transmission facilities that include the AGS, a large SCE substation and associated transmission lines, and the LADWP Haynes Generating Station and associated transmission lines. The visual character of views in the project vicinity will not substantially change overall because the AEC structures merely add to an existing industrial visual environment. From most KOPs, the AEC project will not substantially degrade the existing visual character of the project site and its surroundings; therefore, the AEC project will have a less than significant impact relative to this criterion. At KOP 3, we find that the visual impacts are less than significant with mitigation incorporated in Condition of Certification **VIS-2**.⁴⁴

Conditions of Certification **VIS-1** and **VIS-4** ensure project lighting during construction, commissioning, and operation will not create significant visual impacts. Therefore, we find that the AEC would not create a new source of substantial light or glare that could adversely affect nighttime views in the area. Implementation of Condition of Certification

⁴¹ Ex. 2000, p. 4.12-21.

⁴² *Id.*

⁴³ *Id.*

⁴⁴ Ex. 2000, p. 4.12-22.

VIS-2 will minimize the potential for glint or glare from project structures to adversely affect daytime views in the project area. We find that the AEC will not create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area.⁴⁵

COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

Visual Resources Table 2 summarizes LORS pertaining to protection of visual and aesthetic resources.

Visual Resources Table 2
Laws, Ordinances, Regulations and Standards⁴⁶

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
California Coastal Act of 1976 Public Resources Code Section 30251	<p>The scenic and visual qualities of coastal areas shall be considered and protected as resources of public importance. Permitted development shall be visually compatible with the character of the area and, where feasible, to restore and enhance visual quality in visually degraded areas.</p> <p>Implementation of Coastal Act policies is accomplished primarily through preparation of local coastal programs (LCPs) by local municipalities that are located wholly or partly in the Coastal Zone. The City of Long Beach is a shoreline community, a portion of which is in the state's Coastal Zone. Coastal Act policies are the standards by which the Coastal Commission evaluates the adequacy of an LCP.</p> <p>An LCP includes a land use plan (LUP), which may be the relevant portion of the local General Plan, including any maps necessary to administer the plan; and zoning ordinances, zoning district maps, and other legal instruments necessary to implement the LUP (Coastal Commission 2016).</p> <p>The City of Long Beach's LCP was prepared to implement the Coastal Act, to "supplement and enhance" the Coastal Act, and to protect and enhance the city's Coastal Zone and its resources. The LCP was certified by the Coastal Commission in 1980.</p>	<p>Compliant. Condition of Certification VIS-3 requires the project owner to provide landscaping that reduces the visibility of the power plant structures in accordance with local policies. AEC will be designed to be compatible with the industrial zone in which it is located.</p> <p>Condition of Certification VIS-3 ensures the AEC will comply with applicable development policies set forth in the City of Long Beach's General Plan and South East Area Development Improvement Plan (SEADIP).⁴⁷</p>

⁴⁵ Ex. 2000, p. 4.12-22.

⁴⁶ Ex. 2000, pp. 4.12-23 – 4.12-25.

⁴⁷ Ex. 2000, pp. 4.12-2 – 4.12-3.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
CITY OF LONG BEACH GENERAL PLAN		
OPEN SPACE AND RECREATION ELEMENT		
Policy 1.2.	Protect and improve the community's natural resources, amenities and scenic values including nature centers, beaches, bluffs, wetlands and water bodies.	Compliant. The facility design of the AEC locates components further away from surrounding areas (e.g., Los Cerritos Channel). The lighting design requirements (e.g., hooded lighting, lighting directed onsite) in Condition of Certification VIS-1 minimize the potential for glare and light spillage into nearby recreation and open space areas. The surface treatment plan (Condition of Certification VIS-2) preserves daytime scenic values. ⁴⁸ Consistency with Policy 1.2 to protect community natural resources, amenities, and scenic values is achieved through the project's proposed design.
LAND USE ELEMENT		
Urban Design Analysis - Conclusions and Policy Directions	Certain city entrances at arterial and freeways should be beautified to enhance the city's image. Of particular importance are the entrances at Seventh Street and Studebaker Road, and all the entrances from the Long Beach Freeway.	Compliant. The existing AGS has landscaping in place that complies with the requirements for setbacks, screening, and vegetation. The AEC site boundary does not reach to Studebaker Road and construction of the AEC has no effect on the landscaping that is already in place along Studebaker Road. Implementation of Condition of Certification VIS-3 ensures compliance with perimeter landscaping screening. ⁴⁹ Consistency with Urban Design Analysis to beautify entrances along Studebaker Road is achieved through the project's proposed design.
CONSERVATION ELEMENT		
Overall Goals of the City, No.	To create and maintain a productive harmony between man and his environment through conservation of	Compliant. The proposed design for AEC would comply with all setback and

⁴⁸ Ex. 2000, p. 4.12-23.

⁴⁹ *Id.*

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
2	natural resources and protection of significant areas having environment and aesthetic value.	buffer requirements. Implementation of Condition of Certification VIS-3 ensures conformance by requiring landscape plans for review and approval. ⁵⁰ Consistency with Overall Goals of the City, No. 2, to protect significant areas with aesthetic value is achieved with the project's proposed design.
LOCAL COASTAL PROGRAM		
The LCP, page III-S-I.	The LCP adopted the SEADIP Specific Plan by reference. Specific development and land use standards are provided within the SEADIP Specific Plan Refer to the analyses (below) under Provision A2 for the SEADIP Specific Plan.	Compliant. Condition of Certification VIS-3 requires the project owner to provide landscaping that reduces the visibility of the power plant structures in accordance with the Local Coastal Program and SEADIP policies. ⁵¹
SOUTH EAST AREA DEVELOPMENT AND IMPROVEMENT PLAN (SEADIP) SPECIFIC PLAN		
Provision A2	A minimum of thirty percent of the site shall be developed and maintained as usable open space (building footprint, streets, parking areas and sidewalks adjacent to streets shall not be considered usable open space. Bicycle and pedestrian trails not included within the public right-of-way may be considered usable open space). All buildings shall be set back a minimum of twenty feet from all public streets and a wider setback may be required by individual subarea. Within this minimum twenty-foot setback area, a strip having a minimum width of ten feet and abutting the street shall be attractively landscaped.	Compliant. The project would develop less than 70 percent of the project site thereby greater than 30 percent of the site would remain undeveloped. Because the AEC is a proposed power plant with no public access, we consider the greater than 30% undeveloped area of the site to be consistent with the requirement for 30% usable open space. In addition, the components of the proposed power plant would be set back greater than 20 feet from public streets. Condition of Certification VIS-3 requires the project owner to provide landscaping that reduces the visibility of the power plant structures in accordance with local policies. In addition, the Applicant identified a commitment to work cooperatively with the city in submitting landscape plans for review and approval. Implementation of Condition of

⁵⁰ Ex. 2000, p. 4.12-24.

⁵¹ *Id.*

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
		Certification VIS-3 ensures conformance. ⁵²
Provision A9	All development shall be designed and constructed to be in harmony with the character and quality of surrounding development so as to create community unity within the entire area.	Compliant. AEC is designed to be in harmony with the industrial zone in which it is located. Condition of Certification VIS-3 ensures the AEC will comply with applicable development policies set forth in the General Plan and SEADIP. ⁵³
Provision A12	Public views to water areas and public open spaces shall be maintained and enhanced to the maximum extent possible, consistent with the wetlands restoration plan.	Compliant. The AEC will not block views of water areas and public open spaces. ⁵⁴
CITY OF LONG BEACH MUNICIPAL CODE ZONING ORDINANCE		
21.42.010 Landscaping Standards	Landscapes are intended to improve the physical appearance of the city by providing visual, ecological, and psychological relief in the urban environment. Successfully designed and maintained landscape areas provide an attractive living, working, and recreating environment in addition to their role in reducing water and energy consumption.	Compliant. Condition of Certification VIS-3 requires the project owner to provide a landscaping plan whose proper implementation would satisfy the Municipal Code requirements. ⁵⁵
21.42.030(C) Landscaping Standards	When applicable, a Landscape Document Package shall be approved prior to the issuance of any planning or building permit. For projects proposing landscape area coverage with a minimum of ninety percent (90%) very low to low water use plantings, ETWU and MAWA calculations are not required in the Landscape Document Package submittal. Applicable landscaping, irrigation, planter drainage, water reuse, retention and filtration improvements shall be implemented before any final building and planning inspection is approved.	Compliant. Condition of Certification VIS-3 requires the project owner to provide a landscaping plan whose proper implementation would satisfy the Municipal Code requirements.

⁵² Exs. 2000, p. 4.12-24; 2013, pp. 40 - 41.

⁵³ Ex. 2000, p. 4.12-24.

⁵⁴ *Id.*

⁵⁵ Ex. 2000, p. 4.12-25.

APPLICABLE LORS	DESCRIPTION OF LORS	DISCUSSION/CONCLUSIONS
21.42.040 Landscaping standards for R-3, R-4 and Nonresidential Districts.	<p>A. Applicability. All portions of a lot not paved or occupied by a structure shall be attractively landscaped. All required set back areas shall be landscaped unless used for a permitted use.</p> <p>B. Landscape Area Requirements On-Site Street Frontage - Within the required setback area along all street frontages, except at driveways, a minimum five-foot (5') wide landscaping strip (inside dimension to planter) shall be provided. This area shall be landscaped with one (1) tree for each fifteen (15) linear feet of street frontage and three (3) shrubs for each tree.</p> <p>Fences and retaining walls. All required fences and retaining walls shall be landscaped with vines planted no more than ten feet (10') on center on all accessible sides of a wall or alternative plant materials approved by the Director of Development Services.</p>	<p>Compliant. The AEC site boundary does not reach to Studebaker Road and implementation of the AEC would not affect landscaping that is already in place along Studebaker Road.</p> <p>It should be noted that the City of Long Beach submitted a comment letter requesting all perimeter and public-facing landscape areas of the AGS be cleared and replanted with a comprehensively-designed landscape plan for the entire site.</p> <p>In addition, the applicant identified a commitment to work cooperatively with the City of Long Beach in submitting landscape plans for review and approval. Implementation of Condition of Certification VIS-3 would ensure conformance.⁵⁶</p>

AGENCY AND PUBLIC COMMENTS

Suzie Price,⁵⁷ of the Long Beach City Council, Third District, who is also a member of the Los Cerritos Wetlands Authority, and **Tony Gentile**,⁵⁸ of the Peninsula Beach Preservation Group both commented favorably about the AEC's aesthetic improvements and enhancements the project will make along the corridor where the plant is located. No response needed.

Lenny Arkenstahl,⁵⁹ CEO and founder of the Los Cerritos Wetlands Stewards, also commented in support of the AEC in terms of its reduction of light pollution. No response needed.

No negative comments have been received regarding the AEC's effect on visual resources.

⁵⁶ Exs. 1500, p. 5.13-21; 2000, p. 4.12-25.

⁵⁷ 11/15/16 RT 11:25 – 14:8.

⁵⁸ 11/15/16 RT 131:2 – 132:5.

⁵⁹ 11/15/16 RT 132:8 – 132:19.

FINDINGS OF FACT

Based on the evidence, we find as follows:

1. The Alamitos Energy Center will be located within the Alamitos Generating Station property between the San Gabriel River and Los Cerritos Channel in the southwest corner of the City of Long Beach, California.
2. For the purposes of the Energy 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 Alamitos Generating Station power plant and adjacent tank farm, the Southern California Edison switchyard transmission structures, the Los Angeles Department of Water and Power's Haynes Generating Station and other man-made and natural features described in this Decision.
3. No particular view in the Alamitos Energy Center's vicinity has a level of scenic appeal that could distinguish it as a scenic vista.
4. The Alamitos Energy Center will have no impact on a scenic vista.
5. There are no scenic resources on the site that could be impacted by the Alamitos Energy Center project
6. The evidence contains an evaluation of four KOPs and the Alamitos Energy Center's potential to have light or glare impacts.
7. Impacts to visual resources caused by the Alamitos Energy Center will be less than significant at all four KOPs.
8. The overall visual change for views at or near KOP 1 will be less than significant.
9. The overall visual change for views at or near KOP 2 will be less than significant.
10. The overall visual change for views at or near KOP 3 will be less than significant with implementation of Condition of Certification **VIS-2**.
11. The overall visual change for views at or near KOP 4 will be less than significant.
12. There will be no significant impacts on visual resources during construction.
13. Implementation of **VIS-1** will reduce lighting impacts during construction below a significant level.
14. Condition of Certification **VIS-4** ensures that the impact from Alamitos Energy Center's operational lighting will be less than significant.

15. Implementation of Condition of Certification **VIS-2**, which requires preparation of a Surface Treatment Plan designed to reduce the effects of glare from project surfaces, will reduce daytime glare impacts to less than significant.
16. The Alamitos Energy Center will not form visible water vapor plumes due to the use of dry cooling for heat rejection.
17. The Alamitos Energy Center in combination with any current or probable future project will not contribute considerably to a cumulatively significant effect for visual resources.

CONCLUSIONS OF LAW

1. With the Conditions of Certification, the Alamitos Energy Center will not create significant direct, indirect, or cumulative environmental impacts on visual resources.
2. With the Conditions of Certification, the Alamitos Energy Center will continue to comply with all applicable LORS affecting visual resources.

The revised Conditions of Certification set forth in **Appendix A** are appropriate and will ensure that the project is designed and constructed both in a manner that protects environmental quality and public health and safety and to ensure compliance with all applicable LORS.

CONDITIONS OF CERTIFICATION

Appendix A

COMPLIANCE MONITORING PLAN AND CONDITIONS OF CERTIFICATION

COM-1 Unrestricted Access. The project owner shall take all steps necessary to ensure that the CPM, responsible Energy Commission staff, and delegate agencies or consultants have unrestricted access to the facility site, related facilities, project-related staff, and the records maintained on-site for the purpose of conducting audits, surveys, inspections, or general or closure-related 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, whether such visits are by the CPM in person or through representatives from Energy Commission staff, delegated agencies, or consultants.

COM-2 Compliance Record. The project owner shall maintain electronic copies of all project files and submittals on-site, or at an alternative site approved by the CPM, for the operational life and closure of the project. The files shall also have at least one hard copy of:

1. the facility's Application for Certification;
2. all amendment petitions and Energy Commission orders;
3. all site-related environmental impact and survey documentation;
4. all appraisals, assessments, and studies for the project;
5. all finalized original and amended structural plans and "as-built" drawings for the entire project;
6. all citations, warnings, violations, or corrective actions applicable to the project, and
7. the most current versions of any plans, manuals, and training documentation required by the conditions of certification or applicable LORS.

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.

COM-3 Compliance Verification Submittals. Verification lead times associated with the start of construction may require the project owner to file submittals during the amendment process, particularly if construction is planned to commence shortly after certification. The verification procedures, unlike the conditions, may be modified as necessary by the CPM after notice to the project owner.

A cover letter from the project owner or an 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, cite the appropriate condition of certification number(s), and give a brief description of the subject of the submittal. When submitting supplementary or corrected information, the project owner shall reference the date of the previous submittal and the condition(s) of certification applicable.

All reports and plans required by the project's conditions of certification shall be submitted in a searchable electronic format (.pdf, MS Word or Excel, etc.) and include standard formatting elements such as a table of contents identifying by title and page number each section, table, graphic, exhibit, or addendum. All report and/or plan graphics and maps shall be adequately scaled and shall include a key with descriptive labels, directional headings, a bar scale, and the most recent revision date.

The project owner is responsible for the content and delivery of all verification submittals to the CPM, and that the actions required by the verification were satisfied by the project owner or an agent of the project owner. All submittals shall be accompanied by an electronic copy on an electronic storage medium, or by e-mail, as agreed upon by the CPM. If hard copy submittals are required, please address as follows:

Compliance Project Manager
ALAMITOS ENERGY CENTER (13-AFC-01C)
California Energy Commission
1516 Ninth Street (MS-2000)
Sacramento, CA 95814

COM-4 Pre-Construction Matrix and Tasks Prior to Start of Construction.

Prior to commencing construction, the project owner shall submit to the CPM a compliance matrix including those conditions that must be fulfilled before the start of construction. The matrix shall be included with the project owner's first compliance submittal or prior to the first pre-construction meeting, whichever comes first, and shall be submitted in a format similar to the description below.

Site mobilization and construction activities shall not start until the following have occurred:

1. The project owner has submitted the pre-construction matrix and all compliance verifications pertaining to pre-construction conditions of certification; and

2. The CPM has issued an authorization-to-construct letter to the project owner.

The deadlines for submitting various compliance verifications to the CPM allow staff sufficient time to review and comment on, and, if necessary, also allow the project owner to revise the submittal in a timely manner. These procedures help ensure that project construction proceeds according to schedule. Failure to submit required compliance documents by the specified deadlines may result in delayed authorizations to commence various stages of the project.

If the project owner anticipates site mobilization immediately following project certification, it may be necessary for the project owner to file compliance submittals prior to project certification. In these instances, compliance verifications can be submitted in advance of the required deadlines and the anticipated authorizations to start construction. The project owner must understand that submitting compliance verifications prior to these authorizations is at the owner's own risk. Any approval by Energy Commission staff prior to project certification is subject to change based upon the Commission Decision, or amendment thereto, and early staff compliance approvals do not imply that the Energy Commission will certify the project for actual construction and operation.

COM-5 Compliance Matrix. The project owner shall submit a compliance matrix to the CPM with each MCR and ACR which shall identify:

1. the technical area (e.g., biological resources, facility design, etc.);
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;
7. the compliance status of each condition (e.g., "not started," "in progress" or "completed" (include the date); and
8. if the condition was amended, the updated language and the date the amendment was proposed or approved.

The CPM can provide a template for the compliance matrix upon request.

COM-6

Monthly Compliance Report. The first MCR is due one month following the docketing of the project's Decision unless otherwise agreed to by the CPM. The first MCR shall include the AFC number and an initial list of dates for each of the events identified on the Key Events List. (The Key Events List form is found at the end of this Compliance Conditions and Compliance Monitoring Plan section.)

During pre-construction, construction, or closure, the project owner or authorized agent shall submit an electronic searchable version of the MCR to the CPM within ten (10) business days after the end of each reporting month. MCRs shall be submitted each month until construction is complete and the final certificate of occupancy is issued by the DCBO. MCRs shall be clearly identified for the month being reported. The MCR 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 MCR. Each of these items shall be identified in the transmittal letter, as well as the conditions they satisfy, and submitted as attachments to the MCR;
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, and permits issued by, other governmental agencies during the month;
8. a projection of project compliance activities scheduled during the next (2) 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 incidents, complaints, notices of violation, official warnings, or citations received during the month; a list of any incidents that occurred during the month, a description of the actions taken to date to resolve the issues; and the status of any unresolved actions noted in the previous MCRs.

COM-7

Periodic and Annual Compliance Reports. After construction is complete, the project owner must submit searchable electronic ACRs to the CPM, as well as other periodic compliance reports (PCRs) required by the various technical disciplines. ACRs shall be completed for each year of commercial operation and are due each year on a date agreed to by the CPM. Other PCRs (e.g. quarterly reports or decommissioning reports to monitor closure compliance), may be specified by the CPM. The searchable electronic copies may be filed on an electronic storage medium or by e-mail, subject to CPM approval. Each ACR must include the AFC number, identify the reporting period, and contain the following:

1. an updated compliance matrix which shows 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 ACR; each of these items shall be identified in the transmittal letter with the conditions it satisfies and submitted as an attachment to the ACR;
4. a cumulative list of all post-certification changes approved by the Energy Commission or 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 Site Contingency Plan, including amendments and plan updates; and

10. a listing of complaints, incidents, notices of violation, official warnings, and citations received during the year, a description of how the issues were resolved, and the status of any unresolved complaints.

COM-8 Confidential Information. Any information that the project owner considers confidential shall be submitted to the Energy Commission's Executive Director with an application for confidentiality, pursuant to Title 20, California Code of Regulations, section 2505(a). Any information deemed confidential pursuant to the regulations will remain undisclosed, as provided in Title 20, California Code of Regulations, sections 2501-2507.

COM-9 Annual Energy Facility Compliance Fee. Pursuant to the provisions of section 25806 (b) of the Public Resources Code, the project owner is required to pay an annually adjusted compliance fee. Current compliance fee information is available on the Energy Commission's website at http://www.energy.ca.gov/siting/filing_fees.html. The project owner may also contact the CPM for the current fee information. The initial payment is due on the date the Energy Commission docket its final Decision. All subsequent payments are due by July 1 of each year in which the facility retains its certification.

COM-10 Amendments, Staff-Approved Project Modifications, Ownership Changes, and Verification Changes. The project owner shall petition the Energy Commission, pursuant to Title 20, California Code of Regulations, section 1769, to modify the design, operation, or performance requirements of the project or linear facilities, or to transfer ownership or operational control of the facility. The CPM will determine whether staff approval will be sufficient, or whether Commission approval will be necessary. It is the project owner's responsibility to contact the CPM to determine if a proposed project change triggers the requirements of section 1769. Section 1769 details the required contents for a Petition to Amend an Energy Commission Decision. The only change that can be requested by means of a letter to the CPM is a request to change the verification method of a condition of certification.

A project owner is required to submit a five thousand (\$5,000) dollar fee for every Petition to Amend a previously certified facility, pursuant to Public Resources Code section 25806(e). If the actual amendment processing costs exceed \$5,000.00, the total Petition to Amend reimbursement fees owed by a project owner will not exceed seven hundred fifty thousand dollars (\$750,000), adjusted annually. Current

amendment fee information is available on the Energy Commission's website at http://www.energy.ca.gov/siting/filing_fees.html.

COM-11 Reporting of Complaints, Notices, and Citations. Prior to the start of construction, the project owner shall send a letter to all parcels within 500 feet of the proposed transmission line and other linear facilities, and within 1000 feet of the proposed power plant and related facilities 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 must include automatic answering with date and time stamp recording.

The project owner shall respond to all recorded complaints within 24 hours or the next business day. The project site shall post the telephone number on-site and make it easily visible to passersby during construction, operation, and closure. The project owner shall provide the contact information to the CPM and promptly report any disruption to the contact system or telephone number change to the CPM, who will provide it to any persons contacting him or her with a complaint.

Within five days of receipt, the project owner shall report and provide copies to the CPM of all complaints (including, but not limited to, noise and lighting complaints, notices of violation, notices of fines, official warnings, and citations). Complaints shall be logged and numbered. Noise complaints shall be recorded on the form provided in the Noise and Vibration conditions of certification. All other complaints shall be recorded on the complaint form (Attachment A) at the end of this section. Additionally, the project owner must include in the next subsequent MCR, ACR, or PCR, copies of all complaints, notices, warnings, citations and fines, a description of how the issues were resolved, and the status of any unresolved or ongoing matters.

COM-12 Emergency Response Site Contingency Plan. No less than 60 days prior to the start of construction (or other CPM-approved date), the project owner shall submit for CPM review and approval, an Emergency Response Site Contingency Plan (Contingency Plan). Subsequently, no less than 60 days prior to the start of commercial operation, the project owner shall update (as necessary) and resubmit the Contingency Plan for CPM review and approval. The Contingency Plan shall evidence a facility's coordinated emergency response and recovery preparedness for a series of reasonably foreseeable emergency events. The CPM may require Contingency Plan updating over the life of the facility. Contingency Plan elements include, but are not limited to:

1. A site-specific list and direct contact information for persons, agencies, and responders to be notified in the event of an emergency;
2. A detailed and labeled facility map, including all fences and gates, the windsock location (if applicable), the on- and off-site assembly areas, and the main roads and highways near the site;
3. A detailed and labeled map of population centers, sensitive receptors, and the nearest emergency response facilities;
4. A description of the on-site, first response and backup emergency alert and communication systems, site-specific emergency response protocols, procedures for maintaining the facility's contingency response capabilities, including a detailed map of interior and exterior evacuation routes, and the planned location(s) of all permanent safety equipment;
5. An organizational chart including the name, contact information, and first aid/emergency response certification(s) and renewal date(s) for all personnel regularly on-site;
6. A brief description of reasonably foreseeable, site-specific incidents and accident sequences (on- and off-site), including response procedures and protocols and site security measures to maintain twenty-four-hour site security;
7. Procedures for maintaining contingency response capabilities; and
8. The procedures and implementation sequence for the safe and secure shutdown of all non-critical equipment and removal of hazardous materials and waste (see also specific conditions of certification for the technical areas of **Public Health, Waste Management, Hazardous Materials Management, and Worker Safety**).

COM-13 Incident-Reporting Requirements. (a) The project owner shall notify the CPM within one hour after it is safe and feasible of any incident at the facility that results in any of the following:

1. an event of any kind occurs that causes a "Forced Outage" as defined in the CAISO tariff;
2. the activation of onsite emergency fire suppression equipment to combat a fire;

3. any chemical, gas or hazardous materials release that could result in potential health impacts to the surrounding population or create an off-site odor issue; and/or
4. notification to, or response by, any off-site emergency response, federal, state or local agency regarding a fire, hazardous materials release, on-site injury, or any physical or cyber security incident.

Notification shall describe the circumstances, status, and expected duration of the incident. If warranted, as soon as it is safe and feasible, the project owner shall implement the safe shutdown of any non-critical equipment and removal of any hazardous materials and waste that pose a threat to public health and safety and to environmental quality (also, see specific conditions of certification for the technical areas of **Hazardous Materials Management** and **Waste Management**).

Within one week of the incident, the project owner shall submit to the CPM a detailed incident report, which includes, as appropriate, the following information:

1. a brief description of the incident, including its date, time, and location;
2. a description of the cause of the incident, or likely causes if it is still under investigation;
3. the location of any off-site impacts;
4. description of any resultant impacts;
5. a description of emergency response actions associated with the incident;
6. identification of responding agencies;
7. identification of emergency notifications made to federal, state, and/or local agencies;
8. identification of any hazardous materials released and an estimate of the quantity released;
9. a description of any injuries, fatalities, or property damage that occurred as a result of the incident;
10. fines or violations assessed or being processed by other agencies;
11. name, phone number, and e-mail address of the appropriate facility contact person having knowledge of the event; and
12. corrective actions to prevent a recurrence of the incident.

The project owner shall maintain all incident report records for the life of the project, including closure. After the submittal of the initial report for any incident, the project owner shall submit to the CPM copies of incident reports within 24 hours of a request.

COM-14 Non-Operation and Repair/Restoration Plans. (a) If the facility ceases operation temporarily (excluding planned or unplanned maintenance), for longer than one (1) week (or other CPM-approved date), but less than three months (or other CPM-approved date), the project owner shall provide the CPM with a notice of planned non-operation; which shall be given at least two weeks prior to the scheduled date. Notice of unplanned non-operation shall be provided no later than one week after non-operation begins.

For any non-operation, a Repair/Restoration Plan for conducting the activities necessary to restore the facility to availability and reliable and/or improved performance shall be submitted to the CPM within one week after notice of non-operation is given. If non-operation is due to an unplanned incident, temporary repairs and/or corrective actions may be undertaken before the Repair/Restoration Plan is submitted. The Repair/Restoration Plan shall include:

1. identification of operational and non-operational components of the plant;
 2. a detailed description of the repair and inspection or restoration activities;
 3. a proposed schedule for completing the repair and inspection or restoration activities;
 4. an assessment of whether or not the proposed activities would require changing, adding, and/or deleting any conditions of certification, and/or would cause noncompliance with any applicable LORS; and
 5. Planned activities during non-operation, including any measures to ensure continued compliance with all conditions of certification and LORS.
- (b) Written monthly updates (or other CPM-approved intervals) shall be provided to the CPM for non-operational periods, until operation resumes. Updates shall include:
1. Progress relative to the schedule;
 2. Developments that delayed or advanced progress or that may delay or advance future progress;

3. Any public, agency, or media comments or complaints; and
 4. Projected date for the resumption of operation.
- (c) During non-operation, all applicable conditions of certification and reporting requirements remain in effect. If, after one year from the date of the project owner's last report of productive Repair/Restoration Plan work, the facility does not resume operation or does not provide a plan to resume operation, the Compliance Office Manager may request a Committee Hearing to recommend an order compelling commencement of permanent closure activities.
- (d) If a temporary closure becomes permanent, the project owner shall submit a closure plan as set forth in **COM-15**.

COM-15 Facility Closure Planning. To ensure that a facility's eventual permanent closure and long-term maintenance do not pose a threat to public health and safety and/or to environmental quality, the project owner shall coordinate with the CPM to plan and prepare for eventual permanent closure.

Final Closure Plan and Cost Estimate

- (a) No less than one year (or other CPM-approved date) prior to initiating a permanent facility closure, or upon an order compelling permanent closure, the project owner shall submit for Energy Commission review and approval, a Final Closure Plan and Cost Estimate, which includes any long-term, site maintenance and monitoring.
- (b) Final Closure Plan and Cost Estimate contents include, but are not limited to:
1. a statement of specific Final Closure Plan objectives;
 2. a statement of qualifications and resumes of the technical experts proposed to conduct the closure activities, with detailed descriptions of previous power plant closure experience;
 3. identification of any facility related installations or maintenance agreements not part of the Energy Commission certification, designation of who is responsible for these, and an explanation of what will be done with them after closure;
 4. a comprehensive scope of work and itemized budget for permanent plant closure and long-term site maintenance activities, with a

description and explanation of methods to be used, broken down by phases, including, but not limited to:

- a. dismantling and demolition;
 - b. recycling and site clean-up;
 - c. impact mitigation and monitoring;
 - d. site remediation and/or restoration, including ongoing testing or monitoring protocols;
 - e. exterior maintenance, including paint, landscaping and fencing;
 - f. site security and lighting; and
 - g. any contingencies.
5. a Final Cost Estimate for all closure activities, by phases, including long-term site monitoring and maintenance costs, and long-term equipment replacement;
 6. a schedule projecting all phases of closure activities for the power plant site and all appurtenances constructed as part of the Energy Commission-certified project;
 7. an electronic submittal package of all relevant plans, drawings, risk assessments, and maintenance schedules and/or reports, including an above- and below-ground infrastructure inventory map and registered engineer's or DCBO's assessment of demolishing the facility; additionally, for any facility that permanently ceased operation prior to submitting a Final Closure Plan and Cost Estimate and for which only minimal or no maintenance has been done since, a comprehensive condition report focused on identifying potential hazards;
 8. all information additionally required by the facility's conditions of certification applicable to plant closure;
 9. an equipment disposition plan, including:
 - a. recycling and disposal methods for equipment and materials; and
 - b. identification and justification for any equipment and materials that will remain on-site after closure;
 10. a site disposition plan, including but not limited to: proposed rehabilitation, restoration, and/or remediation procedures, as required by the conditions of certification and applicable LORS, and long-term site maintenance activities.

11. identification and assessment of all potential direct, indirect, and cumulative impacts and proposed mitigation measures to reduce significant adverse impacts to a less-than-significant level; potential impacts to be considered shall include, but not be limited to:
 - a. traffic;
 - b. noise and vibration;
 - c. soil erosion;
 - d. air quality degradation;
 - e. solid waste;
 - f. hazardous materials;
 - g. waste water discharges; and
 - h. contaminated soil.
 12. identification of all current conditions of certification, LORS, federal, state, regional, and local planning efforts applicable to the facility, and proposed strategies for achieving and maintaining compliance during closure;
 13. updated mailing list for all parcels within 500 feet of the proposed transmission line and other linear facilities, and within 1000 feet of the proposed power plant and related facilities; and
 14. description of and schedule for security measures and safe shutdown of all non-critical equipment and removal of hazardous materials and waste (see conditions of certification for **Public Health, Waste Management, Hazardous Materials Management, and Worker Safety**).
- (c) If the CPM-approved Final Closure Plan and Cost Estimate are not initiated within one year of its approval date, it shall be updated and re-submitted to the CPM for supplementary review and approval.
- (d) Failure to comply with the closure plan in a timely manner may subject the project owner to enforcement actions as set forth in Public Resources Code section 25534.

KEY EVENTS LIST

PROJECT: _____

DOCKET #: _____

COMPLIANCE PROJECT MANAGER: _____

EVENT DESCRIPTION	DATE
Certification Date	
Obtain Site Control	
On-line Date	
POWER PLANT SITE ACTIVITIES	
Start Site Assessment/Pre-construction	
Start Site Mobilization/Construction	
Begin Pouring Major Foundation Concrete	
Begin Installation of Major Equipment	
Completion of Installation of Major Equipment	
First Combustion of Turbine	
Obtain Building Occupation Permit	
Start Commercial Operation	
Complete All Construction	
TRANSMISSION LINE ACTIVITIES	
Start Transmission Line Construction	
Complete Transmission Line Construction	
Synchronization with Grid and Interconnection	
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	
Start Recycled Water Supply Line Construction	
Complete Recycled Water Supply Line Construction	

Condition Number	Subject	Description
COM-1	Unrestricted Access	The project owner shall grant Energy Commission staff and delegate agencies or consultants unrestricted access to the power plant site.
COM-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.
COM-3	Compliance Verification Submittals	The project owner is responsible for the delivery and content of all verification submittals to the CPM, regardless of whether the conditions were satisfied directly by the project owner or by an agent.
COM-4	Pre-construction Matrix and Tasks Prior to Start of Construction	Construction shall not commence until all of the following activities/submittals have been completed: <ul style="list-style-type: none"> • Project owner has submitted a pre-construction matrix identifying conditions to be fulfilled before the start of construction; • Project owner has completed all pre-construction conditions to the CPM's satisfaction; and • CPM has issued a letter to the project owner authorizing construction.
COM-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 current status of all Compliance Conditions of Certification.
COM-6	Monthly Compliance Reports and Key Events List	During construction, the project owner shall submit Monthly Compliance Reports (MCRs) which include specific information. The first MCR is due one (1) month following the docketing of the Energy Commission's Decision on the project and shall include an initial list of dates for each of the events identified on the Key Events List.
COM-7	Periodic and Annual Compliance Reports	After construction ends, and throughout the life of the project, the project owner shall submit Annual Compliance Reports (ACRs) instead of MCRs.
COM-8	Confidential Information	Any information the project owner designates as confidential shall be submitted to the Energy Commission's Executive Director with a request for confidentiality.
COM-9	Annual Fees	Required payment of the Annual Energy Facility Compliance Fee.
COM-10	Amendments, Staff-Approved Project Modifications, Ownership Changes, and Verification Changes	The project owner shall petition the Energy Commission to delete or change a condition of certification, modify the project design or operational requirements, and/or transfer ownership or operational control of the facility. Petitions to Amend require the payment of amendment processing fees.
COM-11	Reporting of Complaints, Notices, and Citations	Prior to the start of construction, the project owner shall provide all property owners within 500 feet of the proposed transmission line and other linear facilities, and within 1000 feet of the proposed power plant and related facilities a letter notifying them of a telephone number to contact project representatives with questions, complaints or concerns. The project owner shall respond to all recorded complaints within 24 hours. Within five days of receipt, the project owner shall report to the CPM all notices, complaints, violations, and citations.

Condition Number	Subject	Description
COM-12	Emergency Response Site Contingency Plan	No less than 60 days prior to the start of commercial operation, the project owner shall submit an on-site Contingency Plan to ensure protection of public health and safety and environmental quality during a response to an emergency.
COM-13	Incident-Reporting Requirements	The project owner shall notify the CPM within one hour of an incident and submit a detailed incident report within one week, maintain records of incident report, and submit public health and safety documents with employee training provisions.
COM-14	Non-Operation	No later than two weeks prior to a facility's planned non-operation, or no later than one week after the start of unplanned non-operation, the project owner shall notify the CPM, of this status. During non-operation, the project owner shall provide written updates to the CPM.
COM-15	Facility Closure Planning	No less than one (1) year prior to closing, or upon issuance of a closure order, the project owner shall submit a Final Closure Plan and Cost Estimate.

**ATTACHMENT A
COMPLAINT REPORT AND RESOLUTION FORM**

COMPLAINT LOG NUMBER: _____ DOCKET NUMBER: _____

PROJECT NAME: _____

COMPLAINANT INFORMATION

NAME: _____ PHONE NUMBER: _____

ADDRESS: _____

COMPLAINT

DATE COMPLAINT RECEIVED: _____ TIME COMPLAINT RECEIVED: _____

COMPLAINT RECEIVED BY: _____ ☐ TELEPHONE ☐ IN WRITING (COPY ATTACHED)

DATE OF FIRST OCCURRENCE: _____

DESCRIPTION OF COMPLAINT (INCLUDING DATES, FREQUENCY, AND DURATION): _____

FINDINGS OF INVESTIGATION BY PLANT PERSONNEL: _____

DOES COMPLAINT RELATE TO VIOLATION OF A CEC REQUIREMENT? ☐ YES ☐ NO

DATE COMPLAINANT CONTACTED TO DISCUSS FINDINGS: _____

DESCRIPTION OF CORRECTIVE MEASURES TAKEN OR OTHER COMPLAINT RESOLUTION: _____

DOES COMPLAINANT AGREE WITH PROPOSED RESOLUTION? ☐ YES ☐ NO

IF NOT, EXPLAIN: _____

CORRECTIVE ACTION

IF CORRECTIVE ACTION NECESSARY, DATE COMPLETED: _____

DATE FIRST LETTER SENT TO COMPLAINANT (COPY ATTACHED): _____

DATE FINAL LETTER SENT TO COMPLAINANT (COPY ATTACHED): _____

OTHER RELEVANT INFORMATION: _____

"This information is certified to be correct."

ATTACHMENT A
COMPLAINT REPORT AND RESOLUTION FORM

PLANT MANAGER SIGNATURE: _____ DATE: _____

(ATTACH ADDITIONAL PAGES AND ALL SUPPORTING PHOTO/DOCUMENTATION, AS REQUIRED)

FACILITY DESIGN CONDITIONS OF CERTIFICATION

GEN-1 The project owner shall design, construct, and inspect the project in accordance with the applicable edition of the California Building Standards Code (CBSC)¹, also known as Title 24, California Code of Regulations, which encompasses the California Building Code (CBC), California Building Standards Administrative Code, California Electrical Code, California Mechanical Code, California Plumbing Code, California Energy Code, California Fire Code, California Code for Building Conservation, California Reference Standards Code, and all other applicable engineering LORS in effect at the time initial design plans are submitted to the CBO for review and approval (the CBSC in effect is 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 (onsite), demolition, repair, or maintenance of the completed facility.

In the event that the initial engineering designs are submitted to the CBO when the successor to the 2013 CBSC is in effect, the 2013 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 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.

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

¹ The applicable edition of the CBSC is currently the 2013 edition, but if the successor edition of this code (i.e., the 2016) is in effect when initial project engineering designs are submitted for the CBO's review, the successor edition becomes the applicable edition.

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, and master drawings and master specifications list. The master drawings and master specifications list shall contain a list of proposed submittal packages of designs, calculations, and specifications for major structures, systems, and equipment. Major structures, systems, and equipment are structures and their associated components or equipment that are necessary for power production, costly or time consuming to repair or replace, are used for the storage, containment, or handling of hazardous or toxic materials, or could become potential health and safety hazards if not constructed according to applicable engineering LORS. The schedule shall contain the date of each submittal to the CBO. To facilitate audits by Energy Commission staff, the project owner shall provide specific packages to the CPM upon request.

Verification: At least 60 days (or 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, and the master drawings and master specifications list of documents to be submitted to the CBO for review and approval. These documents shall be the pertinent design documents for the major structures, systems, and equipment defined above in Condition of Certification **GEN-2**. Major structures and equipment shall be added to or deleted from the list only with CPM approval. The project owner shall provide schedule updates in the monthly compliance report.

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 applicable edition of the CBC, 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.

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

GEN-4 Prior to the start of rough grading, the project owner shall assign a California- registered architect, or a structural or civil engineer, as the resident engineer (RE) in charge of the project.

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

The RE 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 (or his delegate) must be located at the project site, or be available at the project site within a reasonable period of time, during any hours in which construction takes place.

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

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

Verification: At least 30 days (or project owner- and CBO-approved alternative 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 RE and any other delegated engineers assigned to the project. The project owner shall notify the CPM of the CBO's approvals of the RE and other delegated engineer(s) within five days of the approval.

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

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

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.

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, construction of secondary containment, foundations, erosion and sedimentation control structures, drainage facilities, underground utilities, culverts, site access roads and sanitary sewer systems; and
 - 3. Provide consultation to the RE during the construction phase of the project and recommend changes in the design of the civil works facilities and changes 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;
 - 3. Be present, as required, during site grading and earthwork to provide consultation and monitor compliance with requirements set forth in the applicable edition of the CBC (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 RE.

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.

- 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 applicable edition of the CBC (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 RE during design and construction of the project;
 - 3. Monitor construction progress to ensure compliance with engineering LORS;
 - 4. Evaluate and recommend necessary changes in design; and
 - 5. Prepare and sign all major building plans, specifications, and calculations.
- E. The mechanical engineer shall be responsible for, and sign and stamp a statement with, each mechanical submittal to the CBO, stating that the proposed final design plans, specifications, and calculations conform 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 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 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, including prefabricated assemblies, 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 applicable edition of the CBC.

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

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. Inspect the work assigned for conformance with the approved design drawings and specifications;
3. Furnish inspection reports to the CBO and RE. All discrepancies shall be brought to the immediate attention of the RE for correction, then, if uncorrected, to the CBO and the CPM for corrective action; and
4. Submit a final signed report to the RE, CBO, and CPM, stating whether the work requiring special inspection was, to the best of the inspector's knowledge, in conformance with the approved plans, specifications, and other provisions of the applicable edition of the CBC.

Verification: At least 15 days (or 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. 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 another accessible location during the operating life of the project. 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" (Adobe .pdf 6.0 or newer version) files, 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. A construction storm water pollution prevention plan (SWPPP);
4. Related calculations and specifications, signed and stamped by the responsible civil engineer; and
5. Soils, geotechnical, or foundation investigations reports required by the applicable edition of the CBC.

Verification: At least 15 days (or 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.

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 applicable edition of the CBC. 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. 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.

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. 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, the project owner shall submit plans, calculations and other supporting documentation to the CBO for design review and acceptance for all project structures and equipment identified in the CBO-approved master drawing and master specifications list. The design plans and calculations shall include the lateral force procedures and details as well as vertical calculations.

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;

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;
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; and
5. Submit to the CBO the responsible design engineer's signed statement that the final design plans conform to applicable LORS.

Verification: At least 60 days (or project owner- and CBO-approved alternative time frame) prior to the start of any increment of construction of any structure or component listed in the CBO-approved master drawing and master specifications list, 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 (NDT) procedure and

results, welder qualifications, certifications, qualified procedure description or number (ref: AWS); and

5. Reports covering other structural activities requiring special inspections shall be in accordance with the applicable edition of the CBC.

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. The NCR shall reference the condition(s) of certification and the applicable CBC chapter and section. Within five days of resolution of the NCR, the project owner shall submit a copy of the corrective action to the CBO and the CPM.

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

STRUC-3 The project owner shall submit to the CBO design changes to the final plans required by the applicable edition of the 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.

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 applicable edition of the CBC shall, at a minimum, be designed to comply with the requirements of that chapter.

Verification: At least 30 days (or project owner- and CBO-approved alternate 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 the CBO-approved master drawing and master specifications list. 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.

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, 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);
- NACE R.P. 0169-83;
- NACE R.P. 0187-87;
- NFPA 56;
- Title 24, California Code of Regulations, Part 5 (California Plumbing Code);
- Title 24, California Code of Regulations, Part 6 (California Energy Code, for building energy conservation systems and temperature control and ventilation systems);
- Title 24, California Code of Regulations, Part 2 (California Building Code); and
- City of Long Beach codes.

The CBO may deputize inspectors to carry out the functions of the code enforcement agency.

Verification: At least 30 days (or project owner- and CBO-approved alternative time frame) prior to the start of any increment of major piping or plumbing construction listed in the CBO-approved master drawing and master specifications list, 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.

The project owner shall:

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

Verification: At least 30 days (or project owner- and CBO-approved alternative 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.

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

ELEC-1 Prior to the start of any increment of electrical construction for all electrical equipment and systems 110 Volts or higher (see a representative list, below) the project owner shall submit, for CBO design review and approval, the proposed final design, specifications, and calculations. Upon approval, the above listed plans, together with design changes and design change notices, shall remain on the site or at another accessible location for the operating life of the project. The project owner shall request that the CBO inspect the installation to ensure compliance with the requirements of applicable LORS.

A. Final plant design plans shall include:

1. one-line diagram for the 13.8 kV, 4.16 kV and 110/480 V systems;
2. system grounding drawings;
3. lightning protection system; and
4. hazard area classification plan.

B. Final plant calculations must establish:

1. short-circuit ratings of plant equipment;
2. ampacity of feeder cables;
3. voltage drop in feeder cables;

4. system grounding requirements;
 5. coordination study calculations for fuses, circuit breakers and protective relay settings for the 13.8 kV, 4.16 kV and 110/480 V systems;
 6. system grounding requirements;
 7. lighting energy calculations; and
 8. 110 volt system design calculations and submittals showing feeder sizing, transformer and panel load confirmation, fixture schedules and layout plans.
- C. The following activities shall be reported to the CPM in the monthly compliance report:
1. Receipt or delay of major electrical equipment;
 2. Testing or energizing of major electrical equipment; and
 3. A signed statement by the registered electrical engineer certifying that the proposed final design plans and specifications conform to requirements set forth in the Energy Commission decision.

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

POWER PLANT EFFICIENCY CONDITIONS OF CERTIFICATION

There are no conditions of certifications for **POWER PLANT EFFICIENCY**.

POWER PLANT RELIABILITY CONDITIONS OF CERTIFICATION

There are no conditions of certification for **POWER PLANT RELIABILITY**.

TRANSMISSION SYSTEM ENGINEERING CONDITIONS OF CERTIFICATION

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

Verification: Prior to the start of transmission facilities 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 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: 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-3 The project owner shall ensure that the design, construction, and operation of the proposed transmission facilities will conform to all applicable LORS, and the requirements listed below. The project owner shall submit the required number of copies of the design drawings and calculations, as determined by the CBO.

Once approved, the project owner shall inform the CPM and CBO of any anticipated changes to the design, and shall submit a detailed description of the proposed change and complete engineering, environmental, and economic rationale for the change to the CPM and CBO for review and approval.

- A. The power plant switchyard and outlet line shall meet or exceed the electrical, mechanical, civil, and structural requirements of CPUC General Order 95 or National Electric Safety Code (NESC); Title 8 of the California Code and Regulations (Title 8); Articles 35, 36 and 37 of the *High Voltage Electric Safety Orders*, California ISO standards, National Electric Code (NEC) and related industry standards.
- B. All components, including breakers and busses in the power plant switchyard and other switchyards, where applicable, shall be sized 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 and all components like buses, Breakers, and Transformers etc. shall be sized to accommodate the full output of the project.
- E. Termination facilities shall comply with industry standards and applicable SCE interconnection standards.
- F. The project owner shall provide the following for all seven AEC units to the CPM.
 - 1. The Special Protection System (SPS) sequencing and timing if applicable,

2. The pre-LGIA California ISO final interconnection analysis report including *the California ISO exemption analysis* in accordance with the section 25.1.2 of their Tariff and any SCE analysis report including the short circuit study report.
3. The electrical one-line diagrams for two AEC switchyards with all updates for generator ratings, including final percentage impedances of the GSU transformers.
4. The electrical one-line diagram of the SCE Alamitos Switchyard West and East 230 kV buses, with all updates including configuration of buses and circuit breakers with associated disconnect switches, including their types and/or ampere ratings and leveled transmission outlets, considering decommissioning and disconnection of all the existing AGS generator units.
5. The operational study report(s) based on in-service dates or current commercial operation dates (CODs) system conditions from the California ISO and/or SCE.
6. A copy of the executed LGIA (s) signed by the California ISO and the project owner, and approved by the Federal Energy Regulatory Commission.

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

- A. Design drawings, specifications, and calculations conforming with CPUC General Order 95 or National Electric Safety Code (NESC); Title 8 of the California Code of Regulations (Title 8); Articles 35, 36 and 37 of the *High Voltage Electric Safety Orders*, CA ISO standards, National Electric Code (NEC) and related industry standards, for the poles/towers, foundations, anchor bolts, conductors, grounding systems, and major switchyard equipment;
- B. For each element of the transmission facilities identified above, the submittal package to the CBO shall contain the design criteria, a discussion of the calculation method(s), a sample calculation based on “worst-case conditions”¹ and a statement signed and sealed by the registered engineer in responsible charge, or other acceptable alternative verification, that the transmission element(s) will conform with CPUC General Order 95 or National Electric Safety Code (NESC); Title 8 of the California Code and Regulations (Title 8); Articles 35, 36 and 37 of the *High Voltage Electric Safety Orders*, California ISO standards, National Electric Code (NEC), and related industry standards;

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

- C. Electrical one-line diagrams signed and sealed by the registered professional electrical engineer in charge, a route map, and an engineering description of the equipment and configurations covered by requirements **TSE-3** a) through f);
- D. The project owner shall provide the following for all four AEC generator units to the CBO for approval:
 - 1. The Special Protection System (SPS) sequencing and timing if applicable,
 - 2. The pre-LGIA California ISO final interconnection analysis report including the California ISO exemption analysis in accordance with the section 25.1.2 of their Tariff and any SCE analysis report including the short circuit study report.
 - 3. The electrical one-line diagrams for two AEC switchyards with all updates including final percentage impedances of the GSU transformers.
 - 4. The electrical one-line diagram of the SCE Alamitos Switchyard West and East 230 kV buses, with all updates including configuration of buses and circuit breakers with associated disconnect switches including their types and/or ampere ratings and leveled transmission outlets, considering decommissioning and disconnection of all the existing AGS generator units.
 - 5. A copy of the executed LGIA(s) signed by the California ISO and the project owner, and approved by the Federal Energy Regulatory Commission.
 - 6. The operational study report(s) based on in-service dates or current commercial operation dates (CODs) system conditions from the California ISO and/or SCE.

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

TSE-4 The project owner shall provide the following notice to the California Independent System Operator (California ISO) prior to synchronizing the facility with the California transmission system:

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

Verification: The project owner shall provide copies of the California ISO letter to the CPM when it is sent to the California ISO one week prior to initial synchronization with

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

TSE-5 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.

TRANSMISSION LINE SAFETY AND NUISANCE CONDITIONS OF CERTIFICATION

TLSN-1 The project owner shall construct the proposed 230-kV transmission lines according to the requirements of California Public Utility Commission's GO-95, GO-52, GO-131-D, Title 8, and Group 2, High Voltage Electrical Safety Orders, sections 2700 through 2974 of the California Code of Regulations, and Southern California Edison's EMF reduction guidelines.

Verification: At least 30 days prior to start of construction of the transmission lines or related structures and facilities, the project owner shall submit to the compliance project manager (CPM) a letter signed by a California registered electrical engineer affirming that the lines will be constructed according to the requirements stated in the condition.

TLSN-2 The project owner shall ensure that the route of the proposed transmission line is kept free of combustible material, as required under the provisions of GO-95 and section 1250 of Title 14 of the California Code of Regulations.

Verification: During the first five (5) years of plant operation, the project owner shall provide a summary of inspection results and any fire prevention activities carried out along the proposed route and provide such summaries in the Annual Compliance Report on transmission line safety and nuisance-related requirements.

TLSN-3 The project owner shall ensure that all permanent metallic objects within the proposed route are grounded according to industry standards.

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

GREENHOUSE GAS EMISSIONS CONDITIONS OF CERTIFICATION

GHG-1 DELETED.

AIR QUALITY CONDITIONS OF CERTIFICATION

The air quality conditions of certification are divided into two sections; staff recommended conditions of certification and the SCAQMD FDOC conditions. Staff conditions are additional conditions of certification recommended to provide CEQA mitigation for the project. The proposed staff recommended conditions of certification are identified as the **AQ-SCx** series of conditions.

The SCAQMD has a unique system of structuring and numbering permit conditions. In order for the reader to avoid confusion between the SCAQMD numbering and Energy Commission numbering, **Air Quality Table 55** cross references the conditions in the SCAQMD FDOC to the conditions in the FSA as proposed.

Air Quality Table 55
SCAQMD Permit Conditions with Corresponding Energy Commission
Conditions of Certification

SCAQMD Permit Conditions	Energy Commission Condition of Certification	Condition Description
Facility Conditions		
F2.1	AQ-F1	Annual emission limit for PM _{2.5} . Includes equation and emission factors. Semi-annual Title V report shall include monthly compliance demonstrations.
F9.1	AQ-F2	Exhaust opacity limits.
F18.1	AQ-F3	Acid Rain SO ₂ allocations for existing boilers.
F24.1	AQ-F4	Accidental release prevention requirements. (existing)
F52.1	AQ-F5	Requires a retirement plan for the permanent shutdown of the existing boilers #1, 2, 3 and 6.
F52.2	AQ-F6	Provides specifications for SF ₆ circuit breakers including a maximum leakage rate of 0.5 percent by weight. Requires circuit breakers to include a 10% by weight leak detections system. Leakage shall be calculated on an annual basis.
Combined-Cycle Gas Turbine Generators		
A63.2	AQ-A1	Monthly and annual contaminant emission limits (CO, VOC, PM ₁₀ , & SO _x). Includes emissions calculations equations and emission factors for commissioning and normal operation.
A99.1	AQ-A4	Establishes a NO _x emission factor (16.66 lbs/mmscf) during the commissioning period for RECLAIM reporting. Records of natural gas are required for compliance.
A99.2	AQ-A5	Establishes a NO _x emission factor (8.35 lbs/mmscf) during the interim period after commissioning but prior to CEMS certification. Records of natural gas are required for compliance.
A195.8	AQ-A9	NO _x emission limit of 2.0 ppmv @ 15% O ₂ averaged over 1-hour. Does not apply during commissioning startup, and shut down periods.

SCAQMD Permit Conditions	Energy Commission Condition of Certification	Condition Description
A195.9	AQ-A12	CO emission limit of 1.5 ppm @ 15% O ₂ averaged over 1-hour. Does not apply during commissioning startup, and shut down periods.
A195.10	AQ-A15	VOC emission limit of 2.0 ppm @ 15% O ₂ averaged over 1-hour. Does not apply during commissioning startup, and shut down periods.
A327.1	AQ-A18	Relief from emission limits, under Rule 475; project may violate either the mass emission limit or concentration emission limit, but not both at the same time.
B61.1	AQ-B1	Annual H ₂ S concentration limit of 0.25 grains/100 scf for natural gas.
C1.3	AQ-C1	Limits start-ups to 2 per day, 62 total per month (15 cold), and annually (80 cold, 500 total). Defines cold and non-coldstarts and establishes duration and emission limits.
C1.4	AQ-C2	Limits shutdowns to 62 total per month and 500 annually. Limits shutdown events to 30 minutes and establishes emission limits.
D29.2	AQ-D10	Requires initial source tests for NO _x , CO, SO _x , VOC, PM ₁₀ , PM _{2.5} and NH ₃ . Establishes testing methods and protocol requirements.
D29.3	AQ-D11	Requires source tests for specific pollutants (SO _x , VOC, and PM/PM ₁₀) once every three years. Establishes testing method and reporting requirements.
D82.1	AQ-D15	Requires the installation of CEMS for CO emissions.
D82.2	AQ-D16	Requires the installation of CEMS for NO _x emissions.
Combined-Cycle Gas Turbine Generators		
E74.1	AQ-E14	Requires the BACT/LAER determination to be reviewed prior to the commencement of Phase II construction (simple-cycle).
Simple-Cycle Turbines		
E74.1	AQ-E14	Requires the BACT/LAER determination to be reviewed prior to the commencement of Phase II construction (simple-cycle).
Auxiliary Boiler		
E74.1	AQ-E14	Requires the BACT/LAER determination to be reviewed prior to the commencement of Phase II construction (simple-cycle).
SCR/CO Catalyst for Combined-cycle		
E74.1	AQ-E14	Requires the BACT/LAER determination to be reviewed prior to the commencement of Phase II construction (simple-cycle).
SCR/CO Catalyst for Simple		
E74.1	AQ-E14	Requires the BACT/LAER determination to be reviewed prior to the commencement of Phase II construction (simple-cycle).

SCAQMD Permit Conditions	Energy Commission Condition of Certification	Condition Description
SCR for the Auxiliary Boiler		
E74.1	AQ-E14	Requires the BACT/LAER determination to be reviewed prior to the commencement of Phase II construction (simple-cycle).
Ammonia Storage Tanks		
E74.1	AQ-E14	Requires the BACT/LAER determination to be reviewed prior to the commencement of Phase II construction (simple-cycle).
Oil Water Separator		
E74.1	AQ-E14	Requires the BACT/LAER determination to be reviewed prior to the commencement of Phase II construction (simple-cycle).
E193.4	AQ-E1	Requires that the turbines are constructed, operated and maintained according to the mitigation measures stipulated in the Commission Decision.
E193.5	AQ-E2	The Permit to Construct expires one year from the date of issuance unless extended. Establishes construction timelines.
E193.8	AQ-E3	Limits commissioning to 996 hours for each turbine from the date of initial start-up. Only 216 of the 996 hours can be without emission control. The equipment shall only operate when vented to the CO oxidation catalyst and SCR system after commissioning.
E193.11	AQ-E6	Requires compliance with 40 CFR 60 Subpart TTTT. Establishes a 1000 lb/MW _{hr} (gross) CO ₂ emission limit if the turbine supplies more than 1,481,141 MWh-net electrical output for distribution on a 12 operating month and 3yr average.
E193.12	AQ-E7	Requires compliance with 40 CFR 60 Subpart TTTT. Limits CO ₂ emissions to 120 lbs/MMBtu if the turbine supplies less than 1,481,141 MWh-net electrical output for distribution on a 12 operating month and 3yr average.
E193.14	AQ-E9	Limits CO ₂ emissions to 610,480 tons per year. Establishes a CO ₂ emission rate of 937.88 lbs/gross megawatt hour on an annual basis. Includes emission equation and emission factor.
E448.1	AQ-E11	Limits total electric output from all the generators to 1094.7 MW-gross at 59 degree Fahrenheit. Establishes electrical output monitoring requirements.
I297.1, I297.2	AQ-I1	Prohibited from operation unless the project owner hold sufficient RTCs for the CTGs.
K40.4	AQ-K1	Source test reporting requirements.
Simple-Cycle Turbines		
A63.3	AQ-A2	Monthly and annual contaminant emission limits (CO, VOC, PM ₁₀ , & SO _x).Includes emissions calculations equations and emission factors for commissioning and normal operation.
A99.3	AQ- A6	Establishes a NO _x emission factor (25.24 lbs/mmscf) during the

SCAQMD Permit Conditions	Energy Commission Condition of Certification	Condition Description
		commissioning period for RECLAIM reporting. Records of natural gas are required for compliance.
A99.4	AQ- A7	Establishes a NOx emission factor (11.21 lbs/mmscf) during the interim period after commissioning but prior to CEMS certification. Records of natural gas are required for compliance.
A195.11	AQ- A10	NOx emission limit of 2.5 ppm @ 15% O ₂ averaged over 1-hour. Does not apply during commissioning startup, and shut down periods.
A195.17	AQ- A13	CO emission limit of 2.0 ppm @ 15% O ₂ averaged over 1-hour. Does not apply during commissioning startup, and shut down periods.
A195.10	AQ- A15	VOC emission limit of 2.0 ppm @ 15% O ₂ averaged over 1-hour. Does not apply during commissioning startup, and shut down periods.
A327.1	AQ- A18	Relief from emission limits, under Rule 475; project may violate either the mass emission limit or concentration emission limit, but not both at the same time.
B61.1	AQ-B1	Annual H ₂ S concentration limit of 0.25 grains/100 scf for natural gas.
C1.5	AQ-C3	Limits start-ups to 2 per day, 62 total per month, and 500 annually. Establishes duration and emission limits.
C1.6	AQ- C4	Limits shutdowns to 62 total per month and 500 annually. Limits shutdown events to 13 minutes and establishes emission limits.
D29.2	AQ-D10	Requires initial source tests for NOx, CO, SOx, VOC, PM ₁₀ , PM _{2.5} and NH ₃ . Establishes testing methods and protocol requirements.
D29.3	AQ-D11	Requires source tests for specific pollutants (SOx, VOC, and PM/PM ₁₀) once every three years. Establishes testing method and reporting requirements.
D82.1	AQ-D15	Requires the installation of CEMS for CO emissions.
D82.2	AQ-D16	Requires the installation of CEMS for NOx emissions.
E73.2	AQ-E14	E73.2 AQ-E14 Requires the BACT/LAER determination to be reviewed prior to the commencement of Phase II construction (simple-cycle).
E193.4	AQ-E1	Requires that the turbines are constructed, operated and maintained according to the mitigation measures stipulated in the Commission Decision.
E193.5	AQ-E2	The Permit to Construct expires one year from the date of issuance unless extended. Establishes construction timelines.
E193.9	AQ-E4	Limits commissioning to 280 hours for each turbine from the date of initial start-up. Only 4 of the 280 hours can be without emission control. The equipment shall only operate when vented to the CO oxidation catalyst and SCR system after commissioning.

SCAQMD Permit Conditions	Energy Commission Condition of Certification	Condition Description
E193.13	AQ- E8	Requires compliance with 40 CFR 60 Subpart TTTT. Limits CO ₂ emissions to 120 lbs/MMBtu..
E193.15	AQ- E10	Limits CO ₂ emissions to 120,765 tons per year. Establishes a CO ₂ emission limit of 1,356.03 lbs/gross megawatt hour on an annual basis. Includes emission equation and emission factor.
E448.1	AQ- E11	Limits total electric output from all the generators to 1094.7 MW-gross at 59 degree Fahrenheit. Establishes electrical output monitoring requirements.
I297.3-6	AQ-I2	Prohibited from operation unless the project owner hold sufficient RTCs for the simple turbines..
K40.4	AQ-K1	Source test reporting requirements.
Auxiliary Boiler		
A63.4	AQ-A3	Monthly and annual contaminant emission limits (CO, VOC, PM10, & SOx).Includes emissions calculations equations and emission factors for commissioning and normal operation.
A99.5	AQ-A8	Establishes a NOx emission factor (38.46 lbs/mmescf) during the commissioning period for RECLAIM reporting. Records of natural gas are required for compliance.
A195.13	AQ-A11	NOx emission limit of 5.0 ppm @ 3% O ₂ averaged over 1-hour. Does not apply during commissioning startup, and shut down periods.
A195.14	AQ-A14	CO emission limit of 50 ppm @ 3% O ₂ averaged over 1-hour. Does not apply during commissioning startup, and shut down periods.
C1.7	AQ-C5	Limits start-ups to 1 per day, 10 total per month (2 cold, 4 warm, 4 hot), and annually (24 cold, 48 warm and 48 hot). Defines cold, warm and hot starts and establishes duration and emission limits.
D29.5	AQ-D13	Requires initial source tests for NOx, CO, SOx, VOC, PM10, PM2.5 and NH ₃ . Establishes testing methods and protocol requirements.
D29.6	AQ-D14	Requires source test for CO at full load according to testing frequency requirements in Rule 1146. Establishes testing method and reporting requirements.
D82.3	AQ-D17	Requires the installation of CEMS for NOx emissions and establishes requirements for CEMS plan.
E73.2	AQ-E14	Requires the BACT/LAER determination to be reviewed prior to the commencement of Phase II construction (simple-cycle).
E193.4	AQ-E1	Requires that the equipment is constructed, operated and maintained according to the mitigation measures stipulated in the Commission Decision.
E193.5	AQ-E2	The Permit to Construct expires one year from the date of issuance

SCAQMD Permit Conditions	Energy Commission Condition of Certification	Condition Description
		unless extended. Establishes construction timelines.
E193.10	AQ-E5	Limits commissioning to 30 hours from the date of initial start-up. The equipment shall only operate when vented to the SCR system after commissioning.
H23.7	AQ-H1	Establishes CO requirements according to Rule 1146.
I297.7	AQ-I3	Prohibited from operation unless the project owner hold sufficient RTCs for the boiler.
K40.5	AQ-K2	Source test reporting requirements.
SCR/CO Catalyst for Combined-cycle		
A195.15	AQ-A16	Establishes the 5.0 ppm ammonia slip limit. Requires a NOx analyzer.
D12.9	AQ-D1	Requires a flow meter for the ammonia injection and maintain continuous record. Requires ammonia injection between 44 and 242 pounds per hour.
D12.10	AQ-D2	Requires a temperature gauge at the SCR inlet and maintain continuous record. Requires temperature be maintained between 570 and 692 degree Fahrenheit.
D12.11	AQ-D3	Requires a pressure gauge to measure the differential pressure across the SCR grid and maintain continuous record. Limits the pressure differential to 1.6 inches water column.
D29.4	AQ-D12	Requires initial, quarterly for the first year, and then annual source tests for NH ₃ . Establishes testing methods and protocol requirements.
E73.2	AQ-E14	Requires the BACT/LAER determination to be reviewed prior to the commencement of Phase II construction (simple-cycle).
E193.4	AQ-E1	Requires that the equipment is constructed, operated and maintained according to the mitigation measures stipulated in the Commission Decision.
E193.5	AQ-E2	The Permit to Construct expires one year from the date of issuance unless extended. Establishes construction timelines.
SCR/CO Catalyst for Simple		
A195.15	AQ-A16	Establishes the 5.0 ppm ammonia slip limit. Requires a NOx analyzer.
D12.12	AQ-D4	Requires a flow meter for the ammonia injection and maintain continuous record. Requires ammonia injection between 110 and 180 pounds per hour.
D12.13	AQ-D5	Requires a temperature gauge at the SCR inlet and maintain continuous record. Requires temperature be maintained between 500 and 870 degrees Fahrenheit.

SCAQMD Permit Conditions	Energy Commission Condition of Certification	Condition Description
D12.14	AQ-D6	Requires a pressure gauge to measure the differential pressure across the SCR grid and maintain continuous record. Limits the pressure differential to 3.0 inches water column.
D29.4	AQ-D12	Requires initial, quarterly for the first year, and then annual source tests for NH ₃ . Establishes testing methods and protocol requirements.
E73.2	AQ-E14	Requires the BACT/LAER determination to be reviewed prior to the commencement of Phase II construction. (simple-cycle).
E193.4	AQ-E1	Requires that the equipment is constructed, operated and maintained according to the mitigation measures stipulated in the Commission Decision.
E193.5	AQ-E2	The Permit to Construct expires one year from the date of issuance unless extended. Establishes construction timelines.
SCR for the Auxiliary Boiler		
A195.16	AQ-A17	Establishes the 5.0 ppm ammonia slip limit. Requires a NOx analyzer.
D12.15	AQ-D7	Requires a flow meter for the ammonia injection and maintain continuous record. Requires ammonia injection between 0.3 and 1.1 pounds per hour.
D12.16	AQ-D8	Requires a temperature gauge at the SCR inlet and maintain continuous record. Requires temperature be maintained between 415 and 628 degrees Fahrenheit.
D12.17	AQ-D9	Requires a pressure gauge to measure the differential pressure across the SCR grid and maintain continuous record. Limits the pressure differential to 2.0 inches water column.
D29.4	AQ-D12	Requires initial, quarterly for the first year, and then annual source tests for NH ₃ . Establishes testing methods and protocol requirements.
E73.2	AQ-E14	Requires the BACT/LAER determination to be reviewed prior to the commencement of Phase II construction. (simple-cycle).
E193.4	AQ-E1	Requires that the equipment is constructed, operated and maintained according to the mitigation measures stipulated in the Commission Decision.
E193.5	AQ-E2	The Permit to Construct expires one year from the date of issuance unless extended. Establishes construction timelines.
Ammonia Storage Tanks		
C157.1	AQ-C6	Requires the installation of a pressure relief valve maintained at 50 psig.
E73.2	AQ-E14	Requires the BACT/LAER determination to be reviewed prior to the

SCAQMD Permit Conditions	Energy Commission Condition of Certification	Condition Description
		commencement of Phase II construction. (simple-cycle).
E144.1	AQ-E12	Requires venting of the storage tank during filling only to the vessel from which it is being filled.
E193.4	AQ-E1	Requires that the ammonia storage tank be operated according to the mitigation measures stipulated in the Commission Decision.
E193.5	AQ-E2	The Permit to Construct expires one year from the date of issuance unless extended. Establishes construction timelines.
Oil Water Separator		
E73.2	AQ-E14	Requires the BACT/LAER determination to be reviewed prior to the commencement of Phase II construction. (simple-cycle).
E193.16	AQ-E13	Requires that the oil water separator be equipped with a fixed cover to minimize VOC emissions.
E193.4	AQ-E1	Requires that the oil water separator be operated according to the mitigation measures stipulated in the Commission Decision.
E193.5	AQ-E2	The Permit to Construct expires one year from the date of issuance unless extended. Establishes construction timelines.

AQ-SC1 Air Quality Construction/Demolition Mitigation Manager (AQCMM): The project owner shall designate and have on-site during construction/demolition activities an AQCMM who shall be responsible for directing and documenting compliance with AQ-SC3, AQ-SC4, and AQ-SC5 for the entire project site and linear facility construction/demolition. The project owner may elect to assign one or more alternate AQCMM as well. 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/demolition activities as warranted by applicable construction/demolition mitigation conditions. The AQCMM and AQCMM Delegates may have other responsibilities in addition to those described in this condition.

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 first on-site AQCMM to be assigned and all AQCMM Delegates. The AQCMM and all Delegates must be approved by the CPM before the start of ground disturbance. An AQCMM could be replaced after ground disturbance if the replacement AQCMM has been approved by the CPM.

AQ-SC2 Air Quality Construction/Demolition Mitigation Plan (AQCMP): The project owner shall provide an AQCMP, for approval, which details the steps that will be taken and the reporting requirements necessary to ensure compliance with AQ-SC3, AQ-SC4, 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 and the South Coast Air Quality Management District (District). The District will notify the project owner of any necessary modifications to the plan within 30 days from the date of receipt. The AQCP must be approved by the CPM before the start of ground disturbance.

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

- A. All unpaved roads and disturbed areas in the project and linear construction sites shall be watered as frequently as necessary to comply with the dust mitigation objectives of Condition of Certification **AQ-SC4**. The frequency of watering can be reduced or eliminated during periods of precipitation.
- B. No vehicle shall exceed 10 miles per hour on unpaved areas within the construction site, with the exception that vehicles may travel up to 25 miles per hour on stabilized unpaved roads as long as such speeds do not create visible dust emissions.
- C. Visible speed limit signs shall be posted at the construction site entrances.
- D. All construction equipment vehicle tires shall be inspected and washed as necessary to be cleaned free of dirt prior to entering paved roadways.
- E. Gravel ramps of at least 20 feet in length must be provided at the tire washing/cleaning station.
- F. All unpaved exits from the construction site shall be graveled or treated to prevent track-out to public roadways.
- G. All construction vehicles shall enter the construction site through the treated entrance roadways, unless an alternative route has been submitted to and approved by the CPM.

- H. Construction areas adjacent to any paved roadway shall be provided with sandbags or other similar measures as specified in the Storm Water Pollution Prevention Plan (SWPP) 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 paved public roadway exiting the construction site or exiting other unpaved roads en route from the construction site or construction staging areas shall be swept at least twice daily (or less during periods of precipitation) on days when construction activity occurs or on any other day when dirt or runoff resulting from the construction site activities is visible on the public roadways.
- K. All soil storage piles and disturbed areas that remain inactive for longer than ten days shall be covered, or shall be treated with appropriate dust suppressant compounds.
- L. All vehicles that are used to transport solid bulk material on public roadways and that have potential to cause visible emissions shall be covered, 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.

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

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

AQ-SC4 Dust Plume Response Requirement: The AQCMM or 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, (2) 200 feet beyond the centerline of the construction of linear facilities, or (3) within 100 feet upwind of any regularly occupied structures not owned by the project owner indicate that existing mitigation measures are not resulting in effective mitigation. The AQCMP shall include a section detailing how the additional mitigation measures will be accomplished within the time limits specified. The AQCMM or Delegate shall implement the following procedures for additional mitigation measures in the event that such visible dust plumes are observed:

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

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

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

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

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

AQ-SC5 Diesel-Fueled Engine Control: The AQCMM shall submit to the CPM, in the MCR, a construction mitigation report that demonstrates compliance with the following mitigation measures for purposes of controlling diesel

construction-related emissions. Any deviation from the following mitigation measures shall require prior CPM notification and approval.

- A. All diesel-fueled engines used in the construction of the facility shall have clearly visible tags issued by the on-site AQCMM showing that the engine meets the conditions set forth herein.
- B. All construction diesel engines with a rating of 50 hp or higher shall meet, at a minimum, the Tier 4 or 4i California Emission Standards for Off-Road Compression-Ignition Engines, as specified in California Code of Regulations, Title 13, section 2423(b)(1), unless a good faith effort to the satisfaction of the CPM that is certified by the on-site AQCMM demonstrates that such engine is not available for a particular item of equipment. This good faith effort shall be documented with signed written correspondence by the appropriate construction contractors along with documented correspondence with at least two construction equipment rental firms. In the event that a Tier 4 or 4i engine is not available for any off-road equipment larger than 50 hp, that equipment shall be equipped with a Tier 3 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 3 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 3 equivalent emission levels and the highest level of available control using retrofit or Tier 2 engines is being used for the engine in question; or
 - 2. The construction equipment is intended to be on site for 10 working 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 AQCM shall include in a table in the MCR the following to demonstrate control of diesel construction-related emissions:

1. A summary of all actions taken to maintain compliance with this condition,
2. A list of all heavy equipment used on site during that month, including the owner of that equipment and a letter from each owner indicating that equipment has been properly maintained, and
3. Any other documentation deemed necessary by the CPM and AQCM to verify compliance with this condition. Such information may be provided via electronic format or disk at the project owner's discretion.

AQ-SC6 The project owner shall provide the CPM copies of any District-issued project air permit for the facility. The project owner shall submit to the CPM for review and approval any modification proposed by the project

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

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

AQ-SC7 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 state that the facility meets all applicable Conditions of Certification or note or highlight all 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-SC8 The project owner shall provide mitigation in the form of offsets or emission reduction credits (ERCs) in the quantities of at least 4.08 lbs/day of VOC, 1.27 lbs per day of SO_x, and 4.54 lbs/day of PM₁₀ emissions for the auxiliary boiler and 1 lb/day of VOC emissions for the oil/water separators. The project owner shall demonstrate that the reductions are provided in the form required by the District.

The project owner shall provide an ERC list and surrender the ERCs as required by the District. The project owner shall request CPM approval for any substitutions, modifications, or additions to the ERCs.

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

Verification: The project owner shall submit any project air permit and any proposed air permit modification to the CPM within five working days of its submittal either by 1) the project owner to an agency, or 2) receipt of proposed modifications from an agency. The project owner shall submit all modified air permits to the CPM within 15 days of receipt, including records showing that the project's offset requirements have been met

prior to initiating construction. If the CPM approves a substitution or modification to the list of ERCs, the CPM shall file a statement of the approval with the project owner and Energy Commission docket. The CPM shall maintain an updated list of approved ERCs for the project.

AQ-SC9 The project owner shall complete the auxiliary boiler commissioning prior to the commissioning of the combined-cycle gas turbines (CCGT-1 and CCGT-2).

Verification: The project owner shall identify the start and conclusion of the work phases described above in the Monthly Compliance Reports and/or Quarterly Operational reports.

AQ-SC10 The project owner shall complete the combined-cycle turbine (CCGT-1 and CCGT-2) commissioning prior to the commissioning of the simple-cycle gas turbines (SCGT-1, SCGT-2, SCGT-3 and SCGT-4).

Verification: The project owner shall identify the start and conclusion of the work phases described above in the Monthly Compliance Reports and/or Quarterly Operational reports.

AQ-SC11 The project owner shall comply with all staff (AQ SC) and district (AQ) Conditions of Certification. The CPM, in consultation with the District, may approve any change to a Condition of Certification regarding air quality, as a staff approved modification, provided that: (1) the Project remains in compliance with all applicable laws, ordinances, regulations, and standards, (2) the requested change clearly will not cause the Project to result in a significant environmental impact, (3) no additional mitigation or offsets will be required as a result of the change, (4) no existing daily, quarterly, or annual permit limit will be exceeded as a result of the change, and (5) no increase in any daily, quarterly, or annual permit limit will be necessary as a result of the change.

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

DISTRICT'S PERMITTED EQUIPMENT AND CONDITIONS

Equipment

ID No.	Equipment Descriptions
AEC CCGT Power Block	
Combined-cycle Gas Turbine 1 (CCGT-1)	
D165	CCGT-1 General Electric Model 7FA.05, natural gas combined-cycle, 236.645 MW at 28 degrees Fahrenheit, with a Heat Recovery Steam Generator and 219.615 MW Steam Turbine Generator (common with HRSG CCGT-2)
C169	CCGT-1 CO Oxidation Catalyst
C170	CCGT-1 Selective Catalytic Reduction with aqueous ammonia
S172	CCGT-1 Turbine Stack, height of 140 feet and diameter of 20 feet
Combined-cycle Gas Turbine 2 (CCGT-2)	
D173	CCGT-2 General Electric Model 7FA.05, natural gas combined-cycle, 236.645 MW at 28 degrees Fahrenheit, with a Heat Recovery Steam Generator and 219.615 MW Steam Turbine Generator (common with HRSG CCGT-1)
C177	CCGT-2 CO Oxidation Catalyst
C178	CCGT-2 Selective Catalytic Reduction with aqueous ammonia
S180	CCGT-2 Turbine Stack, height of 140 feet and diameter of 20 feet
Auxiliary Boiler	
D181	70.8 MMBtu/hr Babcock and Wilcox Model FM 103-88 natural gas boiler
C183	Auxiliary Boiler Selective Catalytic Reduction with aqueous ammonia
S211	Auxiliary Boiler Stack, height of 80 feet and diameter of 3 feet
AEC SCGT Power Block	
Simple Gas Turbine 1 (SCGT-1)	
D185	SCGT-1 General Electric Model LMS-100PB, natural gas simple-cycle, 100.438 MW at 59 degrees Fahrenheit
C187	SCGT-1 CO Oxidation Catalyst
C188	SCGT-1 Selective Catalytic Reduction with aqueous ammonia
S180	SCGT-1 Turbine Stack, height of 80 feet and diameter of 13.5 feet
Simple Gas Turbine 2 (SCGT-2)	
D191	SCGT-2 General Electric Model LMS-100PB, natural gas simple-cycle, 100.438 MW at 59 degrees Fahrenheit
C193	SCGT-2 CO Oxidation Catalyst
C194	SCGT-2 Selective Catalytic Reduction with aqueous ammonia
S196	SCGT-2 Turbine Stack, height of 80 feet and diameter of 13.5 feet
Simple Gas Turbine 3 (SCGT-3)	
D197	SCGT-3 General Electric Model LMS-100PB, natural gas simple-cycle, 100.438 MW at 59 degrees Fahrenheit
C199	SCGT-3 CO Oxidation Catalyst
C200	SCGT-3 Selective Catalytic Reduction with aqueous ammonia
S202	SCGT-3 Turbine Stack, height of 80 feet and diameter of 13.5 feet
Simple Gas Turbine 4 (SCGT-4)	
D203	SCGT-4 General Electric Model LMS-100PB, natural gas simple-cycle, 100.438 MW at 59 degrees Fahrenheit
C205	SCGT-4 CO Oxidation Catalyst
C206	SCGT-4 Selective Catalytic Reduction with aqueous ammonia
S208	SCGT-4 Turbine Stack, height of 80 feet and diameter of 13.5 feet

Supporting Equipment	
Oil/Water Separation	
D209	OWS-1 Storage Tank, 5,000 gallon serving CCGT
D210	OWS-2 Storage Tank, 5,000 gallon serving SCGT
Inorganic Chemical Storage	
D163	Tank-1 Storage Tank 40,000 gallons serving the CCGT
D164	Tank-2 Storage Tank 40,000 gallons serving the SCGT

The following conditions were developed by the SCAQMD and are obtained from the FDOC.

The following SCAQMD-conditions AQ-F1 to AQ-F6 are facility wide conditions that apply to each unit of equipment and the AEC facility as a whole.

AQ-F1 The project owner shall limit emissions from this facility as follows:

CONTAMINANT	EMISSIONS LIMIT
PM 2.5	Less than 100 tons in any one year

The project owner shall not operate any of the Boilers Nos. 1, 2, 3, 4, 5, 6 (Devices D39, D42, D45, D48, D51, D3, respectively), Combined-Cycle Turbines Nos. CCGT-1 and CCGT-2 (Devices D165 and D173, respectively), Auxiliary Boiler (Device D181), or Simple-Cycle Turbines Nos. SCGT-1, SCGT-2, SCGT-3, and SCGT-4 (Devices D185, D191, D197, and D203 respectively) unless compliance with the annual emission limit for PM2.5 is demonstrated.

Compliance with the annual emission limit shall be based on a 12-month rolling average basis. The project owner shall calculate the PM2.5 emissions for the facility by summing the PM2.5 emissions for each of the sources by using the equation below.

Facility PM2.5, tons/year = (FF1*EF1 + FF2*EF2 + FF3*EF3 + FF4*EF4 + FF5*EF5 + FF6*EF6 + FF7*EF7 + FF8*EF8 + FF9*EF9 + FF10*EF10 + FF11*EF11+ FF12*EF12 + FF13*EF13)/2000

Equipment Monthly Fuel Usage (mmscf))	Emission Factor (lb/mmscf)
Existing Boilers	
FF1 = Boiler No. 1	EF1 = 1.19
FF2 = Boiler No. 2	EF2 = 1.19
FF3 = Boiler No. 3	EF3 = 1.19
FF4 = Boiler No. 4	EF4 = 1.19
FF5 = Boiler No. 5	EF5 = 1.19
FF6 = Boiler No. 6	EF6 = 1.19
Combined-Cycle Turbines	
FF7 = No. CCGT-1	EF7 = 3.92
FF8 = No. CCGT-2	EF8 = 3.92
Auxiliary Boiler	

FF9 = Auxiliary Boiler	EF9 = 7.42
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Simple-Cycle Turbines	
FF10 = Turbine No. SCGT-1	EF10 = 7.44
FF11 = Turbine No. SCGT-2	EF11 = 7.44
FF12 = Turbine No. SCGT-3	EF12 = 7.44
FF13 = Turbine No. SCGT-4	EF13 = 7.44

Any changes to these emission factors must be approved in advance by the SCAQMD in writing and be based on unit specific source tests performed using SCAQMD-approved testing protocol.

AES Alamitos, LLC shall submit written reports of the monthly PM_{2.5} compliance demonstration required by this condition. The report submittal shall be included with the semi-annual Title V report as required under Rule 3004(a)(4)(f). Records of the monthly PM_{2.5} compliance demonstration shall be maintained on site for at least five years and made available upon SCAQMD request.

For the purpose of this condition, any one year shall be defined as a period of twelve (12) consecutive months determined on a rolling basis with a new 12-month period beginning on the first day of each calendar month.

[Rule 1325]

Verification: The project owner shall submit to the CPM the facility annual operating and emissions data demonstrating compliance with this condition as part of the fourth quarter Quarterly Operation Report (**AQ-SC7**).

AQ-F2 Except for open abrasive blasting operations, the project owner shall not discharge into the atmosphere from any single source of emissions whatsoever any air contaminant for a period or periods aggregating more than three minutes in any one hour which is:

- A. As dark or darker in shade as that designated No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines; or
- B. Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in subparagraph (a) of this condition.

[RULE 401]

Verification: The project owner shall make the site available for inspection by representatives of the District, California Air Resources Board (ARB), the United States

Environmental Protection Agency (U.S. EPA) and the California Energy Commission (Energy Commission).

AQ-F3 Acid Rain SO₂ Allowance Allocations for affected units are as follows:

Device ID	Boiler ID	Contaminant	Tons in any year
39	Unit 1	SO ₂	2,703
42	Unit 2	SO ₂	17
45	Unit 3	SO ₂	81
48	Unit 4	SO ₂	541
51	Unit 5	SO ₂	3,866
3	Unit 6	SO ₂	936

- A. The allowance allocations shall apply to calendar years 2010 and beyond.
- B. The number of allowances allocated to Phase II affected units by U.S. EPA may change in a 1998 revision to 40 CFR 73 Tables 2, 3 and 4. In addition, the number of allowances actually held by an affected source in a unit account may differ from the number allocated by U.S. EPA. Neither of the aforementioned conditions necessitate a revision to the unit SO₂ allowance allocation identified in this permit (see 40 CFR 72.84)

[40 CFR 73 Subpart B]

Verification: The project owner shall submit to the CPM the statement certifying compliance with this condition as part of the fourth quarter Quarterly Operation Report (AQ-SC7).

AQ-F4 Accidental release prevention requirements of Section 112(r)(7):

- A. The project owner shall comply with the accidental release prevention requirements pursuant to 40 CFR Part 68 and shall submit to the Executive Officer, as a part of an annual compliance certification, a statement that certifies compliance with all of the requirements of 40 CFR Part 68, including the registration and submission of a risk management plan (RMP).
- B. The project owner shall submit any additional relevant information requested by the Executive Officer or designated agency.

[RULE 40 CFR 68 – Accidental Release Prevention, 5-24-1996].

Note: This condition is applicable to the four existing ammonia tanks (Devices D19, D151, D152, and D153) in Section D, because they are permitted to contain 29 percent aqueous ammonia. This condition is not applicable to the two new ammonia tanks (Devices D163, D164) installed for the AEC project because they are permitted to contain 19 percent ammonia. Ongoing compliance with

this condition will not be required after the four existing tanks are removed from the facility.

Verification: The project owner shall submit to the CPM the statement certifying compliance with this condition as part of the fourth quarter Quarterly Operation Report (AQ-SC7).

AQ-F5 To utilize SCAQMD Rule 1304, the project owner shall perform the following as set forth in SCAQMD permit condition F 52.1:

The facility shall submit a detailed retirement plan for the permanent shutdown of Boilers Nos. 1, 2, 6 and 3 (Devices D39, D42, D3, and D45, respectively), describing in detail the steps and schedule that will be taken to render Boilers Nos. 1, 2, 6, and 3 permanently inoperable.

The retirement plan shall be submitted to SCAQMD within 60 days after Permits to Construct for Combined-Cycle Turbines Nos. CCGT-1 and CCGT-2 (Devices D165 and D173, respectively), common Steam Turbine Generator, and Simple-Cycle Turbines Nos. SCGT-1, SCGT-2, SCGT-3, and SCGT-4 (Devices D185, D191, D197, and D203 respectively) are issued.

AES shall not commence any construction of the Alamitos Energy Project including Gas Turbines Nos. CCGT-1, CCGT-2, SCGT-1, SCGT-2, SCGT-3, and SCGT-4, unless the retirement plan is approved in writing by SCAQMD. If SCAQMD notifies AES that the plan is not approvable, AES shall submit a revised plan addressing SCAQMD's concerns within 30 days.

Within 30 calendar days of actual shutdown but no later than December 29, 2019, AES shall provide SCAQMD with a notarized statement that Boilers Nos. 1, 2, and 6 are permanently shut down and that any re-start or operation of the boilers shall require new Permits to Construct and be subject to all requirements of Nonattainment New Source Review and the Prevention Of Significant Deterioration Program.

AES shall notify SCAQMD 30 days prior to the implementation of the approved retirement plan for permanent shutdown of Boilers Nos. 1, 2, and 6, or advise SCAQMD as soon as practicable should AES undertake permanent shutdown prior to December 29, 2019.

AES shall cease operation of Boilers Nos. 1, 2, and 6 within 90 calendar days of the first fire of Gas Turbines No. CCGT-1 or CCGT-2, or by December 29, 2019 whichever is earlier.

Within 30 calendar days of actual shutdown but no later than December 31, 2020, AES shall provide SCAQMD with a notarized statement that Boiler No. 3 is permanently shut down and that any re-start or operation of the boiler shall require a new Permit to Construct and be subject to all requirements of Nonattainment New Source Review and the Prevention Of Significant Deterioration Program.

AES shall notify SCAQMD 30 days prior to the implementation of the approved retirement plan for permanent shutdown of Boiler No. 3, or advise SCAQMD as soon as practicable should AES undertake permanent shutdown prior to December 31, 2020.

AES shall cease operation of Boiler No. 3 within 90 calendar days of the first fire of Gas Turbines No. SCGT-1, SCGT-2, SCGT-3, or SCGT-4, or by December 31, 2020, whichever is earliest.

[RULE 1304(a)—Modeling and Offset Exemption; RULE 1313(d)]

Verification: The project owner shall submit the retirement plan, and any modifications to the plan, to the CPM for approval within five working days of submittal to the SCAQMD. The project owner shall submit the written proof of SCAQMD approval of the retirement plan or any modification to the retirement plan within five working days of obtaining SCAQMD written approval. The project owner shall submit to the CPM the notarized statement that Boilers 1, 2, and 6 are permanently shut down within 30 days of actual shutdown but no later than December 29, 2019. The project owner shall submit to the CPM the notarized statement that Boiler 3 is permanently shut down within 30 days of actual shutdown but no later than December 31, 2020.

AQ-F6 The project owner is subject to the applicable requirements of the following rules or regulations(s):

For all circuit breakers at the facility utilizing SF6, including the circuit breakers serving Combined-Cycle Turbines Nos. CCGT-1 and CCGT-2; common Steam Turbine Generator; and Simple-Cycle Turbines Nos. SCGT-1, SCGT-2, SCGT-3, and SCGT-4, the project owner shall install, operate, and maintain enclosed-pressure SF6 circuit breakers with a maximum annual leakage rate of 0.5 percent by weight. The circuit breakers shall be equipped with a 10 percent by weight leak detection system.

The leak detection system shall be calibrated in accordance with manufacturer's specifications. The manufacturer's specifications and records of all calibrations shall be maintained on site.

The total CO₂e emissions from all circuit breakers shall not exceed 74.55 tons per calendar year.

The project owner shall calculate the SF6 emissions due to leakage from the circuit breakers by using the mass balance in equation DD-1 at 40 CFR Part 98, Subpart DD, on an annual basis.

The project owner shall maintain records to demonstrate compliance with this condition and shall make such records available to the Executive Officer upon request. The records shall be maintained for a minimum of 5 years in a manner approved by SCAQMD.

[RULE 1714]

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

Device Conditions

Emission Limits:

AQ-A1 The project owner shall limit emissions from this equipment as follows:

Contaminant	Range	Emissions Limit
Monthly Pounds in Any Calendar Month (lbs/month)		
CO	Less than or equal to	95,023 lbs/month
VOC	Less than or equal to	13,314 lbs/month
PM10	Less than or equal to	6,324 lbs/month
Sox	Less than or equal to	3,616 lbs/month
Annual Pounds in Any One Year (lbs/year)		
CO	Less than or equal to	180,544 (lbs./year)
VOC	Less than or equal to	52,668 (lbs./year)
PM10	Less than or equal to	39,440 (lbs./year)
Sox	Less than or equal to	7,435 (lbs./year)

For the purposes of this condition, the above emission limits shall be based on the emissions from a single turbine.

The turbine shall not commence with normal operation until the commissioning process has been completed. Normal operation commences when the turbine is able to supply electrical energy to the power grid as required under contract with the relevant entities. The SCAQMD shall be notified in writing once the commissioning process for each turbine is completed.

Normal operation may commence in the same calendar month as the completion of the commissioning process provided the turbine is in compliance with the above emission limits.

The project owner shall calculate the monthly emissions for CO, VOC, PM10, and SOx using the equation below.

Monthly Emissions, lb/month = (Monthly fuel usage in million standard cubic feet per month (mmscf/month)) * (Emission factors indicated below)

The following emission factors shall be used to demonstrate compliance with the monthly emission limits.

For commissioning, the emission factors shall be as follows: CO, 61.18 lb/mmescf; VOC, 8.86 lb/mmescf; PM10, 5.11 lb/mmescf; and SOx, 2.92 lb/mmescf.

For normal operation, the emission factors shall be as follows: CO, 15.28 lb/mmescf; VOC, 4.70 lb/mmescf; PM10, 3.92 lb/mmescf; and SOx, 2.24 lb/mmescf.

For a month during which both commissioning and normal operation take place the monthly emissions shall be the sum of the commissioning emissions and the normal operation emissions.

Compliance with the annual emission limits shall be based on a 12-operating month-rolling-average basis, following completion of the commissioning period.

The emission factors for the monthly emission limits shall be the same as the emission factors used to demonstrate compliance with the annual emission limits, except the annual emission factor for SOx is 0.75 lb/mmescf.

The project owner shall maintain records to demonstrate compliance with this condition and shall make such records available to the Executive Officer upon request. The records shall be maintained for a minimum of 5 years in a manner approved by SCAQMD. The records shall include, but not be limited to, natural gas usage in a calendar month and automated monthly and annual calculated emissions.

[RULE 1303(a)(1)-BACT; RULE 1304.1, RULE 1703(a)(2) – PSD-BACT]
[Devices subject to this condition: D165, D173 (combined-cycle)]

Verification: The project owner shall provide emissions summary data in compliance with his condition as part of the Quarterly Operation reports (**AQ-SC7**).

AQ-A2 The project owner shall limit emissions from this equipment as follows:

Contaminant	Range	Emissions Limit
Monthly Pounds in Any Calendar Month (lbs/month)		
CO	Less than or equal to	8,594 lbs/month
VOC	Less than or equal to	1,973 lbs/month
PM10	Less than or equal to	4,638 lbs/month
SOx	Less than or equal to	1,207 lbs/month

Contaminant	Range	Emissions Limit
Annual Pounds in Any One Year (lbs/year)		
CO	Less than or equal to	29,730 (lbs./year)
VOC	Less than or equal to	7,510 (lbs./year)
PM10	Less than or equal to	14,695 (lbs./year)
SOx	Less than or equal to	1,275 (lbs./year)

For the purposes of this condition, the above emission limits shall be based on the emissions from a single turbine.

The turbine shall not commence with normal operation until the commissioning process has been completed. Normal operation commences when the turbine is able to supply electrical energy to the power grid as required under contract with the relevant entities. The SCAQMD shall be notified in writing once the commissioning process for each turbine is completed.

Normal operation may commence in the same calendar month as the completion of the commissioning process provided the turbine is in compliance with the above emission limits.

The project owner shall calculate the monthly emissions for CO, VOC, PM10, and SOx using the equation below.

Monthly Emissions, lb/month =

(Monthly fuel usage in million standard cubic feet per month (mmscf/month)) * (Emission factors indicated below)

The following emission factors shall be used to demonstrate compliance with the monthly emission limits.

For commissioning, the emission factors shall be as follows: CO, 112.03 lb/mmscf; VOC, 3.69 lb/mmscf; PM10, 2.00 lb/mmscf; and SOx, 7.69 lb/mmscf.

For normal operation, the emission factors shall be as follows: CO, 8.84 lb/mmscf; VOC, 3.17 lb/mmscf; PM10, 7.44 lb/mmscf; and SOx, 1.94 lb/mmscf.

For a month during which both commissioning and normal operation take place the monthly emissions shall be the sum of the commissioning emissions and the normal operation emissions.

Compliance with the annual emission limits shall be based on a 12-operating month-rolling-average basis, following completion of the commissioning period.

The emission factors for the monthly emission limits shall be the same as the emission factors used to demonstrate compliance with the annual emission limits, except the annual emission factor for SO_x is 0.65 lb/mmcf.

The project owner shall maintain records to demonstrate compliance with this condition and shall make such records available to the Executive Officer upon request. The records shall be maintained for a minimum of 5 years in a manner approved by SCAQMD. The records shall include, but not be limited to, natural gas usage in a calendar month and automated monthly and annual calculated emissions.

[RULE 1303(a)(1)-BACT; RULE 1304.1, RULE 1703(a)(2) – PSD-BACT]
[Devices subject to this condition: D185, D191, D197, D203 (simple-cycle)]

Verification: The project owner shall provide emissions summary data in compliance with his condition as part of the Quarterly Operation reports (**AQ-SC7**).

AQ-A3 The project owner shall limit emissions from this equipment as follows:

Contaminant	Range	Emissions Limit
Monthly Pounds in Any Calendar Month (lbs/month)		
CO	Less than or equal to	605 lbs/month
VOC	Less than or equal to	102 lbs/month
PM10	Less than or equal to	113.5 lbs/month
Sox	Less than or equal to	32 lbs/month

The project owner shall calculate the monthly emissions for CO, VOC, PM10, and SO_x using the equation below.

Monthly Emissions, lb/month = (Monthly fuel usage in mmcf/month) *
(Emission factors indicated below)

For commissioning and normal operation, the emission factors shall be as follows: CO, 39.55 lb/mmcf; VOC, 6.67 lb/mmcf; PM10, 7.42 lb/mmcf; and SO_x, 2.08 lb/mmcf.

The project owner shall maintain records in a manner approved by the District to demonstrate compliance with this condition and the records shall be made available to District personnel upon request. The records shall include, but not be limited to, natural gas usage in a calendar month.

[RULE 1303(a)(1)-BACT, RULE 1303(b)(2)-Offset, RULE 1703(a)(2) – PSD-BACT]

[Devices subject to this condition: D181 (auxiliary boiler)]

Verification: The project owner shall provide emissions summary data in compliance with his condition as part of the Quarterly Operation reports (**AQ-SC7**).

AQ-A4 The project owner shall limit NO_x emissions to 16.66 lbs/mmscf only during the turbine commissioning period to report RECLAIM emissions, not to exceed one year after the start of unit operations.

The project owner shall maintain records of natural gas usage for this period.

[RULE 2012]

[Devices subject to this condition: D165, D173 (combined-cycle)]

Verification: The project owner shall provide natural gas usage records for the turbines as part of the Quarterly Operation reports (**AQ-SC7**). The records shall identify the usage on a per turbine basis and clearly identify the corresponding commissioning project period.

AQ-A5 The project owner shall limit NO_x emissions to 8.35 lbs/mmscf only during the interim period after commissioning but prior to CEMS certification to report RECLAIM emissions, not to exceed one year after start of unit operations.

The project owner shall maintain records of natural gas usage for this period.

[RULE 2012]

[Devices subject to this condition: D165, D173 (combined-cycle)]

Verification: The project owner shall provide natural gas usage records for the turbines as part of the Quarterly Operation reports (**AQ-SC7**). The records shall identify the usage on a per turbine basis and clearly identify the corresponding post-commissioning, pre-CEMS project period.

AQ-A6 The project owner shall limit NO_x emissions to 25.24 lbs/mmscf only during the turbine commissioning period to report RECLAIM emissions, not to exceed one year after the start of unit operations.

The project owner shall maintain records of natural gas usage for this period.

[RULE 2012]

[Devices subject to this condition: D185, D191, D197, D203 (simple-cycle)]

Verification: The project owner shall provide natural gas usage records for the turbines as part of the Quarterly Operation reports (**AQ-SC7**). The records shall identify the

usage on a per turbine basis and clearly identify the corresponding commissioning project period.

AQ-A7 The project owner shall limit NO_x emissions to 11.21 lbs/mmscf only during the interim period after commissioning but prior to CEMS certification to report RECLAIM emissions, not to exceed one year after start of unit operations.

The project owner shall maintain records of natural gas usage for this period.

[RULE 2012]

[Devices subject to this condition: D185, D191, D197, D203 (simple-cycle)]

Verification: The project owner shall provide natural gas usage records for the turbines as part of the Quarterly Operation reports (**AQ-SC7**). The records shall identify the usage on a per turbine basis and clearly identify the corresponding commissioning project period.

AQ-A8 The project owner shall limit NO_x emissions to 38.46 lbs/mmscf only during the interim period after commissioning but prior to CEMS certification to report RECLAIM emissions, not to exceed one year after the start of unit operations.

The project owner shall maintain records of natural gas usage for this period.

[RULE 2012]

[Devices subject to this condition: D181 (auxiliary boiler)]

Verification: The project owner shall provide natural gas usage records for the auxiliary boiler as part of the Quarterly Operation reports (**AQ-SC7**). The records shall clearly identify the corresponding commissioning project period.

AQ-A9 The project owner shall limit NO_x emissions to 2.0 parts per million by volume (PPMV), averaged over 1 hour, dry basis at 15 percent oxygen. This limit shall not apply to turbine commissioning, startup, and shutdown periods.

[RULE 1703(a)(2) – PSD-BACT; RULE 2005]

[Devices subject to this condition: D165, D173 (combined-cycle)]

Verification: The project owner shall submit CEMS records demonstrating compliance with this condition as part of the Quarterly Operation Reports (**AQ-SC7**).

AQ-A10 The project owner shall limit NO_x emissions to 2.5 parts per million by volume (PPMV), averaged over 1 hour, dry basis at 15 percent oxygen. This limit shall not apply to turbine commissioning, startup, and shutdown periods.

[RULE 1703(a)(2) – PSD-BACT; RULE 2005]

[Devices subject to this condition: D185, D191, D197, D203 (simple-cycle)]

Verification: The project owner shall submit CEMS records demonstrating compliance with this condition as part of the Quarterly Operation Reports (**AQ-SC7**).

AQ-A11 The project owner shall limit NO_x emissions to 5 parts per million by volume (PPMV), averaged over 1 hour, dry basis at 3 percent oxygen. This limit shall not apply to boiler commissioning and startup periods.

[RULE 1703(a)(2) – PSD-BACT; RULE 2005]

[Devices subject to this condition: D181 (auxiliary boiler)]

Verification: The project owner shall submit CEMS records demonstrating compliance with this condition as part of the Quarterly Operation Reports (**AQ-SC7**).

AQ-A12 The project owner shall limit CO emissions to 1.5 parts per million by volume (PPMV), averaged over 1 hour, dry basis at 15 percent oxygen. This limit shall not apply to turbine commissioning, startup, and shutdown periods.

[RULE 1303(a)(1)-BACT; RULE 1703(a)(2) – PSD-BACT]

[Devices subject to this condition: D165, D173 (combined-cycle)]

Verification: The project owner shall submit CEMS records demonstrating compliance with this condition as part of the Quarterly Operation Reports (**AQ-SC7**).

AQ-A13 The project owner shall limit CO emissions to 2.0 parts per million by volume (PPMV), averaged over 1 hour, dry basis at 15 percent oxygen. This limit shall not apply to turbine commissioning, startup, and shutdown periods.

[RULE 1303(a)(1)-BACT; RULE 1703(a)(2) – PSD-BACT]

[Devices subject to this condition: D185, D191, D197, D203 (simple-cycle)]

Verification: The project owner shall submit CEMS records demonstrating compliance with this condition as part of the Quarterly Operation Reports (**AQ-SC7**).

AQ-A14 The project owner shall limit CO emissions to 50 parts per million by volume (PPMV), averaged over 1 hour, dry basis at 3 percent oxygen. This limit shall not apply to boiler commissioning and startup.

[RULE 1303(a)(1)-BACT; RULE 1703(a)(2) – PSD-BACT]

[Devices subject to this condition: D181 (auxiliary boiler)]

Verification: The project owner shall submit CEMS records demonstrating compliance with this condition as part of the Quarterly Operation Reports (**AQ-SC7**).

AQ-A15 The project owner shall limit VOC emissions to 2.0 parts per million by volume (PPMV), averaged over 1 hour, dry basis at 15 percent oxygen. This limit shall not apply to turbine commissioning, startup, and shutdown periods.

[RULE 1303(a)(1)-BACT; RULE 1703(a)(2) – PSD-BACT]

[Devices subject to this condition: D165, D173 (combined-cycle), D185, D191, D197, D203 (simple-cycle)]

Verification: The project owner shall submit records demonstrating compliance with this condition as part of the Quarterly Operation Reports (**AQ-SC7**).

AQ-A16 The 5.0 PPMV NH₃ emission limit is averaged over 1 hour, dry basis at 15 percent oxygen.

The project owner shall calculate and continuously record the NH₃ slip concentration using the following equation:

$$\text{NH}_3 \text{ (ppmvd)} = [a - b \cdot (c \cdot 1.2) / 1,000,000] \cdot 1,000,000 / b$$
, where:

a = NH₃ injection rate (lb/hr)/17(lb/lb-mol)

b = dry exhaust gas flow rate (scf/hr)/385.3 scf/lb-mol)

c = change in measured NO_x across the SCR (ppmvd at 15% O₂)

The project owner shall install and maintain a NO_x analyzer to measure the SCR inlet NO_x ppmv accurate to within plus or minus 5 percent calibrated at least once every 12 months. The project owner shall use the method described above or another alternative method approved by the Executive Officer.

The ammonia slip calculation procedure shall be in effect no later than 90 days after initial startup of the turbine.

The ammonia slip calculation procedures described above shall not be used for compliance determination or emission information without

corroborative data using an approved reference method for the determination of ammonia.

[RULE 1303(a)(1)-BACT]

[Devices subject to this condition: C170, C178 (combined-cycle), C188, C194, C200, C206 (simple-cycle)]

Verification: The project owner shall install, calibrate, maintain, and the monitoring system according to a District-approved monitoring plan. Prior to the installation the project owner shall submit a monitoring plan to the CPM for review and approval. The project owner shall include exceedances of the hourly ammonia slip limit and calibration reports as part of the Quarterly Operation Reports (**AQ-SC7**).

AQ-A17 The 5.0 PPMV NH₃ emission limit is averaged over 1 hour, dry basis at 3 percent oxygen.

The project owner shall calculate and continuously record the NH₃ slip concentration using the following equation:

$$\text{NH}_3 \text{ (ppmvd)} = [a - b \cdot (c \cdot 1.2) / 1,000,000] \cdot 1,000,000 / b$$
, where:

a = NH₃ injection rate (lb/hr)/17(lb/lb-mol)

b = dry exhaust gas flow rate (scf/hr)/385.3 scf/lb-mol)

c = change in measured NO_x across the SCR (ppmvd at 3% O₂)

The project owner shall install and maintain a NO_x analyzer to measure the SCR inlet NO_x ppmv accurate to within plus or minus 5 percent calibrated at least once every 12 months. The project owner shall use the method described above or another alternative method approved by the Executive Officer.

The ammonia slip calculation procedure shall be in effect no later than 90 days after initial startup of the auxiliary boiler.

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

[RULE 1303(a)(1)-BACT]

[Devices subject to this condition: C183 (auxiliary boiler)]

Verification: The project owner shall install, calibrate, maintain, and the monitoring system according to a District-approved monitoring plan. Prior to the installation the project owner shall submit a monitoring plan to the CPM for review and approval. The

project owner shall include exceedances of the hourly ammonia slip limit and calibration reports as part of the Quarterly Operation Reports (**AQ-SC7**).

AQ-A18 The project owner shall limit PM10 emissions to 0.01 grain per standard cubic foot (grains/scf) or 11 pounds per hour (lbs/hr). For the purpose of determining compliance with District Rule 475, combustion contaminant emissions may exceed the concentration limit or the mass emission limit listed, but not both limits at the same time.

[RULE 475]

[Devices subject to this condition: D165, D173 (combined-cycle), D185, D191, D197, D203 (simple-cycle)]

Verification: The project owner shall demonstrate 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.

Material/Fuel Type limits

AQ-B1 The project owner shall not use natural gas containing the following specified compounds:

Compound	Range	Emissions Limit
H ₂ S	Greater than	0.25 grain/100scf

This concentration limit is an annual average based on monthly samples of natural gas composition or gas supplier documentation. Gaseous fuel samples shall be tested using District Method 307-91 for total sulfur calculated as H₂S.

[RULE 1303(a)(1)-BACT]

[Devices subject to this condition: D165, D173 (combined-cycle), D185, D191, D197, D203 (simple-cycle)]

Verification: The project owner shall include documentation demonstrating compliance 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.

Operating Parameters

AQ-C1 The project owner shall limit the number of start-ups to no more than 62 in any one calendar month.

The number of cold startups shall not exceed 15 in any calendar month, with no more than 2 startups in any one day.

The number of cold startups shall not exceed 80 in any calendar year, and the total number of startups shall not exceed 500 in any calendar year.

For the purposes of this condition, a cold startup is defined as a startup which occurs after the combustion turbine has been shut down for 48 hours or more. A cold startup shall not exceed 60 minutes. The NO_x emissions from a cold startup shall not exceed 61 lbs. The CO emissions from a cold startup shall not exceed 325 lbs. The VOC emissions from a cold startup shall not exceed 36 lbs.

For the purposes of this condition, a non-cold startup is defined as a startup which occurs after the combustion turbine has been shut down less than 48 hours. A non-cold startup shall not exceed 30 minutes. The NO_x emissions from a non-cold startup shall not exceed 17 lbs. The CO emissions from a non-cold startup shall not exceed 137 lbs. The VOC emissions from a non-cold startup shall not exceed 25 lbs.

The beginning of startup occurs at initial fire in the combustor and the end of startup occurs when the BACT levels are achieved. If during startup the process is aborted the process will count as one startup.

The project owner shall maintain records to demonstrate compliance with this condition and shall make such records available to the Executive Officer upon request. The records shall be maintained for a minimum of 5 years in a manner approved by SCAQMD.

[RULE 1303(a)(1)-BACT, RULE 1703(a)(2)-PSD-BACT, RULE 2005]

[Devices subject to this condition: D165, D173 (combined-cycle)]

Verification: The project owner shall demonstrate compliance with this condition as part of the Quarterly Operation Reports (**AQ-SC7**). The project owner shall provide records including a table documenting the type of startup, duration and date of occurrence.

AQ-C2 The project owner shall limit the number of shutdowns to no more than 62 in any one calendar month.

The number of shutdowns shall not exceed 500 in any calendar year.

Each shutdown shall not exceed 30 minutes. The NO_x emissions from a shutdown event shall not exceed 10 lbs. The CO emissions from a shutdown event shall not exceed 133 lbs. The VOC emissions from a shutdown event shall not exceed 32 lbs.

The project owner shall maintain records to demonstrate compliance with this condition and shall make such records available to the Executive

Officer upon request. The records shall be maintained for a minimum of 5 years in a manner approved by SCAQMD.

[RULE 1303(a)(1)-BACT, RULE 1703(a)(2)-PSD-BACT, RULE 2005]

[Devices subject to this condition: D165, D173 (combined-cycle)]

Verification: The project owner shall demonstrate compliance with this condition as part of the Quarterly Operation Reports (**AQ-SC7**). The project owner shall provide records including a table documenting each shutdown, and indicating the duration and date of occurrence.

AQ-C3 The project owner shall limit the number of start-ups to no more than 62 in any one calendar month.

The number of startups shall not exceed 2 startups in any one day. The number of startups shall not exceed 500 in any calendar year.

A startup shall not exceed 30 minutes. The NO_x emissions from a startup shall not exceed 16.6 lbs. The CO emissions from a startup shall not exceed 15.4 lbs. The VOC emissions from a startup shall not exceed 2.80 lbs.

The beginning of startup occurs at initial fire in the combustor and the end of startup occurs when the BACT levels are achieved. If during startup the process is aborted the process will count as one startup.

The project owner shall maintain records to demonstrate compliance with this condition and shall make such records available to the Executive Officer upon request. The records shall be maintained for a minimum of 5 years in a manner approved by SCAQMD.

[RULE 1303(a)(1)-BACT, RULE 1703(a)(2)-PSD-BACT, RULE 2005]

[Devices subject to this condition: D185, D191, D197, D203 (simple-cycle)]

Verification: The project owner shall demonstrate compliance with this condition as part of the Quarterly Operation Reports (**AQ-SC7**). The project owner shall provide records including a table documenting the type of startup, duration and date of occurrence.

AQ-C4 The project owner shall limit the number of shutdowns to no more than 62 in any one calendar month.

The number of shutdowns shall not exceed 500 in any calendar year.

Each shutdown shall not exceed 13 minutes. The NO_x emissions from a shutdown event shall not exceed 3.12 lbs. The CO emissions from a

shutdown event shall not exceed 28.1 lbs. The VOC emissions from a shutdown event shall not exceed 3.06 lbs.

The project owner shall maintain records to demonstrate compliance with this condition and shall make such records available to the Executive Officer upon request. The records shall be maintained for a minimum of 5 years in a manner approved by SCAQMD.

[RULE 1303(a)(1)-BACT, RULE 1703(a)(2)-PSD-BACT, RULE 2005]

[Devices subject to this condition: D185, D191, D197, D203 (simple-cycle)]

Verification: The project owner shall demonstrate compliance with this condition as part of the Quarterly Operation Reports (**AQ-SC7**). The project owner shall provide records including a table documenting each shutdown, and indicating the duration and date of occurrence.

AQ-C5 The project owner shall limit the number of start-ups to no more than 10 in any one calendar month.

The number of cold startups shall not exceed 2 in any calendar month, the number of warm startups shall not exceed 4 in any calendar month, and the number of hot starts shall not exceed 4 in any calendar month, with no more than 1 startup in any one day.

The number of cold startups shall not exceed 24 in any calendar year, the number of warm startups shall not exceed 48 in any calendar year, and the number of hot startups shall not exceed 48 in any calendar year.

For the purposes of this condition, a cold startup is defined as a startup which occurs after the auxiliary boiler has been shut down for 48 hours or more. A cold startup shall not exceed 170 minutes. The NO_x emissions from a cold startup shall not exceed 4.22 lbs.

For the purposes of this condition, a warm startup is defined as a startup which occurs after the auxiliary boiler has been shut down 10 hours or more but less than 48 hours. A warm startup shall not exceed 85 minutes. The NO_x emissions from a warm startup shall not exceed 2.11 lbs.

For the purposes of this condition, a hot startup is defined as a startup which occurs after the auxiliary boiler has been shut down for less than 10 hours. A hot startup shall not exceed 25 minutes. The NO_x emissions from a hot startup shall not exceed 0.62 lbs.

The project owner shall maintain records in a manner approved by the District, to demonstrate compliance with this condition and the records shall be made available to District personnel upon request.

[RULE 1303(a)(1)-BACT, RULE 1703(a)(2)-PSD-BACT, RULE 2005]

[Devices subject to this condition: D181 (auxiliary boiler)]

Verification: The project owner shall demonstrate compliance with this condition as part of the Quarterly Operation Reports (**AQ-SC7**). The project owner shall provide records including a table indicating documenting type of startup, duration and date of occurrence.

AQ-C6 The project owner shall install and maintain a pressure relief valve set at 50 psig.

[RULE 1303(a)(1)-BACT, RULE 1303(a)(1)-BACT]

[Devices subject to this condition: D163, D164 (ammonia tank)]

Verification: The project owner shall demonstrate compliance with this condition as part of the Quarterly Operation Reports (**AQ-SC7**). The project owner shall provide records including a table indicating documenting type of startup, duration and date of occurrence.

Monitoring/Tesing Parameters

AQ-D1 The project owner shall install and maintain a flow meter to accurately indicate the flow rate of the total hourly throughput of injected ammonia (NH₃).

The project owner shall also install and maintain a device to continuously record the parameter being measured. Continuously record shall be defined as measuring at least once every hour and shall be calculated based upon the average of the continuous monitoring for that hour.

The flow meter shall be accurate to within plus or minus 5 percent. It shall be calibrated once every 12 months.

The project owner shall maintain the ammonia injection rate between 44 and 242 pounds per hour, except during startups and shutdowns.

[RULE 1303(a)(1)-BACT, RULE 1703(a)(2)-PSD-BACT, RULE 2005]

[Devices subject to this condition: C170, C178 (combined-cycle)]

Verification: The project owner shall demonstrate compliance with this condition as part of the Quarterly Operation Reports (**AQ-SC7**). The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-D2 The project owner shall install and maintain a temperature gauge to accurately indicate the temperature in the exhaust at the inlet to the SCR reactor

The project owner shall also install and maintain a device to continuously record the parameter being measured. Continuously record shall be defined as measuring at least once every hour and shall be calculated based upon the average of the continuous monitoring for that hour.

The temperature gauge shall be accurate to within plus or minus 5 percent. It shall be calibrated once every 12 months.

The exhaust temperature at the inlet of the SCR/CO catalyst shall be maintained between 570 degrees Fahrenheit and 692 degrees Fahrenheit, except during startups and shutdowns.

[RULE 1303(a)(1)-BACT, RULE 1703(a)(2)-PSD-BACT, RULE 2005]

[Devices subject to this condition: C170, C178 (combined-cycle)]

Verification: The project owner shall demonstrate compliance with this condition as part of the Quarterly Operation Reports (**AQ-SC7**). The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-D3 The project owner shall install and maintain a pressure gauge to accurately indicate the differential pressure across the SCR catalyst bed in inches water column.

The project owner shall also install and maintain a device to continuously record the parameter being measured. Continuously record shall be defined as measuring at least once every month and shall be calculated based upon the average of the continuous monitoring for that month.

The pressure gauge shall be accurate to within plus or minus 5 percent. It shall be calibrated once every 12 months.

The pressure differential shall not exceed 1.6 inches water column.

[RULE 1303(a)(1)-BACT, RULE 1703(a)(2)-PSD-BACT, RULE 2005]

[Devices subject to this condition: C170, C178 (combined-cycle)]

Verification: The project owner shall demonstrate compliance with this condition as part of the Quarterly Operation Reports (**AQ-SC7**). The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-D4 The project owner shall install and maintain a flow meter to accurately indicate the flow rate of the total hourly throughput of injected ammonia (NH₃).

The project owner shall also install and maintain a device to continuously record the parameter being measured. Continuously record shall be defined as measuring at least once every hour and shall be calculated based upon the average of the continuous monitoring for that hour.

The flow meter shall be accurate to within plus or minus 5 percent. It shall be calibrated once every 12 months.

The project owner shall maintain the ammonia injection rate between 110 and 180 pounds per hour, except during startups and shutdowns.

[RULE 1303(a)(1)-BACT, RULE 1703(a)(2)-PSD-BACT, RULE 2005]

[Devices subject to this condition: C188, C194, C200, C206 (simple-cycle)]

Verification: The project owner shall demonstrate compliance with this condition as part of the Quarterly Operation Reports (**AQ-SC7**). The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-D5 The project owner shall install and maintain a temperature gauge to accurately indicate the temperature in the exhaust at the inlet to the SCR reactor

The project owner shall also install and maintain a device to continuously record the parameter being measured. Continuously record shall be defined as measuring at least once every hour and shall be calculated based upon the average of the continuous monitoring for that hour.

The temperature gauge shall be accurate to within plus or minus 5 percent. It shall be calibrated once every 12 months.

The exhaust temperature at the inlet of the SCR/CO catalyst shall be maintained between 500 degrees Fahrenheit and 870 degrees Fahrenheit, except during startups and shutdowns.

[RULE 1303(a)(1)-BACT, RULE 1703(a)(2)-PSD-BACT, RULE 2005]

[Devices subject to this condition: C188, C194, C200, C206 (simple-cycle)]

Verification: The project owner shall demonstrate compliance with this condition as part of the Quarterly Operation Reports (**AQ-SC7**). The project owner shall make

the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-D6 The project owner shall install and maintain a pressure gauge to accurately indicate the differential pressure across the SCR catalyst bed in inches water column.

The project owner shall also install and maintain a device to continuously record the parameter being measured. Continuously record shall be defined as measuring at least once every month and shall be calculated based upon the average of the continuous monitoring for that month.

The pressure gauge shall be accurate to within plus or minus 5 percent. It shall be calibrated once every 12 months.

The pressure differential shall not exceed 3.0 inches water column.

[RULE 1303(a)(1)-BACT, RULE 1703(a)(2)-PSD-BACT, RULE 2005]

[Devices subject to this condition: C188, C194, C200, C206 (simple-cycle)]

Verification: The project owner shall demonstrate compliance with this condition as part of the Quarterly Operation Reports (**AQ-SC7**). The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-D7 The project owner shall install and maintain a flow meter to accurately indicate the flow rate of the total hourly throughput of injected ammonia (NH₃).

The project owner shall also install and maintain a device to continuously record the parameter being measured. Continuously record shall be defined as measuring at least once every hour and shall be calculated based upon the average of the continuous monitoring for that hour.

The flow meter shall be accurate to within plus or minus 5 percent. It shall be calibrated once every 12 months.

The project owner shall maintain the ammonia injection rate between 0.3 and 1.1 pounds per hour.

[RULE 1303(a)(1)-BACT, RULE 1703(a)(2)-PSD-BACT, RULE 2005]

[Devices subject to this condition: C183 (auxiliary boiler)]

Verification: The project owner shall demonstrate compliance with this condition as part of the Quarterly Operation Reports (**AQ-SC7**). The project owner shall make

the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-D8 The project owner shall install and maintain a temperature gauge to accurately indicate the temperature in the exhaust at the inlet to the SCR reactor

The project owner shall also install and maintain a device to continuously record the parameter being measured. Continuously record shall be defined as measuring at least once every hour and shall be calculated based upon the average of the continuous monitoring for that hour.

The temperature gauge shall be accurate to within plus or minus 5 percent. It shall be calibrated once every 12 months.

The exhaust temperature at the inlet of the SCR/CO catalyst shall be maintained between 415 degrees Fahrenheit and 628 degrees Fahrenheit, except during startups and shutdowns.

[RULE 1303(a)(1)-BACT, RULE 1703(a)(2)-PSD-BACT, RULE 2005]

[Devices subject to this condition: C183 (auxiliary boiler)]

Verification: The project owner shall demonstrate compliance with this condition as part of the Quarterly Operation Reports (**AQ-SC7**). The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-D9 The project owner shall install and maintain a pressure gauge to accurately indicate the differential pressure across the SCR catalyst bed in inches water column.

The project owner shall also install and maintain a device to continuously record the parameter being measured. Continuously record shall be defined as measuring at least once every month and shall be calculated based upon the average of the continuous monitoring for that month.

The pressure gauge shall be accurate to within plus or minus 5 percent. It shall be calibrated once every 12 months.

The pressure differential shall not exceed 2.0 inches water column.

[RULE 1303(a)(1)-BACT, RULE 1703(a)(2)-PSD-BACT, RULE 2005]

[Devices subject to this condition: C183 (auxiliary boiler)]

Verification: The project owner shall demonstrate compliance with this condition as part of the Quarterly Operation Reports (**AQ-SC7**). The project owner shall make

the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-D10 The project owner shall conduct source test(s) for the pollutant(s) identified below.

Pollutant(s) to be Tested	Required Test Method(s)	Averaging Time	Test Location
NOx emissions	District Method 100.1	1 hour	Outlet of the SCR serving this equipment
CO emissions	District Method 100.1	1 hour	Outlet of the SCR serving this equipment
SOx emissions	AQMD Laboratory Method 307-91	District Approved Averaging Time	Fuel Sample
VOC emissions	District Method 25.3 Modified	1 hour	Outlet of the SCR serving this equipment
PM10 emissions	EPA Method 201A / District Method 5.1	District-Approved Averaging Time	Outlet of the SCR serving this equipment
PM2.5 emissions	EPA Method 201A / 202	District-Approved Averaging Time	Outlet of the SCR serving this equipment
NH ₃ emissions	District Method 207.1 and 5.3 or EPA Method 17	1 hour	Outlet of the SCR serving this equipment

The test shall be conducted after District approval of the source test protocol, but no later than 180 days after initial start-up. The District shall be notified of the date and time of the test at least 10 days prior to the test.

The test shall be conducted to determine the oxygen levels in the exhaust. In addition, the tests shall measure the fuel flow rate (CFH), the flue gas flow rate, the combined-cycle turbine and steam turbine generating output in MW-gross and MW-net, and the simple-cycle turbine generating output in MW-gross and MW-net.

The test shall be conducted in accordance with a District approved source test protocol. The protocol shall be submitted to the SCAQMD engineer no later than 90 days before the proposed test date and shall be approved by the District before the test commences.

The test protocol shall include the proposed operating conditions of the turbine during the tests, the identity of the testing lab, a statement from the testing lab certifying that it meets the criteria of Rule 304, and a description of all sampling and analytical procedures.

The sampling time for PM and PM2.5 tests shall be 4 hours or longer as necessary to obtain a measureable amount of sample.

The tests shall be conducted when the combined-cycle turbine is operating at loads of 45, 75, and 100 percent of maximum load, and the

simple-cycle turbine is operating at loads of 50, 75, and 100 percent of maximum load.

For natural gas fired turbines only, for the purpose of demonstrating compliance with VOC BACT limits as determined by SCAQMD, the operator shall use SCAQMD Method 25.3 modified as follows:

- A. Triplicate stack gas samples extracted directly into Summa canisters, maintaining a final canister pressure between 400-500 mm Hg absolute,
- B. Pressurization of the Summa canisters with zero gas analyzed/certified to less than 0.05 ppmv total hydrocarbons as carbon, and
- C. Analysis of Summa canisters per the canister analysis portion of AQMD Method 25.3 with a minimum detection limit of 0.3 ppmv or less and reported to two significant figures. The temperature of the Summa canisters when extracting the samples for analysis shall not be below 70 F.

The use of this modified method for VOC compliance determination does not mean that it is more accurate than unmodified AQMD Method 25.3, nor does it mean that it may be used in lieu of AQMD Method 25.3 without prior approval, except for the determination of compliance with the BACT level of 2.0 ppmv VOC calculated as carbon for natural gas fired turbines.

For purposes of this condition, an alternative test method may be allowed for any of the above pollutants upon concurrence by EPA, CARB, and SCAQMD.

[RULE 1303(a)(1)-BACT, RULE 1703(a)(2)-PSD-BACT, RULE 2005]

[Devices subject to this condition: D165, D173 (combined-cycle), D185, D191, D197, D203 (simple-cycle)]

Verification: The project owner shall submit the proposed protocol for the initial source tests no later than 90 days prior to the proposed source test date to both the District and CPM for approval. The project owner shall notify the District and CPM no later than 10 days prior to the proposed initial source test of the date and time of the scheduled test.

AQ-D11 The project owner shall conduct source test(s) for the pollutant(s) identified below.

Pollutant(s) to be Tested	Required Test Method(s)	Averaging Time	Test Location
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SOx emissions	AQMD Laboratory Method 307-91	District Approved Averaging Time	Fuel Sample
VOC emissions	District Method 25.3 Modified	1 hour	Outlet of the SCR serving this equipment
PM10 emissions	EPA Method 201A / District Method 5.1	District-Approved Averaging Time	Outlet of the SCR serving this equipment

The test(s) shall be conducted at least once every three years.

The test shall be conducted and the results submitted to the District within 60 days after the test date. The SCAQMD shall be notified of the date and time of the test at least 10 days prior to the test.

The test shall be conducted when this equipment is operating at 100 percent of maximum load.

For natural gas fired turbines only, for the purpose of demonstrating compliance with VOC BACT limits, as determined by SCAQMD, the operator shall use Method 25.3 modified as follows:

- A. Triplicate stack gas samples extracted directly into Summa canisters, maintaining a final canister pressure between 400-500 mm Hg absolute,
- B. Pressurization of the Summa canisters with zero gas analyzed/certified to less than 0.05 ppmv total hydrocarbons as carbon, and
- C. Analysis of Summa canisters per the canister analysis portion of AQMD Method 25.3 with a minimum detection limit of 0.3 ppmv or less and reported to two significant figures. The temperature of the Summa canisters when extracting the samples for analysis shall not be below 70 F.

The use of this modified method for VOC compliance determination does not mean that it is more accurate than unmodified AQMD Method 25.3, nor does it mean that it may be used in lieu of AQMD Method 25.3 without prior approval, except for the determination of compliance with the BACT level of 2.0 ppmv VOC calculated as carbon for natural gas fired turbines.

For purposes of this condition, an alternative test method may be allowed for any of the above pollutants upon concurrence by EPA, CARB, and SCAQMD.

The test shall be conducted to demonstrate compliance with the Rule 1303 concentration and/or monthly emissions limit.

[RULE 1303(a)(1)-BACT, RULE 1703(a)(2)-PSD-BACT]

[Devices subject to this condition: D165, D173 (combined-cycle), D185, D191, D197, D203 (simple-cycle)]

Verification: The project owner shall test according to the original protocol. If changes to the testing methods or testing conditions are proposed then the project owner shall submit a revised protocol for the source tests no later than 45 days prior to the proposed source test date to both the District and CPM for approval. The project owner shall submit the source test results no later than 60 days following the source test date to both the District and CPM. The project owner shall notify the District and CPM no later than 10 days prior to the proposed initial source test of the date and time of the scheduled test.

AQ-D12 The project owner shall conduct source test(s) for the pollutant(s) identified below.

Pollutant(s) to be Tested	Required Test Method(s)	Averaging Time	Test Location
NH ₃ emissions	District Method 207.1 and 5.3 or EPA Method 17	1 hour	Outlet of the SCR serving this equipment

The test shall be conducted and the results submitted to the District within 60 days after the test date. The SCAQMD shall be notified of the date and time of the test at least 10 days prior to the test.

The test shall be conducted at least quarterly during the first twelve months of operation and at least annually thereafter. The NO_x concentration, as determined by the certified CEMS, shall be simultaneously recorded during the ammonia slip test. If the CEMS is inoperable or not yet certified, a test shall be conducted to determine the NO_x emissions using District Method 100.1 measured over a 60 minute averaging time period.

The test shall be conducted to demonstrate compliance with the Rule 1303 concentration limit.

[RULE 1303(a)(1)-BACT, RULE 1703(a)(2)-PSD-BACT]

[Devices subject to this condition: C170, C178 (combined-cycle), C188, C194, C200, C206 (simple-cycle), C183 (auxiliary boiler)]

Verification: The project owner shall test according to the original protocol. If changes to the testing methods or testing conditions are proposed then the project owner shall submit a revised protocol for the source tests no later than 45 days prior to the proposed source test date to both the District and CPM for approval. The project owner shall submit the source test results no later than 60 days following the source test date to both the District and CPM. The project owner shall notify the District and CPM no

later than 10 days prior to the proposed initial source test of the date and time of the scheduled test.

AQ-D13 The project owner shall conduct source test(s) for the pollutant(s) identified below.

Pollutant(s) to be Tested	Required Test Method(s)	Averaging Time	Test Location
NOx emissions	District Method 100.1	1 hour	Outlet of the SCR serving this equipment
CO emissions	District Method 100.1	1 hour	Outlet of the SCR serving this equipment
SOx emissions	AQMD Laboratory Method 307-91	District- Approved Averaging Time	Fuel Sample
VOC emissions	District Method 25.3	1 hour	Outlet of the SCR serving this equipment
PM10 emissions	EPA Method 201A / District Method 5.1	District-Approved Averaging Time	Outlet of the SCR serving this equipment
PM2.5 emissions	EPA Method 201A / 202	District-Approved Averaging Time	Outlet of the SCR serving this equipment
NH ₃ emissions	District Method 207.1 and 5.3 or EPA Method 17	1 hour	Outlet of the SCR serving this equipment

The test shall be conducted after District approval of the source test protocol, but no later than 180 days after initial start-up. The District shall be notified of the date and time of the test at least 10 days prior to the test.

For each firing rate, the following operating data shall be included: (1) the exhaust flow rates, in actual cubic feet per minute (acfm), (2) the firing rates in Btu/hour, (3) the exhaust temperature, in degrees Fahrenheit, (4) the oxygen content of the exhaust gases, in percent, and (5) the fuel flow rate.

The test shall be conducted in accordance with a District approved source test protocol. The protocol shall be submitted to the SCAQMD engineer no later than 90 days before the proposed test date and shall be approved by the District before the test commences.

The test protocol shall include the identity of the testing lab, confirmation that the test lab is approved under the District Laboratory Approval Program for the required test method for the CO pollutant, a statement from the testing lab certifying that it meets the criteria of Rule 304 (no conflict of interest), and a description of all sampling and analytical procedures.

The sampling facilities shall comply with the District Guidelines for Construction of Sampling and Testing Facilities, pursuant to Rule 217.

The sampling time for the PM and PM_{2.5} tests shall be 1 hour or longer as necessary to obtain a measureable amount of sample.

The test shall be conducted when this equipment is operating at maximum, minimum, and normal operating rates.

For purposes of this condition, an alternative test method may be allowed for any of the above pollutants upon concurrence by EPA, ARB, and SCAQMD.

[RULE 1303(a)(1)-BACT, RULE 1703(a)(2)-PSD-BACT, RULE 2005]

[Devices subject to this condition: D181 (auxiliary boiler)]

Verification: The project owner shall submit the proposed protocol for the initial source tests no later than 90 days prior to the proposed source test date to both the District and CPM for approval. The project owner shall submit the source test results no later than 60 days following the source test date to both the District and CPM. The project owner shall notify the District and CPM no later than 10 days prior to the proposed initial source test of the date and time of the scheduled test.

AQ-D14 The project owner shall conduct source test(s) for the pollutant(s) identified below.

Pollutant(s) to be Tested	Required Test Method(s)	Averaging Time	Test Location
CO emissions	District Method 100.1	1 hour	Outlet of the SCR serving this equipment

The test(s) shall be conducted in accordance with the testing frequency requirements specified in Rule 1146.

The test shall be conducted and the results submitted to the District within 60 days after the test date. The SCAQMD shall be notified of the date and time of the test at least 10 days prior to the test.

The test shall be conducted when this equipment is operating at 100 percent of maximum load.

The test shall be conducted to demonstrate compliance with the Rule 1303 concentration and/or monthly emissions limit.

For purposes of this condition, an alternative test method may be allowed for any of the above pollutants upon concurrence by EPA, CARB, and SCAQMD.

[Rule 1146, RULE 1303(a)(1)-BACT, RULE 1303(b)(2)-Offset, RULE 1703(a)(2)-PSD-BACT]

[Devices subject to this condition: D181 (auxiliary boiler)]

Verification: The project owner shall test according to the original protocol. If changes to the testing methods or testing conditions are proposed then the project owner shall submit a revised protocol for the source tests no later than 45 days prior to the proposed source test date to both the District and CPM for approval. The project owner shall submit the source test results no later than 60 days following the source test date to both the District and CPM. The project owner shall notify the District and CPM no later than 10 days prior to the proposed initial source test of the date and time of the scheduled test.

AQ-D15 The project owner shall install and maintain a CEMS to measure the following parameters:

CO concentration in ppmv.

Concentrations shall be corrected to 15 percent oxygen on a dry basis.

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

The CEMS shall be installed and operating no later than 90 days after initial start-up of the turbine, and in accordance with an approved SCAQMD Rule 218 CEMS plan application. The project owner shall not install the CEMS prior to receiving initial approval from SCAQMD.

The CEMS will convert the actual CO concentrations to mass emission rates (lbs/hr) and record the hourly emission rates on a continuous basis.

CO Emission Rate, lbs/hr = $K \cdot C_{co} \cdot F_d [20.9 / (20.9\% - \%O_2 \text{ d})] [(Q_g \cdot HHV) / 10E+06]$, where:

1. $K = 7.267 \cdot 10E-08$ (lb/scf)/ppm
2. C_{co} = Average of four consecutive 15 min. average CO concentrations, ppm
3. $F_d = 8710$ dscf/MMBTU natural gas
4. $\%O_2 \text{ d}$ = Hourly average % by volume O_2 dry, corresponding to C_{co}
5. Q_g = Fuel gas usage during the hour, scf/hr
6. HHV = Gross high heating value of fuel gas, BTU/scf

[RULE 1303(a)(1)-BACT; RULE 1703(a)(2) – PSD-BACT]

[Devices subject to this condition: D165, D173 (combined-cycle), D185, D191, D197, D203 (simple-cycle)]

Verification: The project owner shall submit the SCAQMD approved CEMS plan to the CPM within 90 days of SCAQMD approval. The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-D16 The project owner shall install and maintain a CEMS to measure the following parameters:

NOx concentration in ppmv.

Concentrations shall be corrected to 15 percent oxygen on a dry basis.

The CEMS shall be installed and operating no later than 90 days after initial start-up of the turbine, and in accordance with an approved SCAQMD REG XX CEMS plan application. The project owner shall not install the CEMS prior to receiving initial approval from SCAQMD.

Rule 2012 provisional RATA testing shall be completed and submitted to the SCAQMD within 90 days of the conclusion of the turbine commissioning period. During the interim period between the initial start-up and the provisional certification date of the CEMS, the project owner shall comply with the monitoring requirements of Rule 2012(h)(2) and 2012(h)(3).

[RULE 1703(a)(2) – PSD-BACT, RULE 2005, RULE 2012]

[Devices subject to this condition: D165, D173 (combined-cycle), D185, D191, D197, D203 (simple-cycle)]

Verification: The project owner shall submit the SCAQMD approved CEMS plan to the CPM within 90 days of SCAQMD approval. The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-D17 The project owner shall install and maintain a CEMS to measure the following parameters:

NOx concentration in ppmv.

Concentrations shall be corrected to 3 percent oxygen on a dry basis.

The CEMS shall be installed and operating no later than 90 days after initial start-up of the auxiliary boiler, and in accordance with an approved SCAQMD REG XX CEMS plan application. The project owner shall not install the CEMS prior to receiving initial approval from SCAQMD.

Rule 2012 provisional RATA testing shall be completed and submitted to the SCAQMD within 90 days of the conclusion of the boiler commissioning period. During the interim period between the initial start-up and the

provisional certification date of the CEMS, the project owner shall comply with the monitoring requirements of Rule 2012(h)(2) and 2012(h)(3).

[RULE 1703(a)(2) – PSD-BACT, RULE 2005, RULE 2012]

[Devices subject to this condition: D181 (auxiliary boiler)]

Verification: The project owner shall submit the SCAQMD approved CEMS plan to the CPM within 90 days of SCAQMD approval. The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

Equipment Operation/Construction Requirements

AQ-E1 The project owner shall upon completion of construction, operate and maintain this equipment according to the following requirements:

In accordance with all air quality mitigation measures stipulated in the final California Energy Commission decision for the 13-AFC-01 project.

[CA PRC CEQA]

[Devices subject to this condition: D163, D164, D165, C170, D173, C178, D181, C183, D185, C188, D191, C194, D197, C200, D203, C206, D209, D210]

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

AQ-E2 The project owner shall install this equipment according to the following requirements:

The Permit to Construct shall expire one year from the issuance date, unless an extension has been granted by the Executive Officer or unless the equipment has been constructed and the operator has notified the Executive Officer prior to the operation of the equipment.

Construction of Phase 1 of the project (defined as the combined-cycle turbines and associated control equipment, the auxiliary boiler and associated control equipment, storage tank D163, and oil water separator D209), shall commence within 18 months from the date of the Permit to Construct, unless an extension is granted by the Permitting Authority (SCAQMD).

Construction of Phase 2 of the project (defined as the simple cycle turbines and associated control equipment, storage tank D164, and oil water separator D210) shall commence within 18 months of May 31, 2020 unless an extension is granted by the Permitting Authority (SCAQMD).

Construction shall not be discontinued for a period of 18 months or more at any time during Phase 1 or Phase 2.

[RULE 205, 40 CFR 52.21 - PSD]

[Devices subject to this condition: D165, D173 (combined-cycle), D185, D191, D197, D203 (simple-cycle), D181 (auxiliary boiler), C170, C178 (combined-cycle control), C188, C194, C200, C206 (simple-cycle control), C183 (auxiliary boiler control), D163, D164 (ammonia tanks), D209, D210 (oil-water separators)]

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

AQ-E3 The project owner shall operate and maintain this equipment according to the following requirements:

Total commissioning hours shall not exceed 996 hours of fired operation for each turbine from the date of initial turbine start-up. Of the 996 hours, commissioning hours without control shall not exceed 216 hours.

Two turbines may be commissioned at the same time.

The project owner shall vent this equipment to the CO oxidation catalyst and SCR control system whenever the turbine is in operation after commissioning is completed.

The project owner shall maintain records to demonstrate compliance with this condition and shall make such records available to the Executive Officer upon request. The records shall be maintained for a minimum of 5 years in a manner approved by SCAQMD. The records shall include, but not be limited to, the total number of commissioning hours, number of commissioning hours without control, and natural gas fuel usage.

[RULE 1303(a)(1)-BACT, RULE 1703(a)(2)-PSD-BACT, RULE 2005]

[Devices subject to this condition: D165, D173 (combined-cycle)]

Verification: The project owner shall submit all records including the total number of commissioning hours, number of commissioning hours without control, and fuel usage per turbine to demonstrate compliance with this condition as part of the Quarterly Operational Report required in **AQ-SC7**. The project owner shall make the site available for inspection by representatives of the District, ARB, U.S. EPA and the Energy Commission.

AQ-E4 The project owner shall operate and maintain this equipment according to the following requirements:

Total commissioning hours shall not exceed 280 hours of fired operation for each turbine from the date of initial turbine start-up. Of the 280 hours, commissioning hours without control shall not exceed 4 hours.

Four turbines may be commissioned at the same time.

The project owner shall vent this equipment to the CO oxidation catalyst and SCR control system whenever the turbine is in operation after commissioning is completed.

The project owner shall provide the SCAQMD with written notification of the initial startup date. The project owner shall maintain records in a manner approved by the SCAQMD to demonstrate compliance with this condition and the records shall be made available to SCAQMD personnel upon request. The records shall include, but not be limited to, the total number of commissioning hours, number of commissioning hours without control, and natural gas fuel usage.

[RULE 1303(a)(1)-BACT, RULE 1703(a)(2)-PSD-BACT, RULE 2005]

[Devices subject to this condition: D185, D191, D197, D203 (simple-cycle)]

Verification: The project owner shall submit all records including the total number of commissioning hours, number of commissioning hours without control, and fuel usage per turbine to demonstrate compliance with this condition as part of the Quarterly Operational Report required in **AQ-SC7**. The project owner shall make the site available for inspection by representatives of the District, ARB, U.S. EPA and the Energy Commission.

AQ-E5 The project owner shall operate and maintain this equipment according to the following requirements

Total commissioning hours shall not exceed 30 hours of fired operation for the auxiliary boiler from the date of initial boiler start-up.

The project owner shall vent this equipment to the SCR control system whenever the auxiliary boiler is in operation after commissioning is completed.

The project owner shall provide the SCAQMD with written notification of the initial startup date. The project owner shall maintain records in a manner approved by the District to demonstrate compliance with this condition and the records shall be made available to District personnel upon request. The records shall include, but not be limited to, the number of commissioning hours and natural gas fuel usage.

[RULE 1303(a)(1)-BACT, RULE 1703(a)(2)-PSD-BACT, RULE 2005]

[Devices subject to this condition: D181 (auxiliary boiler)]

Verification: The project owner shall submit all records including the total number of commissioning hours and fuel usage to demonstrate compliance with this condition as part of the Quarterly Operational Report required in **AQ-SC7**. The project owner shall make the site available for inspection by representatives of the District, ARB, U.S. EPA and the Energy Commission.

AQ-E6 The project owner shall upon completion of the construction, operate and maintain this equipment according to the following requirements:

The 1000 lbs per gross megawatt-hours CO₂ emission limit (inclusive of degradation) shall only apply if this turbine supplies greater than 1,481,141 MWh-net electrical output to a utility power distribution system on both a 12-operating-month and a 3-year rolling average basis.

Compliance with the 1000 lbs per gross megawatt-hours CO₂ emission limit (inclusive of degradation) shall be determined on a 12-operating-month rolling average basis.

This turbine shall be operated in compliance with all applicable requirements of 40 CFR 60 Subpart TTTT.

[40 CFR 60 Subpart TTTT]

[Devices subject to this condition: D165, D173]

Verification: The project owner shall submit to the CPM for approval all emissions and emission calculations to demonstrate compliance with this condition as part of the 4th quarter Quarterly Operational Report required in **AQ-SC7**.

AQ-E7 The project owner shall upon completion of the construction, operate and maintain this equipment according to the following requirements:

The 120 lbs/MMBtu CO₂ emission limit shall only apply if this turbine supplies no more than 1,481,141 MWh-net electrical output to a utility power distribution system on either a 12-operating-month or a 3-year rolling average basis.

Compliance with the 120 lbs/MMBtu CO₂ emission limit shall be determined on a 12-operating-month rolling average basis.

This turbine shall be operated in compliance with all applicable requirements of 40 CFR 60 Subpart TTTT.

[40 CFR 60 Subpart TTTT]

[Devices subject to this condition: D165, D173 (combined-cycle)]

Verification: The project owner shall submit to the CPM for approval all emissions and emission calculations to demonstrate compliance with this condition as part of the 4th quarter Quarterly Operational Report required in **AQ-SC7**.

AQ-E8 The project owner shall upon completion of the construction, operate and maintain this equipment according to the following requirements:

The 120 lbs/MMBtu CO₂ emission limit for non-base load turbines shall apply.

Compliance with the 120 lbs/MMBtu CO₂ emission limit shall be determined on a 12-operating-month rolling average basis.

This turbine shall be operated in compliance with all applicable requirements of 40 CFR 60 Subpart TTTT, including applicable requirements for recordkeeping and reporting.

[40 CFR 60 Subpart TTTT]

[Devices subject to this condition: D185, D191, D197, D203 (simple-cycle)]

Verification: The project owner shall submit to the CPM for approval all emissions and emission calculations to demonstrate compliance with this condition as part of the 4th quarter Quarterly Operational Report required in **AQ-SC7**.

AQ-E9 The project owner shall upon completion of the construction, operate and maintain this equipment according to the following requirements:

The project owner shall record the total net power generated in a calendar month in megawatt-hours.

The project owner shall calculate and record greenhouse gas emissions for each calendar month using the following formula:

$$\text{GHG} = 61.41 * \text{FF}$$

Where GHG is the greenhouse gas emissions in tons of CO₂ and FF is the monthly fuel usage in millions standard cubic feet.

The project owner shall calculate and record the CO₂ emissions in pounds per net megawatt-hour based on a 12-month rolling average. The CO₂ emissions from this equipment shall not exceed 610,480 tons per year per turbine on a 12-month rolling average basis. The calendar annual average CO₂ emissions shall not exceed 937.88 lbs per gross megawatt-hours (inclusive of equipment degradation).

The project owner shall maintain records to demonstrate compliance with this condition and shall make such records available to the Executive

Officer upon request. The records shall be maintained for a minimum of 5 years in a manner approved by SCAQMD.

[RULE 1714]

[Devices subject to this condition: D165, D173 (combined-cycle)]

Verification: The project owner shall submit to the CPM for approval all emissions and emission calculations to demonstrate compliance with this condition as part of the 4th quarter Quarterly Operational Report required in **AQ-SC7**.

AQ-E10 The project owner shall upon completion of the construction, operate and maintain this equipment according to the following requirements:

The project owner shall record the total net power generated in a calendar month in megawatt-hours.

The project owner shall calculate and record greenhouse gas emissions for each calendar month using the following formula:

$$\text{GHG} = 61.41 * \text{FF}$$

Where GHG is the greenhouse gas emissions in tons of CO₂ and FF is the monthly fuel usage in millions standard cubic feet.

The project owner shall calculate and record the CO₂ emissions in pounds per net megawatt-hour based on a 12-month rolling average. The CO₂ emissions from this equipment shall not exceed 120,765 tons per year per turbine on a 12-month rolling average basis. The calendar annual average CO₂ emissions shall not exceed 1,356.03 lbs per gross megawatt-hours (inclusive of equipment degradation).

The project owner shall maintain records to demonstrate compliance with this condition and shall make such records available to the Executive Officer upon request. The records shall be maintained for a minimum of 5 years in a manner approved by SCAQMD.

[RULE 1714]

[Devices subject to this condition: D185, D191, D197, D203 (simple-cycle)]

Verification: The project owner shall submit to the CPM for approval all emissions and emission calculations to demonstrate compliance with this condition as part of the 4th quarter Quarterly Operational Report required in **AQ-SC7**.

AQ-E11 The project owner shall comply with the following requirements:

The total electrical output on a gross basis from Combined-Cycle Turbines Nos. CCGT-1 and CCGT-2 (Devices D165 and D173, respectively),

common Steam Turbine Generator, and Simple-Cycle Turbines Nos. SCGT-1, SCGT-2, SCGT-3, and SCGT-4 (Device D185, D191, D197, and D203, respectively) shall not exceed 1094.7 MW-gross at 59 degree Fahrenheit.

The gross electrical output shall be measured at the single generator serving each of the combined-cycle turbines, the single generator serving the common steam turbine, and the single generator servicing each of the simple-cycle turbines. The monitoring equipment shall meet ANSI Standard No. C12 or equivalent, and have an accuracy of +/- 0.2 percent. The gross electrical output from the generators shall be recorded at the CEMS DAS over a 15-minute averaging time period.

The project owner shall record and maintain written records of the maximum amount of electricity produced from this equipment and shall make such records available to the Executive Officer upon request. The records shall be maintained for a minimum of 5 years in a manner approved by SCAQMD.

[RULE 1303(b)(2)-Offset, RULE 2005]

[Devices subject to this condition: D165, D173 (combined-cycle), D185, D191, D197, D203 (simple-cycle)]

Verification: The project owner shall submit to the CPM for approval all emissions and emission calculations to demonstrate compliance with this condition as part of the 4th quarter Quarterly Operational Report required in **AQ-SC7**.

AQ-E12 The project owner shall vent this equipment, during filling, only to the vessel from which it is being filled.

[RULE 1303(a)(1)-BACT]

[Devices subject to this condition: D163, D164 (ammonia tank)]

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

AQ-E13 The project owner shall construct, operate, and main this equipment according to the following requirements:

The equipment shall be equipped with a fixed cover to minimize VOC emissions.

[Devices subject to this condition: D209, D210 (oil water separator)]

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

AQ-E14 Notwithstanding the requirements of Section E conditions, the project owner may commence the construction of Phase II of this project if all the following condition(s) are met:

The BACT/LAER determination for Phase II of this project shall be reviewed and modified (by SCAQMD) as appropriate at the latest reasonable time which occurs no later than 18 months prior to the commencement of construction of Phase II of the project.

[40 CFR 52.21 - PSD]

[Devices subject to this condition: D165, D173 (combined-cycle), D185, D191, D197, D203 (simple-cycle), D181 (auxiliary boiler), C170, C178 (combined-cycle control), C188, C194, C200, C206 (simple-cycle control), C183 (auxiliary boiler control), D163, D164 (ammonia tanks), D209, D210 (oil water separator)]

Verification: The project owner shall submit to the CPM documentation that the BACT/LAER determination was reviewed by the SCAQMD prior to the commencement of construction of Phase II. The documentation shall include any modifications to the BACT/LAER determination made by the SCAQMD. Any modification to the BACT/LAER determination shall be submitted to the Energy Commission compliance project manager as an amendment request.

Applicable Rules

AQ-H1 This equipment is subject to the applicable requirements of the following Rules or Regulations:

Contaminant	Rule	Rule/Subpart
CO	District Rule	1146

[RULE 1146]

[Devices subject to this condition: D181 (auxiliary boiler)]

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

Administrative

AQ-I1 This equipment shall not be operated unless the facility holds 108,377 pounds of NOx RTCs in its allocation account to offset the annual emissions increase for the first year of operation. RTCs held to satisfy this condition may be transferred only after one year from the initial start of operation. If the hold amount is partially satisfied by holding RTCs that expire midway through the hold period, those RTCs may be transferred

upon their respective expiration dates. This hold amount is in addition to any other amount of RTCs required to be held under other condition(s) stated in this permit.

[RULE 2005]

[Devices subject to this condition: D165, D173 (combined-cycle)]

Verification: The project owner shall submit to the CPM for approval all emissions and emission calculations to demonstrate compliance with this condition as part of the 4th quarter Quarterly Operational Report required in **AQ-SC7**.

AQ-I2 This equipment shall not be operated unless the facility holds 68,575 pounds of NO_x RTCs in its allocation account to offset the annual emissions increase for the first year of operation. RTCs held to satisfy this condition may be transferred only after one year from the initial start of operation. If the hold amount is partially satisfied by holding RTCs that expire midway through the hold period, those RTCs may be transferred upon their respective expiration dates. This hold amount is in addition to any other amount of RTCs required to be held under other condition(s) stated in this permit.

[RULE 2005]

[Devices subject to this condition: D185, D191, D197, D203 (simple-cycle)]

Verification: The project owner shall submit to the CPM for approval all emissions and emission calculations to demonstrate compliance with this condition as part of the 4th quarter Quarterly Operational Report required in **AQ-SC7**.

AQ-I3 This equipment shall not be operated unless the facility holds 1,351 pounds of NO_x RTCs in its allocation account to offset the annual emissions increase for the first year of operation. RTCs held to satisfy this condition may be transferred only after one year from the initial start of operation. If the hold amount is partially satisfied by holding RTCs that expire midway through the hold period, those RTCs may be transferred upon their respective expiration dates. This hold amount is in addition to any other amount of RTCs required to be held under other condition(s) stated in this permit.

[RULE 2005]

[Devices subject to this condition: D181 (auxiliary boiler)]

Verification: The project owner shall submit to the CPM for approval all emissions and emission calculations to demonstrate compliance with this condition as part of the 4th quarter Quarterly Operational Report required in **AQ-SC7**.

Record Keeping Reporting

AQ-K1 The project owner shall provide to the District a source test report in accordance with the following requirements:

Source test results shall be submitted to the District no later than 90 days after the source tests required by conditions D29.2 (**AQ-D10**), D29.3 (**AQ-D11**), and D29.4 (**AQ-D12**), are conducted.

Emission data shall be expressed in terms of concentration (ppmv), corrected to 15 percent oxygen (dry basis), mass rate (lbs/hr), lbs/MM cubic feet, and lbs/MMBtu. In addition, solid PM emissions, if required to be tested, shall also be reported in terms of grains per DSCF.

All exhaust flow rates shall be expressed in terms of dry standard cubic feet per minute (DSCFM) and dry actual cubic feet per minute (DACFM).

All moisture concentration shall be expressed in terms of percent corrected to 15 percent oxygen.

Source test results shall also include the oxygen levels in the exhaust, the fuel flow rate (CFH), the flue gas temperature, and the generator power output (MW) under which the test was conducted.

[RULE 1303(a)(1)-BACT, RULE 1303(b)(2)-Offset, RULE 1703(a)(2) – PSD-BACT, RULE 2005]

[Devices subject to this condition: D165, D173 (combined-cycle), D185, D191, D197, D203 (simple-cycle)]

Verification: The project owner shall submit the source test results no later than 90 days following the source test date to both the District and CPM.

AQ-K2 The project owner shall provide to the District a source test report in accordance with the following requirements:

Source test results shall be submitted to the District no later than 90 days after the source tests required by conditions D29.5 (**AQ-D13**), D29.6 (**AQ-D14**), and D29.4 (**AQ-D12**), are conducted.

Emission data shall be expressed in terms of concentration (ppmv), corrected to 3 percent oxygen (dry basis), mass rate (lbs/hr), lbs/MM cubic feet, and lbs/MMBtu. In addition, solid PM emissions, if required to be tested, shall also be reported in terms of grains per DSCF.

All moisture concentration shall be expressed in terms of percent corrected to 3 percent oxygen.

Source test results shall also include, for each firing rate, the following operating data: (1) the exhaust flow rates, in actual cubic feet per minute (acfm), (2) the firing rates in Btu/hour, (3) the exhaust temperature, in degrees Fahrenheit, (4) the oxygen content of the exhaust gases, in percent, and (5) the fuel flow rate.

[RULE 1146, RULE 1303(a)(1)-BACT, RULE 1303(b)(2)-Offset, RULE 1703(a)(2) – PSD-BACT, RULE 2005]

[Devices subject to this condition: D181]]

Verification: The project owner shall submit the source test results no later than 90 days following the source test date to both the District and CPM.

PUBLIC HEALTH CONDITIONS OF CERTIFICATION

There are no conditions of certification for **PUBLIC HEALTH**.

WORKER SAFETY CONDITIONS OF CERTIFICATION

WORKER SAFETY-1 The project owner shall submit to the compliance project manager (CPM) a copy of the Project Construction Health and Safety Program containing the following:

- a Construction Personal Protective Equipment Program;
- a Construction Exposure Monitoring Program;
- a Construction Injury and Illness Prevention Program;
- a Construction Emergency Action Plan; and
- a Construction Fire Prevention Plan.

The Personal Protective Equipment Program, the Exposure Monitoring Program, and the Injury and Illness Prevention Program shall be submitted to the CPM for review and approval concerning compliance of the program with all applicable safety orders. The Construction Emergency Action Plan and the Fire Prevention Plan shall be submitted to the Long Beach Fire Department for review and comment prior to submittal to the CPM for approval.

The Construction Emergency Action Plan must include a Tsunami Mitigation Plan which explains evacuations routes and offsite refuge, the local tsunami warning system contained in the Tsunami Annex of the Los Angeles County Operational Area Emergency Response Plan and information on tsunami safety and preparedness.

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 and Safety and Health Program. The project owner shall provide to the CPM a copy of a letter from the Long Beach Fire Department stating the fire department's comments on the Construction Fire Prevention Plan and Emergency Action Plan have been addressed.

WORKER SAFETY-2 The project owner shall submit to the CPM a copy of the Project Operations and Maintenance Safety and Health Program containing the following:

- an Operation Injury and Illness Prevention Plan;
- an Emergency Action Plan;
- Hazardous Materials Management Program;
- Fire Prevention Plan (Cal Code Regs., tit. 8, § 3221);
- Fire Protection System Impairment Program; and

- Personal Protective Equipment Program (Cal Code Regs, tit.8, §§ 3401—3411).

The Operation Injury and Illness Prevention Plan, Hazardous Materials Management Program, Emergency Action Plan, Fire Prevention Plan, Fire Protection System Impairment Program, and Personal Protective Equipment Program shall be submitted to the CPM for review and approval concerning compliance of the programs with all applicable safety orders. The Fire Prevention Plan, Fire Protection System Impairment Program, and the Emergency Action Plan shall also be submitted to the Long Beach Fire Department for review and comment.

The Emergency Action Plan must include a Tsunami Mitigation Plan which explains evacuations routes and offsite refuge, the local tsunami warning system contained in the Tsunami Annex of the Los Angeles County Operational Area Emergency Response Plan and information on tsunami safety and preparedness.

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 to the CPM of a letter from the Long Beach Fire Department stating the fire department's timely comments have been addressed on the Operations Fire Prevention Plan, Fire Protection System Impairment Program, and Emergency Action Plan.

WORKER SAFETY-3 The project owner shall provide a site Construction Safety Supervisor (CSS) who, by way of training and/or experience, is knowledgeable of power plant construction activities and relevant laws, ordinances, regulations, and standards; is capable of identifying workplace hazards relating to the construction activities; and has authority to take appropriate action to assure compliance and mitigate hazards. The CSS shall:

- have overall authority for coordination and implementation of all occupational safety and health practices, policies, and programs;
- assure that the safety program for the project complies with Cal/OSHA and federal regulations related to power plant projects;
- assure that all construction and commissioning workers and supervisors receive adequate safety training, including tsunami preparation and response training;
- complete accident and safety-related incident investigations and emergency response reports for injuries and inform the CPM of safety-related incidents; and

- assure that all the plans identified in Conditions of Certification **WORKER SAFETY-1** and **-2** are implemented.

Verification: At least 30 days prior to the start of site mobilization, the project owner shall submit to the CPM the name and contact information for the Construction/Demolition Safety Supervisor (CSS). The contact information of any replacement CSS shall be submitted to the CPM within one business day.

The project owner shall ensure that the CSS submits in the Monthly Compliance Report a monthly safety inspection report to include:

- record of all employees trained for that month (all records shall be kept on site for the duration of the project);
- summary report of safety management actions and safety-related incidents that occurred during the month;
- report of any continuing or unresolved situations and incidents that may pose danger to life or health including near misses;
- report any visits from Cal/OSHA and/or any complaints from workers to Cal/OSHA; and
- report of accidents, near misses, and injuries that occurred during the month.

WORKER SAFETY-4 The project owner shall make payments to the Delegate Chief Building Official (DCBO) for the services of a Safety Monitor, who shall be an independent third party, based upon a reasonable fee scheduled to be negotiated between the project owner and the DCBO. Those services shall be in addition to other work performed by the DCBO. The Safety Monitor shall be selected by the DCBO and approved by the CPM. The Safety Monitor will report directly to the DCBO and CPM and will be responsible for verifying that the Construction Safety Supervisor, as required in Condition of Certification **WORKER SAFETY-3**, implements all appropriate Cal/OSHA and Energy Commission safety requirements. The Safety Monitor shall conduct on-site (including linear facilities) safety inspections at intervals necessary to fulfill those responsibilities.

Verification: 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 30 days prior to the start of site mobilization, the project owner shall submit to the CPM a copy of the AED training and maintenance program for review and approval. At the start of construction, the project owner shall submit a list of signatures of all the people who have been trained in the use of the portable AED to the CPM. In addition, the project owner shall proof that a portable AED is available on site.

WORKER SAFETY-6 The project owner shall prepare and submit to the CPM for review and approval, an Emergency Access Plan that shows a secondary emergency access to the AEC site where the specifications of the roadway will comply with the Long Beach Municipal Code and the 2013 (or latest edition) California Fire Code. A secondary access must be maintained to the standards listed above for the life of the project.

Verification: At least 60 days prior to the start of construction, or within a time frame approved by the CPM, the project owner shall submit the Emergency Access Plan showing the secondary emergency access to the Long Beach Fire Department for review and timely comment, and to the CPM for review and approval.

WORKER SAFETY-7 The project owner shall adhere to all applicable provisions of the latest version of NFPA 850: Recommended Practice for Fire Protection for Electric Generating Plants and High Voltage Direct Current Converter Stations as the minimum level of fire protection. The project owner shall interpret and adhere to all applicable NFPA 850 recommended provisions and actions stating “should” as “shall.” In any situations where both NFPA 850 and the state or local LORS have application, the more restrictive shall apply. All fire protection system specifications and drawings shall be submitted to the CPM for review and approval.

Verification: The project owner shall ensure that the project adheres to all applicable provisions of NFPA 850. At least 60 days prior to the start of construction of the fire protection system, the project owner shall provide all fire protection system specifications and drawings to the Long Beach Fire Department for review and comment, to the CPM for review and approval, and to the DCBO for plan check and construction inspection.

WORKER SAFETY-8 The project owner shall ensure that the natural gas compressor buildings at the Alamitos Energy Center are designed to comply with the

requirements set forth in 49 CFR 192 Sections 192.163 through 192.173 and sections 192.731 through 192.736 regarding fire and explosion protection systems. All documentation of plans for the compressor enclosure shall be submitted to the CPM for review and approval.

Verification: At least 60 days prior to the start of construction of the natural gas compressor building the project owner shall submit to the LBFD for review and comment, and to the CPM for review and approval, documentation of plans for the compressor enclosure at the Alamitos Energy Center demonstrating compliance with the condition described above.

HAZARDOUS MATERIALS MANAGEMENT PROPOSED CONDITIONS OF CERTIFICATION

Hazardous Materials Table 1

Chemical Inventory, Description of Hazardous Materials Stored Onsite, and Reportable Quantities

Trade Name	Chemical Name	CAS Number	Maximum Quantity Onsite	CERCLA SARA RQ ^a	RQ of Material as Used Onsite ^b	EHS TPQ ^c	Regulated Substance TQ ^d	Prop 65
Aqueous ammonia (19% NH ₃ by weight)	Aqueous ammonia	7664-41-7	70,000 gallons ^e	100 pounds	526 pounds	500 pounds	500 pounds	No
Anti-scalant (e.g., NALCO PermaTreat® PC-191T)	Antiscalant	Various	400 gallons	e	e	e	e	No
Battery electrolyte	Sulfuric acid	7664-93-9	400 gallons	1,000 pounds	2,632 pounds	1,000 pounds	1,000 pounds	Yes
Citric acid	Citric acid	77-92-9	625 pounds	e	e	e	e	No
Cleaning chemicals/detergents	Various	None	25 gallons	e	e	e	e	No
Cleaning chemicals/detergents for membrane-based water treatment systems (e.g., NALCO PermaClean® PC-77, NALCO PermaClean® PC-40, and NALCO PermaClean® PC-98)	Various	None	55 gallons	e	e	e	e	No
Sanitizing chemicals for membrane-based (MF/RO/EDI) water treatment systems (e.g., NALCO PermaClean® PC-11)	Dibromoacetonitrile 2,2-dibromo-3-nitrilopropionamide Polyethylene glycol	3252-43-5 10222-01-2 25322-68-3	400 gallons	e	e	e	e	No No No
Diesel No. 2	Diesel No. 2	68476-34-6	200 gallons	e	e	e	e	No
Hydraulic fluid	Phosphate ester	None	50 gallons	42 gallons ^f	42 gallons ^f	e	e	No
Laboratory reagents	Various	Various	10 gallons	e	e	e	e	No

Chemical Inventory, Description of Hazardous Materials Stored Onsite, and Reportable Quantities

Trade Name	Chemical Name	CAS Number	Maximum Quantity Onsite	CERCLA SARA RQ ^a	RQ of Material as Used Onsite ^b	EHS TPQ ^c	Regulated Substance TQ ^d	Prop 65
Lubrication oil	Oil	None	12,000 gallons	42 gallons ^f	42 gallons ^f			No
Mineral insulating oil	Oil	8012-95-1	35,000 gallons	42 gallons ^f	42 gallons ^f			No
Waste oil	Oil	None	250 gallons	e	e	e	e	No
Amine solution	Amine	2008-39-1	400 gallons	e	e	e	e	No
Sodium bisulfite (NaHSO ₃)	Sodium bisulfite	7631-90-5	500 gallons	5,000 pounds	5,000 pounds	e	e	No
Sulfuric acid (93%)	Sulfuric acid	7664-93-9	600 gallons	1,000 pounds	1,075 pounds	1,000 pounds	1,000 pounds	Yes
Sodium hydroxide (NaOH) (20 to 50%)	Sodium hydroxide	1310-73-2	400 gallons	1,000 pounds	2,000 pounds	e	e	No
Sodium hypochlorite (12.5%)	Sodium hypochlorite	7681-52-9	200 gallons	100 pounds	800 pounds	e	e	No
Hydrochloric acid	Hydrochloric acid	7647-01-0	25 gallons	5,000 pounds	5,000 pounds	e	15,000 pounds	No
Sodium nitrite	Sodium nitrite	7632-00-0	300 pounds	100 pounds	100 pounds	e	e	No
Proprietary corrosion/scale inhibitor (e.g., NALCO TRAC107)	Inorganic salt Sodium hydroxide	Proprietary 1310-73-2	55 gallons	e e	e e	e e	e e	No No
Proprietary nonoxidizing biocide (e.g., NALCO 7330)	5-chloro-2-methyl-4-isothiazolin-3-one (1.1%) 2-methyl-4-isothiazolin-3-one (0.3%)	26172-55-4 2682-20-4	400 gallons	e	e	e	e	No No
Propylene glycol	Propylene glycol	57-55-6	3,000 gallons	e	e	e	e	Yes
Trisodium phosphate (Na ₃ PO ₄) or phosphate/sodium hydroxide blend (e.g., NALCO BT-3400 or NALCO BT-4000)	Trisodium phosphate	7601-54-9	400 gallons	e	e	e	e	No
Sulfur hexafluoride	Sulfur hexafluoride	2551-62-4	320 pounds	e	e	e	e	No
Acetylene	Acetylene	47-86-2	500 cubic feet	e	e	e	e	No
Oxygen	Oxygen	7782-44-7	500 cubic feet	e	e	e	e	No

Chemical Inventory, Description of Hazardous Materials Stored Onsite, and Reportable Quantities

Trade Name	Chemical Name	CAS Number	Maximum Quantity Onsite	CERCLA SARA RQ ^a	RQ of Material as Used Onsite ^b	EHS TPQ ^c	Regulated Substance TQ ^d	Prop 65
Propane	Propane	74-98-6	200 cubic feet	e	e	e	e	No
EPA Protocol gases	Various	Various	2,000 cubic feet	e	e	e	e	No
Cleaning chemicals	Various	Various	Varies (less than 25 gallons of liquids or 100 pounds solids for each chemical)	e	e	e	e	No
Paint	Various	Various	Varies (less than 25 gallons of liquids or 100 pounds solids for each type)	e	e	e	e	No

^a RQ for a pure chemical, per the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Superfund Amendments and Reauthorization Act (SARA) (Ref. 40 Code of Federal Regulations [CFR] Section 302, Table 302.4). Release equal to or greater than RQ must be reported. Under California law, any amount that has a realistic potential to adversely affect the environment or human health or safety must be reported.

^b RQ for materials as used onsite. Since some of the hazardous materials are mixtures that contain only a percentage of an RQ, the RQ of the mixture can be different than for a pure chemical. For example, if a material only contains 10 percent of a reportable chemical and the RQ is 100 pounds, the RQ for that material will be (100 pounds)/(10%) = 1,000 pounds.

^c Extremely Hazardous Substance (EHS) TPQ (Ref. 40 CFR Part 355, Appendix A). If quantities of extremely hazardous materials equal to or greater than the TPQ are handled or stored, they must be registered with the local Administering Agency.

^d TQ is from Title 19 of the California Code of Regulations (CCR) Section 2770.5 (state) or Title 40 of the CFR, Section 68.130 (federal).

^e No reporting requirement. Chemical has no listed threshold under this requirement.

^f State RQ for oil spills that will reach California state waters [Ref. CA Water Code Section 13272(f)].

^g The CCGT has a 40,000-gallon ammonia tank and the SCGT has a 30,000-gallon ammonia tank.

HAZ-1 The project owner shall not use any hazardous materials not listed in Hazardous Materials Table 1, or in greater quantities or strengths than those identified by chemical name in Hazardous Materials Table 1, unless approved in advance by the compliance project manager (CPM).

Verification: The project owner shall provide to the CPM, in the Annual Compliance Report, the Hazardous Materials Business Plan's list of hazardous materials and quantities contained at the facility.

HAZ-2 The project owner shall concurrently provide a Hazardous Materials Business Plan (HMBP), a Spill Prevention Control and Countermeasure Plan (SPCC), and a Risk Management Plan (RMP) to the Long Beach Environmental Health Bureau (LBEHB) and the CPM for review. After receiving comments from the LBEHB and the CPM, the project owner shall reflect all recommendations in the final documents. Copies of the final HMBP, SPCC, and RMP shall then be provided to the LBEHB 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 HMBP and SPCC 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 (LBEHB) 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. The Safety Management Plan shall be submitted to the CPM for review and approval.

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 facilities shall be designed to the ASME code for Unfired Pressure Vessels, Section VIII, Division 1. The storage tanks shall be protected by a secondary containment vault capable of holding precipitation from a 24-hour, 25-year storm event plus 100 percent of the capacity of the largest tank within its boundary. The containment vaults shall incorporate a cover design that allows free flow of any aqueous ammonia release into the containment, yet limits the total vent area to not more than 25 square feet. The final design drawings and specifications for the ammonia storage tanks and secondary containment basins shall be submitted to the CPM for review and approval.

Verification: At least 60 days prior to start of construction of the aqueous ammonia storage and transfer facilities, the project owner shall submit final design drawings and

specifications for the 30,000 and 40,000 ammonia storage tanks, ammonia pumps, ammonia detectors, and secondary containment basins 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 MC-307/DOT-407.

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 Prior to initial delivery, the project owner shall direct vendors delivering bulk quantities (>800 gallons per delivery) of hazardous material (e.g., aqueous ammonia, lubricating and insulating oils) to the site to use only the route approved by the CPM (from I-405 to SR 22 (7th Street), west along 7th Street, and then south on Studebaker Road to the facility). The project owner shall obtain approval of the CPM if an alternate route is desired.

Verification: At least 60 days prior to initial receipt of bulk quantities (>800 gallons per delivery) of hazardous materials (e.g., aqueous ammonia, lubricating or insulating oils) and at least 10 days prior to a new vendor delivery of bulk quantities (>800 gallons per delivery), the project owner shall submit a copy of the letter containing the route restriction directions that were provided to the hazardous materials vendor 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, incident 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 would 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 Security Guideline for the Electricity Sector: Physical Security v1.9).

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;
6. a statement (refer to sample, **ATTACHMENT A**), signed by the project owner certifying that background investigations have been conducted on all project personnel. Background investigations shall be restricted to determine the accuracy of employee identity and employment history and shall be conducted in accordance with state and federal laws regarding security and privacy;
7. a statement(s) (refer to sample, Attachment B), signed by the contractor or authorized representative(s) for any permanent contractors or other technical contractors (as determined by the CPM after consultation with the project owner), that are present at any time on the site to repair, maintain, investigate, or conduct any other technical duties involving critical components (as determined by the CPM after consultation with the project owner) certifying that background investigations have been conducted on contractors who visit the project site;

8. site access controls for employees, contractors, vendors, and visitors;
9. a statement(s) (refer to sample, Attachment C), signed by the owners or authorized representative of hazardous materials transport vendors, certifying that they have prepared and implemented security plans in compliance with 49 CFR 172.880, and that they have conducted employee background investigations in accordance with 49 CFR Part 1572, subparts A and B;
10. 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 that are able to pan, tilt, and zoom, 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,
11. additional measures to ensure adequate perimeter security consisting of either:
 - A. security guard(s) present 24 hours per day, seven days per week;
or
 - B. power plant personnel on site 24 hours per day, seven 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 Corporation, after consultation with both appropriate law enforcement agencies and the project owner.

Verification: At least 30 days prior to receiving initial hazardous materials on site for commissioning or operations, 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 signed statements similar to Attachments A and B 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 signed statement similar to Attachment C that the operations security plan includes all current hazardous materials

transport vendor certifications for security plans and employee background investigations.

HAZ-9 The project owner shall not allow any fuel gas pipe cleaning activities on site, 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. air, nitrogen, steam) or mechanical pigging shall be used as per the latest edition of NFPA 56, Standard for Fire and Explosion Prevention during Cleaning and Purging of Flammable Gas Piping Systems. A written procedure shall be developed and implemented as per NFPA 56, section 4.4.1. The written procedure shall be provided to the CPM for review and approval.

Verification: At least 30 days before any fuel gas pipe cleaning activities begin, the project owner shall submit a copy of the Fuel Gas Pipe Cleaning Work Plan (as described in the 2014 NFPA 56, section 4.4.1) which shall indicate the method of cleaning to be used, what gas will be used, the source of pressurization, and whether a mechanical PIG will be used, to the CBO for information and to the CPM for review and approval.

HAZ-10 The project owner shall include in their Emergency Action Plan (EAP) a procedure to provide an immediate notification to the Rosie the Riveter school in case of a catastrophic aqueous ammonia spill. The project owner shall also provide to the school a specific best practices response procedure that school personnel should follow after being notified of a catastrophic aqueous ammonia spill. The safety procedures shall be provided to the CPM for review and approval.

Verification: At least 30 days before delivery of aqueous ammonia to the site, the project owner shall provide a copy of the EAP highlighting the notification requirement to the school and a copy of the safety procedures being provided to the school to the CPM for review and approval.

SAMPLE CERTIFICATION (Attachment A)

Affidavit of Compliance for Project Owners

I,

(Name of person signing affidavit)(Title)

do hereby certify that background investigations to ascertain the accuracy of the identity and employment history of all employees of

(Company name)

for employment at

(Project name and location)

have been conducted as required by the California Energy Commission Decision for the above-named project.

(Signature of officer or agent)

Dated this _____ day of _____, 20 _____.

THIS AFFIDAVIT OF COMPLIANCE SHALL BE APPENDED TO THE PROJECT SECURITY PLAN AND SHALL BE RETAINED AT ALL TIMES AT THE PROJECT SITE FOR REVIEW BY THE CALIFORNIA ENERGY COMMISSION COMPLIANCE PROJECT MANAGER.

SAMPLE CERTIFICATION (Attachment B)

Affidavit of Compliance for Contractors

I,

(Name of person signing affidavit)(Title)

do hereby certify that background investigations to ascertain the accuracy of the identity and employment history of all employees of

(Company name)

for contract work at

(Project name and location)

have been conducted as required by the California Energy Commission Decision for the above-named project.

(Signature of officer or agent)

Dated this _____ day of _____, 20 _____.

THIS AFFIDAVIT OF COMPLIANCE SHALL BE APPENDED TO THE PROJECT SECURITY PLAN AND SHALL BE RETAINED AT ALL TIMES AT THE PROJECT SITE FOR REVIEW BY THE CALIFORNIA ENERGY COMMISSION COMPLIANCE PROJECT MANAGER.

SAMPLE CERTIFICATION (Attachment C)

Affidavit of Compliance for Hazardous Materials Transport Vendors

I,

(Name of person signing affidavit)(Title)

do hereby certify that the below-named company has prepared and implemented security plans in conformity with 49 CFR 172.880 and has conducted employee background investigations in conformity with 49 CFR 172, subparts A and B,

(Company name)

for hazardous materials delivery to

(Project name and location)

as required by the California Energy Commission Decision for the above-named project.

(Signature of officer or agent)

Dated this _____ day of _____, 20 _____.

THIS AFFIDAVIT OF COMPLIANCE SHALL BE APPENDED TO THE PROJECT SECURITY PLAN AND SHALL BE RETAINED AT ALL TIMES AT THE PROJECT SITE FOR REVIEW BY THE CALIFORNIA ENERGY COMMISSION COMPLIANCE PROJECT MANAGER.

WASTE MANAGEMENT CONDITIONS OF CERTIFICATION

WASTE-1 The project owner shall ensure that the project site is properly characterized and remediated as necessary pursuant to the corrective action plans reviewed by Department of Toxic Substances Control (DTSC) and the Long Beach Fire Department (LBFD). In no event shall project construction commence in areas requiring characterization and remediation until the CPM determines, that all necessary remediation has been accomplished.

Prior to and during grading and construction, discovery of additional soil contamination not previously identified or already included in corrective action plans, work plans, or closure plans, must be reported to the CPM, DTSC, and the LBFD immediately.

Verification: At least 45 days prior to remediation the project owner shall submit to the CPM for approval copies of remediation documentation, such as, but not limited to, soil sample results, work plans, and agreements regarding the corrective action plan requirements and activities at the project site. Pertinent correspondence such as, but not limited to, soil sample results, work plans, agreements, and authorizations involving LBFD, and/or (if applicable) the DTSC, regarding the corrective action plan requirements and activities at the project site will be provided to the CPM within 10 days of receipt.

At least 15 days prior to the start of site mobilization, the project owner shall provide to the CPM written notice from the appropriate regulatory agency that the project site has been investigated and remediated as necessary in accordance with the corrective action plan.

If soil contamination not previously identified or already included in corrective action plans, work plans or closure plans is encountered prior to or during grading, the project owner shall notify the CPM and DTSC, revise the approved work plan and submit it for concurrent CPM, LBFD, and DTSC review within 30 days after contamination is identified. Comments received within 30 days from all parties will be incorporated and provided to the CPM for approval.

WASTE-2 The project owner shall prepare and submit to the CPM a Soils Management Plan (SMP) prior to any earthwork. The SMP must be prepared by a California-Registered Geologist or a California-Registered Civil Engineer with sufficient experience in hazardous waste management. The SMP shall be updated as needed to reflect changes in laws, regulations or site conditions. An SMP summary report, which includes all analytical data and other findings, must be submitted once the earthwork has been completed. Topics covered by the SMP shall include, but not be limited to:

- Land use history, including description and locations of known contamination.
- The nature and extent of previous investigations and remediation at the site.
- The nature and extent of unremediated areas at the Alamitos Generating Station.
- A listing and description of institutional controls, such as the county's excavation ordinance and other local, state, and federal regulations and laws that would apply to Alamitos Power Plant.
- Names and positions of individuals involved with soils management and their specific role.
- An earthwork schedule.
- Requirements for site-specific Health and Safety Plans (HSPs) to be prepared by all contractors at Alamitos Power Plant. The HSP should be prepared by a Certified Industrial Hygienist and would protect onsite workers by including engineering controls, personal protective equipment, monitoring, and security to prevent unauthorized entry and to reduce construction related hazards. The HSP should address the possibility of encountering subsurface hazards including hazardous waste contamination and include procedures to protect workers and the public.
- Hazardous waste determination and disposal procedures for known and previously unidentified contamination.
- Requirements for site specific techniques at the site to minimize dust, manage stockpiles, run-on and run-off controls, waste disposal procedures, etc.
- Copies of relevant permits or closures from regulatory agencies.

Verification: At least 45 days prior to any earthwork, the project owner shall submit the SMP to the CPM for review and approval. All earthwork at the site shall be based on the SMP. A SMP summary shall be submitted to CPM within 25 days of completion of any earthwork.

WASTE-3 Prior to demolition of existing structures the project owner shall complete and submit a SCAQMD Asbestos Demolition Notification Form to the CPM and the SCAQMD. Once submitted the project owner shall remove all asbestos-containing material (ACM) from the site prior to demolition.

Verification: No less than sixty (60) days prior to commencement of structure demolition, the project owner shall provide the Asbestos Demolition Notification Form and any update notifications to the CPM and to the SCAQMD. The project owner shall inform the CPM via the monthly compliance report, of the data when all ACM is removed from the site.

WASTE-4 The project owner shall provide the resume 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 resume 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 resume of the professional engineer or professional geologist to the CPM for review and approval.

WASTE-5 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 instruments, or other signs, the professional engineer or professional geologist shall inspect the site, determine the need for sampling to confirm the nature and extent of contamination, and provide a written report to the project owner, representatives of DTSC, and the CPM stating the recommended course of action.

Depending on the nature and extent of contamination, the professional engineer or professional geologist shall have the authority to temporarily suspend construction activity at that location for the protection of workers or the public. If, in the opinion of the professional engineer or professional geologist, significant remediation may be required, the project owner shall contact the CPM and representatives of the DTSC and the LBFD for guidance and possible oversight.

Verification: The project owner shall submit any final reports filed by the professional engineer or professional geologist to the CPM within 5 days of their receipt. The project owner shall notify the CPM within 24 hours of any orders issued to halt construction.

WASTE-6 The project owner shall prepare a Construction Waste Management Plan for all wastes generated during construction of the facility and shall submit the plan to the CPM for review and approval. The plan shall contain, at a minimum, the following:

- a description of all construction waste streams, including projections of frequency, amounts generated, and hazard classifications;
- 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 method for collecting weigh tickets or other methods for verifying the volume of transported and or location of waste disposal; and,
- a method for reporting to demonstrate project compliance with construction waste diversion requirements of 60 percent pursuant to the CalGreen Code and Construction and city of Long Beach Construction & Demolition Debris Program.

Verification: The project owner shall submit the Construction Waste Management Plan to the CPM for approval no less than 30 days prior to the initiation of construction activities at the site.

The project owner shall also document in each monthly compliance report (MCR) 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 Construction Waste Management Plan; and update the Construction Waste Management Plan, as necessary, to address current waste generation and management practices.

WASTE-7 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 24 hours 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-8 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;
- information and summary records of conversations with the local Certified Unified Program Agency and the DTSC regarding any waste management requirements necessary for project activities. Copies of all required waste management permits, notices, and/or authorizations shall be included in the plan and updated as necessary;
- a detailed description of how facility wastes will be managed and any contingency plans to be employed, in the event of an unplanned closure or planned temporary facility closure; and
- a detailed description of how facility wastes will be managed and disposed upon closure of the facility.

Verification: The project owner shall submit the Operation Waste Management Plan to the CPM for approval no less than 30 days prior to the start of project operation. The project owner shall submit any required revisions to the CPM within 20 days of notification from the CPM that revisions are necessary.

The project owner shall also document in each Annual Compliance Report the actual volume of wastes generated and the waste management methods used during the year; provide a comparison of the actual waste generation and management methods used to those proposed in the original Operation Waste Management Plan; and update the Operation Waste Management Plan as necessary to address current waste generation and management practices.

WASTE-9 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.

BIOLOGICAL RESOURCES CONDITIONS OF CERTIFICATION

DESIGNATED BIOLOGIST SELECTION

BIO-1 The project owner shall assign at least one Designated Biologist to the project. The project owner shall submit the resume of the proposed Designated Biologist, with at least three references and contact information, to the Energy Commission Compliance Project Manager (CPM) for approval.

The Designated Biologist must meet the following minimum qualifications:

1. Bachelor's degree in biological sciences, zoology, botany, ecology, or a closely related field;
2. Three years of experience in field biology or current certification of a nationally recognized biological society, such as The Ecological Society of America or The Wildlife Society; and
3. At least one year of field experience with biological resources found in or near the project area.

In lieu of the above requirements, the resume shall demonstrate to the satisfaction of the CPM that the proposed Designated Biologist or alternate has the appropriate training and background to effectively implement the conditions of certification.

Verification: The project owner shall submit the specified information at least 75 days prior to the start of site mobilization or construction-related ground disturbance activities. No pre-construction site mobilization or construction related activities shall commence until a Designated Biologist has been approved by the CPM.

The project owner may replace a Designated Biologist by submitting the required resume, references, and contact information to the CPM for review and approval and to the CDFW and USFWS for review and comment, at least ten working days prior to the termination or release of the then-current Designated Biologist. In an emergency, the project owner shall immediately notify the CPM to discuss the qualifications and approval of a short-term replacement while a permanent Designated Biologist is proposed to the CPM for consideration.

The CPM may withhold approval of a Designated Biologist based upon proof that a proposed Designated Biologist has repeatedly failed to comply with the conditions of any Energy Commission license as they pertain to biological resources. If the project owner proposes to use a Designated Biologist previously-approved by the Energy Commission within the preceding five (5) years, the CPM shall have ten (10) business days to review the resume and statement of availability of the proposed Designated Biologist. The CPM may withhold approval of a previously-approved Designated

Biologist only if (1) the non-compliance with conditions of an Energy Commission license was documented in the compliance record for the previous Energy Commission license project work or (2) if the proposed previously approved Designated Biologist's qualifications are not commensurate with all of the minimum qualifications identified in condition **BIO-1**. The CPM shall provide notice of disapproval of the proposed Designated Biologist within ten (10) business days of receipt of the resume and statement of availability of any proposed Designated Biologist. In the case of a previously-approved Designated Biologist, failure to provide notice within (10) business days of receipt of the resume and statement of availability of the proposed Designated Biologist shall be deemed approval of that candidate.

The CPM shall meet and confer with the project owner regarding the disapproval of a previously-approved Designated Biologist or the need to remove or replace a Designated Biologist. Removal or replacement may occur if the CPM can establish that the Designated Biologist has repeatedly failed to comply with the conditions of the AEC license that pertain to biological resources.

In the absence of comments, the CPM shall deem the Designated Biologist acceptable to USFWS and/or CDFW.

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, demolition, and construction activities. At the direction of the CPM, the project owner may terminate the Designated Biologist's function during plant operation. However, the project owner shall appoint a replacement Designated Biologist at any time as directed by the CPM, and will ensure the same duties are performed during closure and restoration activities. If no Designated Biologist is available at any time during the life of the project (including operation phase) and the CPM determines that project-related actions may affect biological resources, the CPM may direct the project owner to assign a Biological Monitor or replacement Designated Biologist, for short-term or long-term monitoring and reporting. The Designated Biologist may be assisted by the approved Biological Monitor(s) but remains the contact for the project owner and CPM. The Designated Biologist Duties shall include the following:

1. Advise the project owner's Construction and Operation Managers on the implementation of the biological resources conditions of certification;
2. Consult on the preparation of the Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) to be submitted by the project owner;

3. Be available to supervise, conduct and coordinate mitigation, monitoring, and other biological resources compliance efforts, particularly in areas requiring avoidance or containing sensitive biological resources, such as special status species or their habitat;
4. Clearly mark sensitive biological resource areas and inspect these areas at appropriate intervals for compliance with regulatory terms and conditions;
5. Inspect or direct the site personnel how to inspect active construction areas where animals may have become trapped prior to construction commencing each day. Inspect or direct the site personnel how to inspect the installation of structures that prevent entrapment or allow escape during periods of construction inactivity. Periodically inspect areas with high vehicle activity (e.g., parking lots) for animals in harm's way. Inspect soil or spoil stockpiles and dust abatement watering for compliance with Condition of Certification **BIO-7**. Inspect erosion control materials (e.g., hay bales) to confirm weed-free certification. Inspect weed infestations and monitor eradication measures to determine success. Inspect trash receptacles, monitor site personnel compliance with trash handling, pet prohibitions, and all other WEAP components (Condition of Certification **BIO-5**);
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;
9. Train the Biological Monitors as appropriate, and ensure their familiarity with the BRMIMP, Worker Environmental Awareness Program (WEAP) training, and all permits; and
10. Maintain the ability to be in regular, direct communication with representatives of CDFW, USFWS, and CPM, including notifying these agencies of dead or injured listed species and reporting special status species observations to the California Natural Diversity Database.

Verification: The Designated Biologist will notify the CPM of any non-compliance or special-status species injury or mortality within one (1) working day of the incident. The Designated Biologist shall submit in the monthly compliance report to the CPM copies of

all written reports and summaries that document construction activities that have the potential to affect biological resources. The Designated Biologist's written records will be made available for the CPM's inspection on request at any time during normal business hours. During project operation, the Designated Biologist(s) shall submit record summaries in the annual compliance report unless their duties cease, as approved by the CPM.

BIOLOGICAL MONITOR SELECTION

BIO-3 The project owner's CPM-approved Designated Biologist shall submit the resume, at least three references, and contact information of the proposed Biological Monitor(s) to the CPM for approval. The resume shall demonstrate, to the satisfaction of the CPM, the appropriate education and experience to accomplish the assigned biological resource tasks.

Verification: The project owner shall submit the specified information to the CPM for approval at least 30 days prior to the start of any project-related site disturbance activities. Within 10 days of completion of training, the Designated Biologist shall submit a written statement to CPM confirming that individual Biological Monitor(s) have been trained including the date when training was completed. If additional biological monitors are needed during construction, the specified information shall be submitted to the CPM for approval at least 10 days prior to their first day of monitoring activities.

DESIGNATED BIOLOGIST AND BIOLOGICAL MONITOR AUTHORITY

BIO-4 The project owner's construction/operation manager shall act on the advice of the Designated Biologist and Biological Monitor(s) to ensure conformance with the biological resources conditions of certification.

If required by the Designated Biologist or Biological Monitor(s), the project owner's construction/operation manager shall halt all site mobilization, ground disturbance, grading, construction, and operation activities in areas specified by the Designated Biologist. The Designated Biologist shall:

1. Require a halt to all activities in any area when determined that there would be an unauthorized adverse impact to biological resources if the activities continued;
2. Inform the project owner and the construction/operation manager when to resume activities;
3. Notify the CPM if there is a halt of any activities and advise the CPM of any corrective actions that have been taken or would be instituted as a result of the work stoppage; and

4. The CPM, in coordination with CDFW or USFWS, as appropriate, will determine if corrective action has been effective and will direct the project owner to take further corrective action as needed.

If the Designated Biologist is unavailable for direct consultation, the Biological Monitor shall act on behalf of the Designated Biologist.

Verification: The project owner shall ensure that the Designated Biologist or Biological Monitor notifies the CPM immediately (and no later than the morning following the incident, or Monday morning in the case of a weekend) of any non-compliance or a halt of any site mobilization, ground disturbance, grading, construction, and operation activities. The project owner shall notify the CPM of the circumstances and actions being taken to resolve the problem within one (1) working day of initiating the corrective action.

WORKER ENVIRONMENTAL AWARENESS PROGRAM (WEAP)

BIO-5 The project owner shall develop and implement a project-specific Worker Environmental Awareness Program (WEAP) and shall secure approval for the WEAP from the CPM. The WEAP shall be administered to all onsite personnel including surveyors, construction engineers, employees, contractors, contractor's employees, supervisors, inspectors, and subcontractors. The WEAP shall be implemented during site mobilization, ground disturbance, grading, construction, operation, and closure. The WEAP shall:

1. Be developed by or in consultation with the Designated Biologist and consist of an on-site or training center presentation in which supporting electronic media and written material is made available to all participants;
2. Discuss the locations and types of sensitive biological resources on the project site and adjacent areas, explain the reasons for protecting these resources, and the function of flagging in designating sensitive resources and authorized work areas;
3. Discuss federal and state resource protection laws and explain penalties for violation of applicable laws, ordinances, regulations, and standards (e.g., federal and state endangered species acts);
4. Place special emphasis on protected birds including Belding's savannah sparrow and burrowing owl, including information on physical characteristics, distribution, behavior, ecology, sensitivity to human activities, legal protection and status, penalties for violations, reporting requirements, and protection measures;
5. Include a discussion of fire prevention measures to be implemented by workers during project activities; request workers to dispose of

cigarettes and cigars appropriately and not leave them on the ground or buried;

6. Include a discussion of the biological resources conditions of certification;
7. Identify whom to contact if there are further comments and questions about the material discussed in the program; and
8. Include a training acknowledgment form to be signed by each worker indicating that they received the WEAP training and shall abide by the guidelines.

The project-specific WEAP shall be administered by a competent individual(s) acceptable to the Designated Biologist.

Verification: At least 45 days prior to the start of any planned project-related ground disturbance activities, or any other project-related activities that could affect biological resources (including disturbance or demolition of existing structures or vegetation), the project owner shall provide to the CPM a copy of the draft WEAP and all supporting written materials and electronic media prepared or reviewed by the Designated Biologist and a resume of the person(s) administering the program. The Notice to Proceed will not be issued until the WEAP has been revised according to the CPM's direction, and approved by the CPM.

The project owner shall provide in the monthly compliance reports 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.

Throughout the life of the project, the worker education program shall be repeated annually for permanent employees, and shall be routinely administered either in person or via video within one week of arrival to any new personnel, foremen, contractors, subcontractors, and other personnel potentially working within the project area. Upon completion of the orientation, employees shall sign a form stating that they attended the program and understand all protection measures. These forms shall be maintained by the project owner and shall be made available to the CPM upon request. Workers shall receive and be required to visibly display a hardhat sticker or certificate indicating that they have completed the required training.

Training acknowledgement forms signed during construction shall be kept on file by the project owner for at least six months after the completion of all project construction activities. During project operation, signed statements for operational personnel shall be kept on file for six months following the termination of an individual's employment.

BIOLOGICAL RESOURCES MITIGATION IMPLEMENTATION AND MONITORING PLAN (BRMIMP)

BIO-6 The project owner shall develop and implement a BRMIMP. The BRMIMP shall be prepared in consultation with the Designated Biologist and shall include the following:

1. All biological resource mitigation, monitoring, and compliance measures proposed and agreed to by the project owner;
2. All biological resource conditions of certification identified in the Commission Decision as necessary to avoid or mitigate impacts;
3. All biological resource mitigation, monitoring, and compliance measures required in other state agency terms and conditions, such as those provided in the National Pollution Discharge Elimination System (NPDES) Construction Activities Stormwater General Permit;
4. A list or tabulation of all sensitive biological resources to be impacted, avoided, or mitigated by project construction, operation, and closure;
5. All required mitigation measures for each sensitive biological resource;
6. A detailed description of measures that shall be taken to avoid or mitigate disturbances from construction and demolition activities;
7. All locations, shown on a map at an approved scale, of sensitive biological resource areas subject to disturbance and areas requiring temporary protection and avoidance during construction;
8. Aerial photographs, at an approved scale, of all areas to be disturbed during project construction activities *prior* to any site disturbance or related facilities mobilization, for comparison with aerial photographs at the same scale to be provided *subsequent* to completion of project construction (see **Verification**).
9. Duration for each type of monitoring and a description of monitoring methodologies and frequency;
10. Performance standards from each biological resource condition of certification to determine if mitigation and conditions are or are not successful;
11. Remedial measures to be implemented if performance standards are not met;

12. A discussion of biological resources-related facility closure measures including a description of funding mechanism(s);
13. A process for proposing BRMIMP modifications to the CPM and appropriate agencies for review and approval; and
14. A requirement to submit any sightings of any special-status species that are observed on or in proximity to the project site, or during project surveys, to the California Natural Diversity Database (CNDDB) per CDFW requirements.

Verification: No fewer than 45 days prior to planned start of construction, the project owner will submit a draft BRMIMP to the CPM for review and approval. The Notice to Proceed will not be issued until the BRMIMP has been revised according to the CPM's direction, and approved by the CPM.

If there are any federal permits that have not yet been received when the BRMIMP is first submitted, these permits shall be submitted to the CPM within 5 days of their receipt, and the BRMIMP shall be revised or supplemented to reflect the permit condition and submitted to the CPM within 10 days of their receipt by the project owner.

The project owner shall notify the CPM no less than 5 working days before implementing any proposed modifications to the approved BRMIMP and will implement changes only after obtaining CPM approval.

Implementation of all BRMIMP measures shall be reported in the monthly compliance reports by the designated biologist (i.e., survey results, construction activities that were monitored, species observed). Within 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. The Construction Closure Report will include a set of aerial photographs of the site at an approved scale for comparison with the pre-construction set (Item 8 above).

GENERAL IMPACT AVOIDANCE AND MINIMIZATION MEASURES

BIO-7 The project owner shall ensure implementation of the following measures during site mobilization, construction, operation, and closure to manage their project site and related facilities in a manner to avoid or minimize impacts to biological resources:

1. The boundaries of all areas to be temporarily or permanently disturbed (including staging areas, access roads, and sites for temporary placement of spoils) shall be delineated with stakes and flagging prior to demolition or construction activities in consultation

with the Designated Biologist. Spoils shall be stockpiled in disturbed areas which do not provide habitat for special-status species. Parking areas, staging and disposal site locations shall similarly be located in areas without native vegetation or special-status species habitat. All disturbances, vehicles, and equipment shall be confined to the flagged areas.

2. At the end of each work day, the Designated Biologist, Biological Monitor, and/or site personnel shall ensure that all potential wildlife pitfalls (trenches, bores, and other excavations) have been backfilled. If site personnel are inspecting trenches, bores, and other excavations and wildlife is trapped, they will immediately notify the Designated Biologist and/or Biological Monitor. If backfilling is not feasible, all trenches, bores, and other excavations shall be sloped at a 3:1 ratio at the ends to provide wildlife escape ramps, or covered completely to prevent wildlife access. Should wildlife become trapped, the Designated Biologist or Biological Monitor shall remove and relocate the animal to a safe location. Any wildlife encountered during the course of construction shall be allowed to leave the construction area unharmed.
3. Transmission lines and all electrical components shall be designed, installed, and maintained in accordance with the Avian Power Line Interaction Committee's (APLIC's) *Suggested Practices for Avian Protection on Power Lines* (APLIC 2006) and *Reducing Avian Collisions with Power Lines* (APLIC 2012) to reduce the likelihood of large bird electrocutions and collisions.
4. Spoils shall not be stockpiled adjacent to the outlet channel fence line to minimize potential for spoils to enter into adjacent waterways.
5. Soil bonding and weighting agents used on unpaved surfaces shall be non-toxic to wildlife and plants.
6. To the extent feasible, any aviation warning lighting shall employ only strobed, strobe-like or blinking incandescent lights, preferably with all lights illuminating simultaneously. Minimum intensity, maximum "off-phased" dual strobes are preferred, and no steady burning lights (e.g., L-810s) shall be used.
7. Water applied to dirt roads and construction areas (trenches or spoil piles) for dust abatement shall use the minimal amount needed to meet safety and air quality standards to prevent the formation of puddles, which could attract predators of special-status

species to construction sites. During construction, site personnel shall patrol these areas to ensure water does not puddle and attract crows and other wildlife to the site, and shall take appropriate action to reduce water application rates where necessary.

8. Report all inadvertent deaths of special-status species to the appropriate project representative, including road kill. Species name, physical characteristics of the animal (sex, age class, length, weight), and other pertinent information shall be noted and reported in the monthly compliance reports. For special-status species, the Designated Biologist or Biological Monitor shall contact CDFW and USFWS within 1 working day of receipt of the carcass for guidance on disposal or storage of the carcass. Injured animals shall be reported to CDFW and/or USFWS and the CPM, and the project owner shall follow instructions that are provided by CDFW or USFWS. During construction, injured or dead animals detected by personnel in the project area shall be reported immediately to a Biological Monitor or Designated Biologist, who shall remove the carcass or injured animal promptly. During operations, the Project Environmental Compliance Monitor shall be notified.
9. All vehicles and equipment shall be maintained in proper working condition to minimize the potential for fugitive emissions of motor oil, antifreeze, hydraulic fluid, grease, or other hazardous materials. The Designated Biologist shall be informed immediately of any hazardous spills. Any on-site servicing of vehicles or construction equipment shall take place only at a designated area approved by the Designated Biologist. Service/maintenance vehicles shall carry a bucket and pads to absorb leaks or spills.
10. During construction all trash and food-related waste shall be placed in self-closing containers and removed weekly or more frequently from the site. Workers shall not feed wildlife, or bring pets to the project site.
11. Except for law enforcement personnel, no workers or visitors to the site shall bring firearms or weapons.
12. The project owner shall implement the following measures during construction and operation to prevent the spread and propagation of nonnative, invasive weeds:
 - A. Limit the size of any vegetation and/or ground disturbance to the minimum area needed for safe completion of project activities, and limit ingress and egress to defined routes;

- B. Use only weed-free straw, hay bales, and seed for erosion control and sediment barrier installations. Invasive non-native species shall not be used in landscaping plans and erosion control. Monitor and rapidly implement control measures to ensure early detection and eradication of weed invasions.
13. During construction and operation, the project owner shall conduct pesticide management in accordance with standard BMPs. The BMPs shall include non-point source pollution control measures. The project owner shall use a licensed herbicide applicator and obtain recommendations for herbicide use from a licensed Pest Control Advisor. Herbicide applications must follow EPA label instructions. Minimize use of rodenticides and herbicides in the project area and prohibit the use of chemicals and pesticides known to cause harm to non-target plants and wildlife. The project owner shall only use pesticides for which a “no effect” determination has been issued by the EPA’s Endangered Species Protection Program for any species likely to occur within the project area or adjacent wetlands. If rodent control must be conducted, zinc phosphide or an equivalent product shall be used.

Verification: All mitigation measures and their implementation methods shall be included in the BRMIMP and implemented. 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 Completion Report identifying how measures have been completed (see Condition of Certification **BIO-6** verification).

Monthly and annual compliance reports will include results of all regular inspections by the Designated Biologist and Biological Monitor(s), including but not limited to the requirements cited above and in Condition of Certification **BIO-2**.

The project owner will maintain written records of vehicle and equipment inspection and maintenance, and will provide summaries in each monthly and annual compliance report. The complete written vehicle maintenance record will be available for the CPM’s inspection during normal business hours.

The BRMIMP (Condition of Certification **BIO-6**) will include affirmation by the project owner that:

- All electrical component design conforms to applicable APLIC guidelines; and
- All soil binders conform to the requirements stated above.

PRE-CONSTRUCTION NEST SURVEYS AND IMPACT AVOIDANCE AND MINIMIZATION MEASURES FOR BREEDING BIRDS

BIO-8 Pre-construction nest surveys shall be conducted if construction or demolition activities on the project site or wastewater pipeline will occur between January 1 through August 31. In addition, pre-construction burrowing owl surveys shall be conducted prior to any ground disturbing activity year-round. The Designated Biologist or Biological Monitor shall perform surveys in accordance with the following guidelines:

1. Surveys shall cover all potential nesting, burrow, or surrogate burrow habitat and substrate within the project site and areas surrounding the project site within 300 feet of the project boundary.
2. At least two pre-construction surveys shall be conducted, separated by a minimum 10-day interval. Pre-construction surveys shall be conducted no more than 14 days prior to initiation of construction activity. One survey needs to be conducted within the 3-day period preceding initiation of construction activity. Additional follow-up surveys may be required if periods of construction inactivity exceed three weeks during January 1 through August 31 in any given area, an interval during which birds may establish a nesting territory and initiate egg laying and incubation.
3. If active nests, burrows, or surrogate burrows are detected during the survey, a no-disturbance buffer zone (protected area surrounding the nest) shall be established around each nest. Specific buffer distances are provided below for applicable avian groups (**Biological Resources Table 5**); these buffers may be modified with the CPM's approval. For special-status species, if an active nest is identified, the size of each buffer zone shall be determined by the Designated Biologist in consultation with the CPM (in coordination with CDFW and USFWS). Nest locations shall be mapped using GPS technology.

Biological Resources Table 5
AEC Construction and Demolition Buffers for Active Nests

Avian Group	Species Potentially Nesting in the Project Vicinity	Buffer for Construction and Demolition Activities (feet)
Bitterns and herons	Black-crowned night heron, great blue heron, great egret, green heron, snowy egret	250
Cormorants	Double-crested cormorant	100

Avian Group	Species Potentially Nesting in the Project Vicinity	Buffer for Construction and Demolition Activities (feet)
Doves	Mourning dove	25
Geese and ducks	American widgeon, blue-winged teal, cinnamon teal, Canada goose, gadwall, mallard, northern pintail, ruddy duck	100
Grebes	Clark's grebe, eared grebe, horned grebe, pied-billed grebe, western grebe	100
Hummingbirds	Allen's hummingbird, Anna's hummingbird, black-chinned hummingbird	25
Plovers	Black-bellied plover, killdeer	50
Raptors (Category 1)	American kestrel, barn owl, red-tailed hawk	50
Raptors (Category 2)	Cooper's hawk, red-shouldered hawk, sharp-shinned hawk	150
Raptors (Category 3)	Northern harrier, white-tailed kite, burrowing owl	These are special-status species; buffer determined in consultation with CPM
Stilts and Avocets	American avocet, black-necked stilt	150
Terns	Elegant tern, Forster's tern, royal tern	100
Passerines (cavity and crevice nesters)	House wren, Say's phoebe, western bluebird	25
Passerines (bridge, culvert, and building nesters)	Black phoebe, cliff swallow, house finch, Say's phoebe	25
Passerines (ground nesters, open habitats)	Horned lark	100
Passerines (understory and thicket nesters)	American goldfinch, blue-gray gnatcatcher, bushtit, California towhee, common yellowthroat, red-winged blackbird, song sparrow, Swainson's thrush	25
Passerines (scrub and tree nesters)	American crow, American goldfinch, American robin, blue-gray gnatcatcher, Bullock's oriole, bushtit, Cassin's kingbird, common raven, hooded oriole, house finch, lesser goldfinch, northern mockingbird	25
Passerines (tower nesters)	Common raven, house finch	25
Passerines (marsh nesters)	Common yellowthroat, red-winged blackbird	25
Species not covered under MBTA	Domestic waterfowl, including domesticated mallards, feral (rock) pigeon, European starling, and	N/A

Avian Group	Species Potentially Nesting in the Project Vicinity	Buffer for Construction and Demolition Activities (feet)
	house sparrow	

4. If active nests are detected during the survey, the Designated Biologist or Biological Monitor shall monitor all nests with buffers at least once per week, to determine whether birds are being disturbed. If signs of disturbance or distress are observed, the Designated Biologist or Biological Monitor shall immediately implement adaptive measures to reduce disturbance in coordination with the CPM. These measures could include, but are not limited to, increasing buffer size, halting disruptive construction activities in the vicinity of the nest until fledging is confirmed, or placement of visual screens or sound dampening structures between the nest and construction activity.
5. If active nests are detected during the survey, the Designated Biologist will prepare a Nest Monitoring Plan. The Designated Biologist or Biological Monitor shall monitor the nest until he or she determines that nestlings have fledged and dispersed or the nest is no longer active. Activities that might, in the opinion of the Designated Biologist or Biological Monitor, disturb nesting activities (e.g., exposure to exhaust), shall be prohibited within the buffer zone until such a determination is made.

Verification: Within ten (10) business days of completion of the field work, the project owner shall provide the CPM, CDFW, and USFWS a letter-report describing the findings of the preconstruction nest surveys, including a description and representative photographs of habitat; the time, date, methods, and duration of the surveys; identity and qualifications of the surveyor(s); and a list of species observed. If active nests are detected during the surveys, the reports shall include a map or aerial photo identifying the location of the nest(s) and shall depict the boundaries of the proposed no disturbance buffer zone around the nest(s). The CPM will consider any timely comments received from CDFW and USFWS in review of the letter-report.

Additionally, the nest monitoring plan shall be submitted to the CPM for review and approval prior to any planned demolition or construction activities in the vicinity of any active nest. No such demolition or construction activities may proceed without CPM approval of the monitoring plan, in consultation with CDFW and USFWS. All impact avoidance and minimization measures related to nesting birds shall be included in the nest monitoring plan and implemented. Implementation of the measures shall be reported in the monthly compliance reports by the Designated Biologist.

SOIL AND WATER CONDITIONS OF CERTIFICATION

NPDES CONSTRUCTION PERMIT REQUIREMENTS

SOIL&WATER-1: The project owner shall manage stormwater pollution from construction activities by fulfilling the requirements contained in State Water Resources Control Board's (SWRCB) *National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWG, NPDES No. CAS000002)* and all subsequent revisions and amendments. The project owner shall develop and implement a construction Stormwater Pollution Prevention Plan (SWPPP) for the construction of the project. The project owner shall submit the SWPPP to the CBO and CPM for review and SWRCB for review and approval.

Verification: At least 30 days prior to site mobilization, the project owner shall submit the construction SWPPP to the delegate chief building official (CBO) and compliance project manager (CPM) for review and the SWRCB for review and approval. A copy of the construction SWPPP shall be kept accessible onsite at all times. Within ten days of its mailing or receipt, the project owner shall submit to the CPM any correspondence between the project owner and the Los Angeles RWQCB about the general NPDES permit for discharge of stormwater associated with construction and land disturbance activities. This information shall include a copy of the notice of intent and the notice of termination submitted by the project owner to the SWRCB.

HYDROSTATIC WATER DISCHARGE PERMIT REQUIREMENTS

SOIL&WATER-2: Prior to initiation of hydrostatic testing water discharge to surface waters, the project owner shall obtain a National Pollutant Discharge Elimination System permit for discharge to the Pacific Ocean. The project owner shall comply with the requirements of the Permit Order No. R4-2009-0068, NPDES No. CAG674001 for hydrostatic testing water discharge. The project owner shall provide a copy of all permit documentation sent to the Los Angeles Regional Water Quality Control Board (RWQCB) or SWRCB to the CPM and notify the CPM in writing of any reported non-compliance.

Verification: At least 30 days prior to the first scheduled hydrostatic testing event, the project owner shall submit to the CPM documentation that all necessary NPDES permits were obtained from the Los Angeles RWQCB or State Water Board. 30 days prior to project operation, the project owner shall submit to the CPM a copy of the relevant plans and permits received. The project owner shall submit to the CPM all copies of any relevant correspondence between the project owner and the Water Board regarding NPDES permits in the annual compliance report.

GROUNDWATER DISCHARGE PERMIT REQUIREMENTS

SOIL&WATER-3: Discharge of dewatering water shall comply with the Los Angeles Regional Water Quality Control Board (RWQCB) and State Water Resources Control Board regulatory requirements. The project owner shall submit a Report of Waste Discharge (RWD) to the compliance project manager (CPM) and RWQCB for determination of which regulatory waiver or permit applies to the proposed discharges. The project owner shall ensure compliance with the provisions of the waiver or permit applicable to the discharge. Where the regulatory requirements are not applied pursuant to a National Pollutant Discharge Elimination System permit, the requirements of the applicable waiver or permit shall be enforceable by both the Commission and the RWQCB. In furtherance of that objective, the Energy Commission hereby delegates the enforcement of the waiver or permit requirements, and associated monitoring, inspection, and annual fee collection authority, to the RWQCB. Accordingly, the Energy Commission and the RWQCB shall confer with each other and coordinate, as needed, in the enforcement of the requirements.

Verification: Prior to any dewatering water discharge, the project owner shall submit a RWD to the RWQCB to obtain the appropriate waiver or permit. The appropriate waiver or permit must be obtained at least 30 days prior to the discharge. The project owner shall submit a copy of any correspondence between the project owner and the RWQCB regarding the waiver or permit and all related reports to the CPM within ten days of correspondence receipt or submittal. The project owner shall pay all necessary fees for filing and review of the RWD and all other related fees. Checks for such fees shall be submitted to the RWQCB and shall be payable to the State Water Resources Control Board.

NPDES INDUSTRIAL PERMIT REQUIREMENTS

SOIL&WATER-4: Prior to the start of commercial operations, the project owner shall provide evidence of obtaining certification (Notice of Intent) under the statewide National Pollutant Discharge Elimination System permit for stormwater discharges associated with industrial activities. The project owner also shall provide evidence that the city of Long Beach has issued a sewer connection permit for industrial waste discharges. The project owner shall provide a copy of all permit documentation sent to the Los Angeles RWQCB, State Water Board, or city of Long Beach to the CPM and notify the CPM in writing of any reported non-compliance.

Verification: At least 30 days prior to the start of commercial operations, the project owner shall submit to the CPM documentation that all necessary NPDES permits were obtained from the Los Angeles RWQCB

or State Water Board. At least 30 days prior to the start of commercial operations, the project owner shall submit to the CPM a copy of the city of Long Beach sewer connection permit for industrial waste discharge. No later than 60 days prior to construction, the project owner shall submit to the CPM two copies of the executed agreement for the supply and onsite use of potable water from LBWD.

WATER AND SEWER CONNECTIONS

SOIL&WATER-5: The project owner shall pay the city of Long Beach all fees normally associated with industrial connections to the city's sanitary sewer and water supply system as defined in Title 15 of the city code.

Verification: At least 30 days prior to the scheduled connection to the city's sewer and water supply system, the project owner shall submit to the CPM a copy of the application to the city to connect to the sewer and water supply system and the check submitted to pay the fees described above. Fees paid to the city shall be reported in the Annual Compliance Report for the life of the project.

WATER USE AND REPORTING

SOIL&WATER-6: Water supply for project construction, sanitary, and industrial uses during project construction and operation shall be potable water supplied by the city of Long Beach Water Department (LBWD). Water use for project operation, including landscaping and sanitary purposes, shall not exceed 130 AFY. Water use for construction shall not exceed 22 AFY during the 56-month demolition and construction period. A monthly summary of water use shall be submitted to the CPM.

Verification: The project owner shall submit a water use summary report to the CPM monthly during construction and annually during operations for the life of the project. The annual report shall include calculated monthly range, monthly average, daily maximum within each month 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 water used by the project. No later than 60 days prior to commissioning, the project owner shall submit to the CPM two copies of the executed agreement for the supply and onsite use of potable water from LBWD.

WATER METERING

SOIL&WATER-7: Prior to the use of potable water, the project owner shall install and maintain metering devices as part of the water supply and distribution system. The project shall monitor and record in gallons per day the total

volume of potable water from LBWD. Those metering devices shall be operational for the life of the project.

Verification: At least 30 days prior to use of water for project construction and operation, the project owner shall submit to the CPM evidence that metering devices have been installed and are operational. The project owner shall provide a report on the servicing, testing, and calibration of the metering devices in the annual compliance report.

CULTURAL RESOURCES CONDITIONS OF CERTIFICATION
APPOINTMENT AND QUALIFICATIONS OF CULTURAL RESOURCES
SPECIALIST (CRS)

A. CULTURAL RESOURCE SPECIALIST

1. Appointment and Qualifications

The project owner shall assign a Cultural Resources Specialist (CRS) to the project. The project owner may elect to assign one or more alternate CRSs as well. The project owner shall submit the resumes of the proposed CRS and Alternate CRS(s), with at least three references and contact information, to the Energy Commission Compliance Project Manager (CPM) for review and approval.

The CRS and Alternate CRS(s) shall have training and background that conform to the U.S. Secretary of the Interior's Professional Qualifications Standards, as published in Title 36, Code of Federal Regulations, part 61. In addition, the CRS and Alternate CRS(s) shall have the following qualifications:

1. A background in anthropology, archaeology, history, architectural history, or a related field;
2. At least 10 years of archaeological or historical experience (as appropriate for the project site), with resources mitigation and fieldwork;
3. At least one year of field experience in California; and
4. At least three years of experience in a decision-making capacity on cultural resources projects in California and the appropriate training and experience to knowledgeably make recommendations regarding the significance of cultural resources.

The project owner may replace the CRS only as directed in the verification below.

2. Duties of Cultural Resources Specialist

The CRS shall manage all cultural resource monitoring, mitigation, curation, and reporting activities, and any pre-construction cultural resource activities, unless management of these is otherwise provided for in accordance with the cultural resource conditions of certification (conditions). The CRS shall serve as the primary point of contact on all cultural resource matters for the Energy Commission. The CRS may elect to obtain the services of Cultural Resource Monitors (CRMs), Native

American Monitors (NAMs), and other technical specialists, if needed, to assist in monitoring, mitigation, and curation activities. The project owner shall ensure that the CRS makes recommendations regarding the eligibility for listing in the California Register of Historical Resources (CRHR) of any cultural resources that are newly discovered or that may be affected in an unanticipated manner.

After all ground disturbances are completed and the CRS has fulfilled all responsibilities specified in these cultural resources conditions, the project owner may discharge the CRS, after receiving approval from the CPM.

B. CULTURAL RESOURCES MONITORS

1. Appointment and Qualifications

The CRS may assign Cultural Resources Monitors (CRMs). CRMs shall have the following qualifications:

1. B.S. or B.A. degree in anthropology, archaeology, historical archaeology, or a related field; and one year of archaeological field experience in California; or
2. A.S. or A.A. degree in anthropology, archaeology, historical archaeology, or a related field, and four years of archaeological field experience 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 archaeological field experience in California.

C. NATIVE AMERICAN MONITORS

1. Appointment and Qualifications:

Preference in selecting NAMs shall be given to Native Americans with:

1. traditional ties to the area to be monitored, and
2. the highest qualifications as described by the Native American Heritage Commission (NAHC) document entitled: Guidelines for Monitors/Consultants of Native American Cultural, Religious, and Burial Sites (2005).

D. CULTURAL RESOURCES TECHNICAL SPECIALISTS

The resume(s) of any additional technical specialist(s), e.g., geoarchaeologist, historical archaeologist, historian, architectural historian, and/or physical anthropologist, shall be submitted to the CPM for approval. The resume of each proposed specialist shall demonstrate that

their training and background meet the U.S. Secretary of Interior's Professional Qualifications Standards for their specialty (if appropriate), as published in Title 36, Code of Federal Regulations, part 61, and show the completion of appropriate graduate-level coursework. The resumes of specialists shall include the names and telephone numbers of contacts familiar with the work of these persons on projects referenced in the resumes and demonstrate to the satisfaction of the CPM that these persons have the appropriate training and experience to undertake the required research. The project owner may name and hire any specialist prior to certification. All specialists are under the supervision of the CRS.

Verification:

1. The project owner shall submit the prospective CRS's and any Alternate CRS's qualifications at least 75 days prior to the start of ground disturbance associated with site mobilization and construction (as defined in the Compliance Conditions section).
2. The project owner may replace a CRS by submitting the required resume, references, and contact information to the CPM for review and approval at least ten working days prior to the termination or release of the then-current CRS. In an emergency, the project owner shall immediately notify the CPM to discuss the qualifications and approval of a short-term replacement while a permanent CRS is proposed to the CPM for consideration.
3. The CPM may withhold approval of a CRS based upon proof that a proposed CRS has repeatedly failed to comply with the conditions of any Energy Commission license as they pertain to cultural resources. If the project owner proposes to use a CRS previously-approved by the Energy Commission within the preceding five (5) years, the CPM shall have ten (10) business days to review the resume and statement of availability of the proposed CRS. The CPM may withhold approval of a previously-approved CRS only if (1) the non-compliance with conditions of an Energy Commission license was documented in the compliance record for the previous Energy Commission license project work or (2) if the proposed previously approved CRS's qualifications are not commensurate with all the criteria in Paragraph A of this condition. The CPM shall provide notice of disapproval of the proposed CRS within ten (10) business days of receipt of the resume and statement of availability of any proposed CRS. In the case of a previously-approved CRS, failure to provide notice within (10) business days of receipt of the resume and statement of availability of the proposed CRS shall be deemed approval of that candidate.
4. The CPM shall meet and confer with the project owner regarding the disapproval of a previously-approved CRS or the need to remove or replace a CRS. Removal

or replacement may occur if the CPM can establish that the CRS has repeatedly failed to comply with the conditions of the AEC license that pertain to cultural resources.

5. At least 20 days prior to Cultural Resources Ground Disturbances, the CRS shall provide proof of qualifications for any anticipated CRMs and additional specialists for the project to the CPM.
6. If efforts to obtain the services of a qualified NAM are unsuccessful, the project owner shall inform the CPM of this situation in writing at least 30 days prior to the beginning of post-certification cultural resources field work or construction-related ground disturbance.
7. At least 5 days prior to additional CRMs or NAMs beginning on-site duties during the project, the CRS shall review the qualifications of the proposed CRMs or NAMs and send approval letters to the CPM, identifying the monitors and attesting to their qualifications.
8. At least 10 days prior to any technical specialists beginning tasks, the resume(s) of the specialists shall be provided to the CPM for review and approval.
9. At least 10 days prior to the start of construction-related ground disturbance, the project owner shall confirm in writing to the CPM that the approved CRS will be available for onsite work and is prepared to implement the cultural resources conditions.
10. No Cultural Resources Ground Disturbances shall occur prior to CPM approval of the CRS and alternates, unless such activities are specifically approved by the CPM.

CUL-2 INFORMATION TO BE PROVIDED TO CRS

Prior to the start of ground disturbance, the project owner shall provide the CRS with copies of the AFC, data responses, confidential cultural resources reports, all supplements, the Energy Commission cultural resources Final Staff Assessment (FSA), and the cultural resources Conditions from the Final Decision for the project, if the CRS does not already possess copies of these materials. The project owner shall also provide the CRS and the CPM with maps and drawings showing the footprints of the power plant, all linear facility routes, all access roads, and all laydown areas. Maps shall include the appropriate USGS quadrangles and a map at an appropriate scale (e.g., 1:24,000 and 1 inch = 200 feet, respectively) for plotting cultural features or materials. If the CRS requests enlargements or strip maps for linear facility routes, the project owner shall provide copies to the CRS and CPM. The CPM shall review map submittals and, in consultation with the CRS, approve those that are

appropriate for use in cultural resources planning activities. No ground disturbance shall occur prior to CPM approval of maps and drawings, unless such activities are specifically approved by the CPM.

Maps shall include any cultural resources, including any historic built environment resources, identified in the FSA's archaeological project area of analysis.

If construction of the project would proceed in phases, maps and drawings not previously provided shall be provided to the CRS and CPM prior to the start of each phase. Written notice identifying the proposed schedule of each project phase shall be provided to the CRS and CPM.

Weekly, until ground disturbance is completed, the project construction manager shall provide to the CRS and CPM a schedule of project activities for the following week, including the identification of area(s) where ground disturbance will occur during that week.

The project owner shall notify the CRS and CPM of any changes to the scheduling of the construction phases.

The project owner shall provide the documents described in the first paragraph of this condition to new CRSs in the event that the approved CRS is terminated or resigns.

Verification:

1. At least 40 days prior to the start of ground disturbance, the project owner shall provide the CPM notice that the AFC, data responses, confidential cultural resources documents, all supplements, FSA, and Final Commission Decision have been provided to the CRS, if needed, and the subject maps and drawings to the CRS and CPM. The CPM will review submittals in consultation with the CRS and approve maps and drawings suitable for cultural resources planning activities.
2. At least 15 days prior to the start of ground disturbance, if there are changes to any project-related footprint, the project owner shall provide revised maps and drawings for the changes to the CRS and CPM.
3. At least 15 days prior to the start of each phase of a phased project, the project owner shall submit the appropriate maps and drawings, if not previously provided, to the CRS and CPM.
4. Weekly, during ground disturbance, a schedule of the next week's anticipated project activity shall be provided to the CRS and CPM by letter, e-mail, or fax.
5. Within 5 days of changing the scheduling of phases of a phased project, the project owner shall provide written notice of the changes to the CRS and CPM.

6. If a new CRS is approved by the CPM as provided for in CUL-1, the project owner shall provide the CPM notice that the AFC, data responses, confidential cultural resources documents, all supplements, FSA, Final Commission Decision, and maps and drawings have been provided to the new CRS within 10 days of such approval.

CUL-3 CULTURAL RESOURCES MITIGATION AND MONITORING PLAN (CRMMP)

Prior to the start of ground disturbance, the project owner shall submit the CRMMP, as prepared by or under the direction of the CRS, to the CPM for review and approval. The CRMMP shall follow the content and organization of the draft model CRMMP, provided by the CPM, and the authors' name(s) shall appear on the title page of the CRMMP. The CRMMP shall identify measures to minimize potential impacts to sensitive cultural resources. Implementation of the CRMMP shall be the responsibility of the CRS and the project owner. Copies of the CRMMP shall reside with the CRS, alternate CRS, each CRM, and the project owner's on-site construction manager. No ground disturbance shall occur prior to CPM approval of the CRMMP, unless such activities are specifically approved by the CPM. Portions of the CRMMP that describe or map the location(s) of cultural resources shall be designated as confidential.

The CRMMP shall include the following elements and measures.

1. The following statement included in the Introduction: "Any discussion, summary, or paraphrasing of the Conditions of Certification in this CRMMP is intended as general guidance and as an aid to the user in understanding the Conditions and their implementation. The conditions, as written in the Commission Decision, shall supersede any summarization, description, or interpretation of the conditions in the CRMMP. The Cultural Resources Conditions of Certification from the Commission Decision are contained in Appendix A."
2. A proposed general research design that includes a discussion of archaeological research questions and testable hypotheses specifically applicable to the project area, and a discussion of artifact collection, retention/disposal, and curation policies as related to the research questions formulated in the research design. The research design will specify that the preferred treatment strategy for any buried archaeological deposits is avoidance. A specific mitigation plan shall be prepared for any unavoidable

impacts to any CRHR-eligible (as determined by the CPM) resources. A prescriptive treatment plan may be included in the CRMMP for limited data types.

3. Specification of the implementation sequence and the estimated time frames needed to accomplish all project-related tasks during the ground-disturbance and post-ground-disturbance analysis phases of the project.
4. Identification of the person(s) expected to perform each of the tasks, their responsibilities, and the reporting relationships between project construction management and the mitigation and monitoring team.
5. A description of the manner in which Native American observers or monitors will be included, the procedures to be used to select them, and their role and responsibilities.
6. A description of all impact-avoidance measures (such as flagging or fencing) to prohibit or otherwise restrict access to sensitive resource areas that are to be avoided during ground disturbance, construction, and/or operation, and identification of areas where these measures are to be implemented. The description shall address how these measures would be implemented prior to the start of ground disturbance and how long they would be needed to protect the resources from project-related effects.
7. A statement that all encountered cultural resources over 50 years old shall be recorded on Department of Parks and Recreation (DPR) 523 forms and mapped and photographed. In addition, all archaeological materials retained as a result of the archaeological investigations (survey, testing, data recovery) shall be curated in accordance with the California State Historical Resources Commission's (SHRC's) *Guidelines for the Curation of Archaeological Collections* (1993, or future updated guidelines from the SHRC), into a retrievable storage collection in a public repository or museum.
8. A statement that the project owner will pay all curation fees for artifacts recovered and for related documentation produced during cultural resources investigations conducted for the project. The project owner shall identify three possible curation facilities that could accept cultural resources materials resulting from project activities.
9. A statement demonstrating when and how the project owner will comply with Health and Human Safety Code 7050.5(b) and Public Resources Code 5097.98(b) and (e), including the statement that the

project owner will notify the CPM and the NAHC of the discovery of human remains.

10. A statement that the CRS has access to equipment and supplies necessary for site mapping, photography, and recovery of any cultural resource materials that are encountered during ground disturbance and cannot be treated prescriptively.
11. A description of the contents, format, and review and approval process of the final Cultural Resource Report (CRR), which shall be prepared according to *Archaeological Resource Management Report (ARMR)* guidelines.

Verification:

1. Upon approval of the CRS proposed by the project owner, the CPM will provide to the project owner an electronic copy of the draft model CRMMP for the CRS.
2. At least 30 days prior to the start of ground disturbance, the project owner shall submit the CRMMP to the CPM for review and approval.
3. At least 30 days prior to the start of ground disturbance, in a letter to the CPM, the project owner shall agree to pay curation fees for any materials generated or collected as a result of the archaeological investigations (survey, testing, data recovery).
4. Within 90 days after completion of ground disturbance (including landscaping), if cultural materials requiring curation were generated or collected, the project owner shall provide to the CPM a copy of an agreement with, or other written commitment from, a curation facility that meets the standards stated in the SHRC's *Guidelines for the Curation of Archaeological Collections* (1993, or future updated guidelines from SHRC), to accept the cultural materials from this project. Any agreements concerning curation will be retained and available for audit for the life of the project.

CUL-4 FINAL CULTURAL RESOURCES REPORT (CRR)

The project owner shall submit the final CRR to the CPM for approval. The final CRR shall be written by or under the direction of the CRS and shall be provided in the ARMR format. The final CRR shall report on all field activities including dates, times and locations, results, samplings, and analyses. All survey reports, DPR 523 forms, data recovery reports, and any additional research reports not previously submitted to the CHRIS shall be included as appendices to the final CRR.

If the project owner requests a suspension of all construction activities for more than 30 days, 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 30 days after requesting a suspension of construction activities, the project owner shall submit a draft CRR to the CPM for review and approval.
2. Within 90 days after completion of ground disturbance (including landscaping), the project owner shall submit the final CRR to the CPM for review and approval. If any reports have previously been sent to the CHRIS, then receipt letters from the CHRIS or other verification of receipt shall be included in an appendix.
3. Within 10 days after CPM approval of the CRR, the project owner shall provide documentation to the CPM confirming that copies of the final CRR have been provided to the CHRIS, the curating institution, if archaeological materials were collected, and to the tribal chairpersons of any Native American groups requesting copies of project-related reports.

CUL-5 CULTURAL RESOURCES WORKER ENVIRONMENTAL AWARENESS PROGRAM (WEAP)

Prior to and for the duration of ground disturbance, the project owner shall provide Worker Environmental Awareness Program (WEAP) training to all new workers within their first week of employment at the project site, along the linear facilities routes, and at laydown areas, roads, and other ancillary areas. The cultural resources part of this 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 is encouraged to include a Native American presenter in the training to contribute the Native American perspective on archaeological and ethnographic resources. During the training and during construction, the CRS shall be available (by telephone or in person) to answer questions posed by employees. The training may be discontinued when ground disturbance is completed or suspended, but must be resumed when ground disturbance, such as landscaping, resumes.

The training shall include:

1. A discussion of applicable laws and penalties under law;

2. Samples or visuals of artifacts that might be found in the project vicinity;
3. A discussion of what such artifacts may look like when partially buried, or wholly buried and then freshly exposed;
4. A discussion of what prehistoric and historical archaeological deposits look like at the surface and when exposed during construction, and the range of variation in the appearance of such deposits;
5. Instruction that the CRS, Alternate CRS, and CRMs have the authority to halt ground disturbance in the area of a discovery to an extent sufficient to ensure that the resource is protected from further impacts, as determined by the CRS;
6. Instruction that employees, if the CRS, Alternate CRS, or CRMs are not present, are to halt work on their own in the vicinity of a potential cultural resources discovery, and shall contact their supervisor and the CRS or CRM, and that redirection of work would be determined by the construction supervisor and the CRS;
7. An informational brochure that identifies reporting procedures in the event of a discovery;
8. An acknowledgement form signed by each worker indicating that they have received the training; and
9. A sticker that shall be placed on hard hats indicating that environmental training has been completed.

No ground disturbance shall occur prior to implementation of the WEAP program, unless such activities are specifically approved by the CPM.

Verification:

1. At least 30 days prior to the beginning of ground disturbance, the CRS shall provide the cultural resources WEAP training program draft text and/or training video, including Native American participation, and graphics and the informational brochure to the CPM for review and approval.
2. At least 15 days prior to the beginning of ground disturbance, the CPM will provide to the project owner a WEAP Training Acknowledgement form for each WEAP-trained worker to sign.
3. Monthly, until ground disturbance is completed, the project owner shall provide in the Monthly Compliance Report (MCR) the WEAP Training Acknowledgement forms of workers who have completed the training in the prior month and a running total of all persons who have completed training to date.

CUL-6**UNDISCOVERED CULTURAL RESOURCES**

The project owner shall ensure that a CRS, alternate CRS, or CRMs shall be on site for any ground disturbance, with the exception of deep pile driving, that would occur in sediments or soils below the artificial fill in the following areas:

Ground disturbance that occurs in the following areas shall be subject to this condition.

- Combustion turbine generator/heat recovery steam generator foundation slabs.
- Generator step-up transformer foundation pads.
- Overhead transmission line pole foundations.
- Steam turbine generator foundations.
- Fuel gas compressor/conditioning structure.
- Fire water piping and hydrants surrounding the new power units.
- Relocated gas metering station.
- Process/sanitary wastewater pipeline.

Prior to the start of ground disturbance, the project owner shall notify the CPM, who will notify all interested Native Americans of the date on which ground disturbance will ensue. The project owner is not required to monitor construction of other project components (that is, those not listed immediately above) unless the CRS or CPM determine that observable conditions in the field warrant monitoring. Where excavation equipment is actively removing dirt and hauling the excavated material farther than 50 feet from the location of active excavation, full-time archaeological monitoring shall require at least two monitors per excavation area. In this circumstance, one monitor shall observe the location of active excavation and a second monitor shall inspect the dumped material. For excavation areas where the excavated material is dumped no farther than 50 feet from the location of active excavation, one monitor shall observe both the location of active excavation and inspect the dumped material.

In the event that the CRS believes that the required number of monitors is not appropriate in certain locations, a letter or e-mail detailing the justification for changing the number of monitors shall be provided to the CPM for review and approval prior to any change in the number of monitors.

The project owner shall obtain the services of one or more NAMs to monitor construction-related ground disturbance in areas slated for excavation into non-fill (native) sediments, as described in the previous bulleted list. Contact lists of interested Native Americans and guidelines for monitoring shall be obtained from the NAHC. Preference in selecting an NAM 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 NAM are unsuccessful, the project owner shall immediately inform the CPM. The CPM will either identify potential monitors or will allow construction-related ground disturbance to proceed without an NAM.

The research design in the CRMMP shall govern the collection, treatment, retention/disposal, and curation of any archaeological materials encountered. 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. The daily monitoring logs shall at a minimum include the following information.

- First and last name of the CRM and any accompanying NAM.
- Time in and out.
- Weather. Specify if weather conditions led to work stoppages.
- Work location (project component). Provide specifics—.e.g., power block, landscaping.
- Proximity to site location. Specify if work conducted within 1000 feet of a known cultural resource.
- Work type (machine).
- Work crew (company, operator, and foreman).
- Depth of excavation.
- Description of work.
- Stratigraphy.
- Artifacts, listed with the following identifying features:
 - Field artifact #: When recording artifacts in the daily monitoring logs, the CRS shall institute a field numbering system to reduce the likelihood of repeat artifact numbers. A typical numbering system could include a project abbreviation, monitor's initials, and a set of numbers given to that monitor: e.g., AEC-MB-123.
 - Description.

- Measurements.
- Universal Transverse Mercator (UTM) coordinates.
- Whether artifacts are likely to be isolates or components of larger resources.
- Assessment of significance of any finds.
- Actions taken.
- Plan for the next work day.
- A cover sheet shall be submitted with each day's monitoring logs, and shall at a minimum include the following:
 - Count and list of first and last names of all CRMs and of all NAMs for that day.
 - General description (in paragraph form) of that day's overall monitoring efforts, including monitor names and locations.
 - Any reasons for halting work that day.
 - Count and list of all artifacts found that day: include artifact #, location (i.e., grading in Unit X), measurements, UTMs, and very brief description (i.e., historic can, granitic biface, quartzite flake).
 - Whether any artifacts were found out of context (i.e., in fill, caisson drilling, flood debris, spoils pile).

If requested by the CPM, copies of the daily monitoring logs and cover sheets shall be provided by email from the CRS to the CPM, as follows:

- Each day's monitoring logs and cover sheet shall be merged into one PDF document
- The PDF title and headings, and emails shall clearly indicate the date of the applicable monitoring logs.
- PDFs for any revised or resubmitted versions shall use the word "revised" in the title.

Daily and/or weekly maps shall be submitted along with the monitoring logs as follows:

- The CRS shall provide daily and/or weekly maps of artifacts at the request of the CPM. A map shall also be provided if artifact locations show complexity, high density, or other unique considerations.
- Maps shall include labeled artifacts, project boundaries, previously recorded sites and isolates, aerial imagery background, and appropriate scales.

- The Cultural Resources section of the MCR shall be prepared in coordination with the CRS, and shall include a monthly summary report of cultural resources-related monitoring. The summary shall:
- List the number of CRMs and NAMs on a daily basis, as well as provide monthly monitoring-day totals.
- Give an overview of cultural resource monitoring work for that month, and discuss any issues that arose.
- Describe fulfillment of requirements of each cultural mitigation measure.
- Summarize the confidential appendix to the MCR, without disclosing any specific confidential details.
- Include the artifact concordance table (as discussed under the next bullet point), but with removal of UTM.
- Each MCR, prepared under supervision of the CRS, shall be accompanied by a confidential appendix that contains completed DPR 523A forms for all artifacts recorded or collected in that month. For any artifact without a corresponding DPR form, the CRS shall specify why the DPR form is not applicable or pending (i.e. as part of a larger site update).
- A concordance table that matches field artifact numbers with the artifact numbers used in the DPR forms shall be included. The sortable table shall contain each artifact's date of collection and UTM numbers, and note if an artifact has been deaccessioned or otherwise does not have a corresponding DPR form. Any post-field log recordation changes to artifact numbers shall also be noted.
- DPR forms shall be submitted as one combined PDF.
- The PDF shall organize DPR forms by site and/or artifact number.
- The PDF shall include an index and bookmarks.
- If artifacts from a given site location (in close proximity of each other or an existing site) are collected month after month, and if agreed upon with the CPM, a final updated DPR for the site may be submitted at the completion of monitoring. The monthly concordance table shall note that the DPR form for the included artifacts is pending.

The CRS or alternate CRS shall daily send a brief email to the CPMCPM, reporting whether monitoring occurred (or a statement that no ground

disturbance occurred if monitoring did not transpire) and confirming that no cultural resource discoveries occurred that day.

In the event that the CRS believes that the current level of monitoring is not appropriate in certain locations, a letter or e-mail detailing the justification for changing the level of monitoring shall be provided to the CPM for review and approval prior to any change in the level of monitoring.

The CRS, at his or her discretion, or at the request of the CPM, may informally discuss cultural resources monitoring and mitigation activities with Energy Commission technical staff.

Cultural resources monitoring activities are the responsibility of the CRS. Any interference with monitoring activities, removal of a monitor from duties assigned by the CRS, or direction to a monitor to relocate monitoring activities by anyone other than the CRS shall be considered non-compliance with these Conditions.

Upon becoming aware of any incidents of non-compliance with the Conditions and/or applicable LORS, the CRS and/or the project owner shall notify the CPM.

The CRS shall also recommend corrective action to resolve the problem or achieve compliance with the Conditions. When the issue is resolved, the CRS shall write a report describing the issue, the resolution of the issue, and the effectiveness of the resolution measures. This report shall be provided in the next MCR for the review of the CPM.

Verification:

1. At least 30 days prior to the start of ground disturbance, the CPM will notify all Native Americans with whom the Energy Commission communicated during the project review of the date on which the project's ground disturbance will begin.
2. At least 30 days prior to the start of ground disturbance, the CPM will provide to the CRS an electronic copy of a form to be used as a daily monitoring log.
3. While monitoring is on-going, and if required by the CPM, the project owner shall submit each day's monitoring logs and cover sheet merged into one PDF document by email within 24 hours.
4. The CRS and/or project owner shall notify the CPM of any incidents of non-compliance with the conditions and/or applicable LORS by telephone or email within 24 hours.
5. The CRS shall provide daily maps of artifacts along with the daily monitoring logs if more than 10 artifacts are found per day, or as requested by the CPM.

6. The CRS shall provide weekly maps of artifacts if there more than 50 artifacts are found per week, or as requested by the CPM. The map shall be submitted within two business days after the end of each week.
7. Within 15 days of receiving from a local Native American group a request that a NAM be employed, the project owner shall submit a copy of the request and a copy of a response letter to the CPM. The project owner shall include a copy of this Condition of Certification in any response letter.
8. While monitoring is on-going, the project owner shall include in each MCR a copy of the monthly summary of cultural resources-related monitoring prepared by the CRS and attach any new DPR 523A forms, under confidential cover, completed for finds treated prescriptively, as specified in the CRMMP.
9. Final updated DPRs with sites (where artifacts are collected month after month) can be submitted at the completion of monitoring, as agreed upon with the CPM.
10. At least 24 hours prior to implementing a proposed change in monitoring level, the project owner shall submit to the CPM, for review and approval, a letter or e-mail (or some other form of communication acceptable to the CPM) detailing the CRS's justification for changing the monitoring level.
11. Deleted.
12. Within 15 days of receiving them, the project owner shall submit to the CPM copies of any comments or information provided by Native Americans in response to the project owner's transmittals of information.

CUL-7 POWERS OF CRS

The CRS shall have the authority to halt ground disturbance in the event of a discovery. Redirection of ground disturbance shall be accomplished under the direction of the construction supervisor in consultation with the CRS.

In the event that a cultural resource over 50 years of age is found (or if younger, determined exceptionally significant by the CRS), or impacts to such a resource can be anticipated, ground disturbance shall be halted or redirected in the immediate vicinity of the discovery sufficient to ensure that the resource is protected from further impacts. If the discovery includes human remains, the project owner shall comply with the requirements of Health and Human Safety Code § 7050.5(b) and shall additionally notify the CPM and the NAHC of the discovery of human remains. No action with respect to the disposition of human remains of Native American origin shall be initiated without direction from the CPM. Monitoring, including Native American monitoring, and daily reporting, as provided in other conditions, shall continue during the project's ground-

disturbing activities elsewhere, while the halting or redirection of ground disturbance in the vicinity of the discovery shall remain in effect until the CRS has visited the discovery, and all of the following have occurred:

1. The CRS has notified the project owner, and the CPM has been notified within 24 hours of the discovery, or by Monday morning if the cultural resources discovery occurs between 8:00 AM on Friday and 8:00 AM on Sunday morning, including a description of the discovery (or changes in character or attributes), the action taken (i.e., work stoppage or redirection), a recommendation of CRHR eligibility, and recommendations for data recovery from any cultural resources discoveries, whether or not a determination of CRHR eligibility has been made.
2. If the discovery would be of interest to Native Americans, the CRS has notified all Native American groups that expressed a desire to be notified in the event of such a discovery.
3. The CRS has completed field notes, measurements, and photography for a DPR 523 "Primary Record" form. Unless the find can be treated prescriptively, as specified in the CRMMP, the "Description" entry of the DPR 523 "Primary Record" form shall include a recommendation on the CRHR/NRHP eligibility of the discovery. The project owner shall submit completed forms to the CPM.
4. The CRS, the project owner, and the CPM have conferred, and the CPM has concurred with the recommended eligibility of the discovery and approved the CRS's proposed data recovery, if any, including the curation of the artifacts, or other appropriate mitigation; and any necessary data recovery and mitigation have been completed.
5. Ground disturbance may resume only with the approval of the CPM.

Verification:

1. At least 30 days prior to the start of ground disturbance, the project owner shall provide the CPM and CRS with a letter confirming that the CRS, Alternate CRS, and CRMs have the authority to halt ground disturbance in the vicinity of a cultural resources discovery, and that the project owner shall ensure that the CRS notifies the CPM within 24 hours of a discovery, or by Monday morning if the cultural resources discovery occurs between 8:00 AM on Friday and 8:00 AM on Sunday morning.

2. Unless the discovery can be treated prescriptively, as specified in the CRMMP, completed DPR 523 forms for resources newly discovered during ground disturbance shall be submitted to the CPM for review and approval no later than 24 hours following the notification of the CPM, or 48 hours following the completion of data recordation/recovery, whichever the CRS decides is more appropriate for the subject cultural resource.
3. Within 48 hours of the discovery of a resource of interest to Native Americans, the project owner shall ensure that the CRS notifies all Native American groups that expressed a desire to be notified in the event of such a discovery, and the CRS must inform the CPM when the notifications are complete.
4. No later than 30 days following the discovery of any Native American cultural materials, the project owner shall submit to the CPM copies of the information transmittal letters sent to the Chairpersons of the Native American tribes or groups who requested the information. Additionally, the project owner shall submit to the CPM copies of letters of transmittal for all subsequent responses to Native American requests for notification, consultation, and reports and records.
5. Within 15 days of receiving them, the project owner shall submit to the CPM copies of any comments or information provided by Native Americans in response to the project owner's transmittals of information.

CUL-8 FILL SOILS

If fill soils must be acquired from a non-commercial borrow site or disposed of to a non-commercial disposal site, the CRS shall survey the borrow or disposal site(s) for cultural resources and record on DPR 523 forms any that are identified. This survey shall not be required if there is a survey of the location that is less than five years old and if the site is approved by the CPM.

When any non-commercial borrow site or non-commercial disposal site survey is completed, the CRS shall convey the results and recommendations for further action to the project owner and the CPM. The CPM shall determine, in his/her sole discretion, whether significant archaeological resources that cannot be avoided are present at the borrow or disposal site. If the CPM determines that significant archaeological resources that cannot be avoided are present at the borrow or disposal site, the project owner must either select another borrow or disposal site or implement **CUL-7** prior to any use of the site. The CRS shall report on the methods and results of these surveys in the final CRR.

Verification:

1. As soon as the project owner knows that a non-commercial borrow site and/or disposal site will be used, he/she shall notify the CRS and CPM and provide documentation of previous archaeological survey, if any, dating within the past five years, for CPM approval.
2. In the absence of documentation of recent archaeological survey, at least 30 days prior to any soil borrow or disposal activities on the non-commercial borrow and/or disposal sites, the CRS shall survey the site/s for archaeological resources. The CRS shall notify the project owner and the CPM of the results of the cultural resources survey, with recommendations, if any, for further action.

GEOLOGY AND PALEONTOLOGY CONDITIONS OF CERTIFICATION

GEO-1 The project owner shall provide to the Certified Building Official (CBO) a Soils Engineering Report, as required by Section 1803 of the California Building Code (CBC) (2013) or the most current version succeeding that code in effect at the time construction of the project were to commence, shall specifically include laboratory test data, associated geotechnical engineering analyses, and a thorough discussion of seismicity; liquefaction; dynamic compaction; compressible soils; corrosive soils; and tsunamis. In accordance with CBC, the report must also include recommendations for ground improvement and/or foundation systems necessary to mitigate these potential geologic hazards, if present.

Verification: At least 15 days (or project owner- and CBO-approved alternative time frame) prior to the start of site grading the project owner shall submit the Soils Engineering Report to the CBO for design review and approval. Submittal of the report shall be coordinated with reports required in accordance with CIVIL-1. The submittal shall include a summary of how the results of the report were incorporated into the project foundation and grading plan design.

GEO-2 **DELETED**

PAL-1 The project owner shall provide the CPM with the resume and qualifications of its paleontological resource specialist (PRS) for review and approval. If the approved PRS is replaced prior to completion of project mitigation and submittal of the paleontological resources report (PRR), the project owner shall obtain CPM approval of the replacement PRS.

The PRS resume shall include the names and phone numbers of references. The resume shall also demonstrate to the satisfaction of the CPM the appropriate education and experience to accomplish the required paleontological resource tasks.

As determined by the CPM, the PRS shall meet the minimum qualifications for a Qualified Professional Paleontologist as defined in the Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources by the Society of Vertebrate Paleontology (SVP 2010). The experience of the PRS shall include the following:

1. Institutional affiliations, appropriate credentials, and college degree;
2. Ability to recognize and collect fossils in the field;
3. Local geological and biostratigraphic expertise;
4. Proficiency in identifying vertebrate and invertebrate fossils; and

5. At least three years of paleontological resource mitigation and field experience in California and at least one year of experience leading paleontological resource mitigation and field activities.

The project owner shall ensure that the PRS obtains qualified paleontological resource monitors to monitor as he or she deems necessary on the project. Paleontologic resource monitors (PRMs) shall have the equivalent of the following qualifications:

- BS or BA degree in geology or paleontology and one year of experience monitoring in California; or
- AS or AA in geology, paleontology, or biology and four years' experience monitoring in California; or
- Enrollment in upper division classes pursuing a degree in the fields of geology or paleontology and two years of monitoring experience in California.

The project owner shall submit to the CPM for review and approval, and keep on file, all resumes of qualified PRMs employed on the project. If a PRM is replaced, the resume of the replacement PRM shall also be provided to the CPM for review and approval, and kept on file.

Verification:

1. At least 60 days prior to the start of ground disturbance, the project owner shall submit a resume and statement of availability of its designated PRS for on-site work to the CPM, whose approval must be obtained prior to initiation of ground disturbing activities.
2. At least 30 days prior to ground disturbance, the PRS or project owner shall provide a letter with resumes naming anticipated PRM's for the project. The letter shall state that the identified PRM's meet the minimum qualifications for paleontological resource monitoring as required by this condition of certification. If additional PRM's are obtained during the project, the PRS shall provide additional letters and resumes to the CPM. The letter shall be provided to the CPM for approval no later than one week prior to the monitor's beginning on-site duties.
3. The project owner may replace a PRS by submitting the required resume, references, and contact information to the CPM for review and approval at least ten working days prior to the termination or release of the then-current PRS. In an emergency, the project owner shall immediately notify the CPM to discuss the qualifications and approval of a short-term replacement while a permanent PRS is proposed to the CPM for consideration.

The CPM may withhold approval of a PRS based upon proof that a proposed PRS has repeatedly failed to comply with the conditions of any Energy Commission license as they pertain to paleontological resources. If the project owner proposes to use a PRS previously-approved by the Energy Commission within the preceding five (5) years, the CPM shall have ten (10) days to review the resume and statement of availability of the proposed PRS. The CPM may withhold approval of a previously-approved PRS only if (1) the non-compliance with conditions of an Energy Commission license was documented in the compliance record for the previous Energy Commission license project work or (2) if the proposed previously approved PRS's qualifications are not applicable to the specific paleontological resources identified in the project area. The CPM shall provide notice of disapproval of the proposed PRS within ten (10) days of receipt of the resume and statement of availability of any proposed PRS. In the case of a previously-approved PRS, failure to provide notice within (10) days of receipt of the resume and statement of availability of the proposed PRS shall be deemed approval of that candidate.

The CPM shall meet and confer with the project owner regarding the disapproval of a previously-approved PRS or the need to remove or replace a PRS. Removal or replacement may occur if the CPM can establish that the PRS has repeatedly failed to comply with the conditions of the AEC license that pertain to paleontological resources.

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 the plan and profile drawings for the utility lines would be acceptable for this purpose. The plan drawings must 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. 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, 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 planned 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 a Paleontological Resources Monitoring and Mitigation Plan (PRMMP) and submits the PRMMP to the CPM for review and approval. 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. The PRMMP shall be used as the basis of discussion when on-site decisions or changes are proposed. Copies of the PRMMP shall include all updates and reside with the PRS, each PRM, 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. 2010) and shall include, but not be limited, to the following:

1. Procedures for and 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 required by the PRMMP and these 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 sampling is needed, a description of the sampling methodology, and how much sampling is expected to take place in which geologic 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 at these locations;
6. A discussion of procedures to be followed: (a) in the event of a significant fossil discovery, (b) stopping construction, (c) resuming construction, and (d) 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 a copy of the paleontological resources 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. Approval of the PRMMP by the CPM shall occur prior to any ground disturbance. 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 the project owner and the PRS shall prepare a CPM-approved Worker Environmental Awareness Program (WEAP).

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 purpose of the WEAP is to train project workers to recognize paleontologic resources and identify procedures they must follow to ensure there are no impacts to sensitive paleontologic resources. The WEAP 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 stop or redirect construction in the event of a discovery or unanticipated impact to a paleontological resource;
4. Instruction that employees are to stop 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.
8. The project owner shall also submit the training script and, if the project owner is planning to use a video for training, a copy of the training video with the set of reporting procedures for workers to follow that will be used to present the WEAP and qualify workers to conduct ground disturbing activities that could impact paleontologic resources.

Verification:

1. At least 30 days prior to ground disturbance, the project owner shall submit to the CPM for review and comment the draft WEAP, including the brochure and sticker. The submittal shall also include a draft training script and, if the project owner is planning to use a video for training, a copy of the training video with the set of reporting procedures for workers to follow.
2. At least 15 days prior to ground disturbance, the project owner shall submit to the CPM for approval the final WEAP and training script.

PAL-5 No worker shall excavate or perform any ground disturbance activity prior to receiving CPM-approved WEAP training by the PRS, unless specifically approved by the CPM.

Prior to project ground disturbance the following workers shall be WEAP trained by the PRS in-person: project managers, construction supervisors, foremen, and all general workers involved with or who operate ground-disturbing equipment or tools. 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. A

WEAP certification of completion form shall be used to document who has received the required training.

Verification:

1. 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 and/or video) offered that month. The MCR shall also include a running total of all persons who have completed the training to date.
2. If the project owner requests an alternate paleontological WEAP trainer, the resume and qualifications of the trainer shall be submitted to the CPM for review and approval prior to installation of an alternate trainer. Alternate trainers shall not conduct WEAP training prior to CPM authorization.

PAL-6 The project owner shall ensure that the PRS and PRM(s) monitor, consistent with the PRMMP, all construction-related grading, excavation, trenching, and auguring 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 stop 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 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, and copies of these logs shall be submitted with the monthly compliance report. The PRS may 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, when construction has been stopped because of a paleontological find.

The project owner shall ensure that the PRS prepares a summary of monitoring and other paleontological activities that will be included in each MCR. The summary will include the name(s) of PRS or PRM(s) active during the month, general descriptions of training and monitored construction activities, and general locations of excavations, grading, and 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. Negative findings, when no fossils are identified, will also be reported. 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 15 days in advance of any proposed changes in monitoring different from that 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-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 ground-disturbing activities. The PRR shall include an analysis of the collected fossil materials and related information, and shall be submitted to the CPM for approval.

The report shall include, but not be limited to, a description and inventory of recovered fossil materials; a map showing the location of paleontological resources encountered; and the PRS' description of sensitivity and significance of those resources; and indicate if and how fossil material was curated in accordance with PAL-6.

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.

PAL-8 The project owner, through the designated PRS, shall ensure that all components of the PRMMP are adequately performed, including collection of fossil material, preparation of fossil material for analysis, analysis of fossils, identification and inventory of fossils, preparation of fossils for curation, and delivery for curation of all significant paleontological resource materials encountered and collected during project construction. The project owner shall pay all curation fees charged by the museum for fossil material collected and curated as a result of paleontological mitigation. The project owner shall also provide the curator with documentation showing the project owner irrevocably and unconditionally donates, gives, and assigns permanent, absolute, and unconditional ownership of the fossil material.

Verification: Within 60 days after the submittal of the PRR, the project owner shall submit documentation to the CPM identifying the entity that will be responsible for curating collected specimens. This documentation will also show that fees have been paid for curation and the owner relinquishes control and ownership of all fossil material.

Certification of Completion

Worker Environmental Awareness Program

ALAMITOS ENERGY CENTER (13-AFC-01)

This is to certify these individuals have completed a mandatory California Energy Commission-approved Worker Environmental Awareness Program (WEAP). The WEAP includes pertinent information on cultural, paleontological, and biological resources for all personnel (that is, construction supervisors, crews, and plant operators) working on site or at related facilities. By signing below, the participant indicates that he/she understands and shall abide by the guidelines set forth in the program materials. Include this completed form in the Monthly Compliance Report.

No.	Employee Name	Title/Company	Signature
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Cultural Trainer: _____ Signature: _____ Date: ____/____/____

Paleo Trainer: _____ Signature: _____ Date: ____/____/____

Biological Trainer: _____ Signature: _____ Date: ____/____/____

LAND USE CONDITIONS OF CERTIFICATION

There are no conditions of certification for **LAND USE**.

TRAFFIC AND TRANSPORTATION CONDITIONS OF CERTIFICATION

TRANS-1 Roadway Use Permits and Regulations

The project owner shall comply with limitations imposed by the Department of Transportation (Caltrans) and other relevant jurisdictions, including the city of Long Beach and Los Angeles County, on vehicle sizes and weights, driver licensing, and truck routes. In addition, the project owner or its contractor(s) shall obtain necessary transportation permits for roadway use from all relevant jurisdictions.

Verification: In the Monthly Compliance Reports (MCRs), the project owner shall report permits received during that reporting period. In addition, the project owner shall retain copies of permits and supporting documentation on-site for Compliance Project Manager (CPM) inspection if requested.

TRANS-2 Traffic Control Plan, Heavy Hauling Plan, and Parking/Staging Plan

Prior to the start of construction, the project owner shall prepare and implement a Traffic Control Plan (TCP) for the project's construction and operations traffic. The TCP shall address the movement of workers, vehicles, and materials, including arrival and departure schedules and designated workforce and delivery routes.

The project owner shall consult with the Department of Transportation (Caltrans) District 7 office, the city of Long Beach and other applicable local jurisdictions in the preparation and implementation of the TCP. The project owner shall submit the proposed TCP to these agencies in sufficient time for review and comment, and to the Compliance Project Manager (CPM) for review and approval prior to the proposed start of construction and implementation of the plan.

The TCP shall include:

1. Routes used for construction-related trips for workers, deliveries, and heavy-haul trucks.
2. Timing of construction-related trips for workers, deliveries, and heavy-haul trucks, with trips scheduled for off-peak hours if possible, and staggered when possible.
3. Stagger the arrival time of vehicles (workforce and delivery) to times outside of the a.m. peak period, particularly to avoid a worsening of LOS for the intersection of PCH and Seal Beach Boulevard during the a.m. peak.
4. Allow access to the AEC site for any delivery trucks or workers that arrive at the site prior to allowable construction start time (7 a.m. on

weekdays and 9:00 a.m. on Saturdays) to be parked on the AEC project site.

5. Parking/Staging Plan (PSP) for all phases of project construction and operation to require all project-related parking to be on the AEC project site with the exception of offsite parking related to construction of the wastewater linear (workers and construction equipment). The PSP must comply with the city of Long Beach's parking regulations by providing sufficient onsite parking.
6. Provisions for redirection of construction traffic with a flag person as necessary to ensure traffic safety and minimize interruptions to non-construction related traffic flow.
7. Placement of necessary signage, lighting, and traffic control devices at the project construction site and laydown areas;
8. A heavy-haul plan addressing the transport and delivery of heavy and oversized loads requiring permits from the California Department of Transportation (Caltrans), other state or federal agencies, and/or the affected local jurisdictions including Los Angeles County and the city of Long Beach;
9. Details regarding temporary closure of travel lanes or disruptions to street segments and intersections during construction activities.
10. Traffic diversion plans (in coordination with Caltrans and any applicable local agencies) to ensure access during temporary lane/road closures.
11. Means of access to residential and/or commercial property located near construction work and truck traffic routes.
12. Means of access for emergency vehicles to the project site.
13. Advance notification to residents, businesses, emergency providers, and hospitals that would be affected when roads may be partially or completely closed.
14. Identify safety procedures for exiting and entering the site access gate;

Verification: At least 60 calendar days prior to the start of construction, the project owner shall submit the TCP to the applicable agencies for review and comment and to the CPM for review and approval. The project owner shall also provide the CPM with a copy of the transmittal letter to the agencies requesting review and comment.

At least 30 calendar days prior to the start of construction, the project owner shall provide copies of any comment letters received from the agencies, along with any changes to the proposed development plan, to the CPM for review and approval.

The project owner shall report in the Monthly Compliance Reports (MCRs) the arrival time of construction workers and construction delivery trucks, ensuring arrival at the AEC site is outside of the am peak hour (7 a.m. – 9 a.m.). Documentation of worker and truck delivery arrival time may include worker timesheets and security sign in sheets, or other documentation method approved by the CPM.

TRANS-3 Restoration of All Public Roads, Easements, and Rights-of-Way

The project owner shall restore the public roads, easements, rights-of-way, and any other transportation infrastructure damaged due to project-related construction deliveries and heavy haul trucks. Restoration shall be completed in a timely manner to the infrastructure's original condition. Restoration of significant damage which could cause hazards (such as potholes, deterioration of pavement edges, or damaged signage) shall take place immediately after the damage has occurred.

Prior to the start of site mobilization, the project owner shall notify the relevant agencies, including the city of Long Beach, Los Angeles County, and Caltrans, of the proposed schedule for project construction. The purpose of this notification is to request that these agencies consider postponement of any planned public right-of-way repairs or improvement activities in areas affected by project construction until construction is completed, and to coordinate any concurrent construction-related activities that cannot be postponed.

Verification: Prior to the start of site mobilization, the project owner shall video the public roads, easements, right-of-way segment(s), and intersections identified in the Traffic Control Plan as the route used for construction equipment, material, and heavy haul delivery vehicles, to and from the freeway and the project site (on surface streets only), and along the heavy haul routes. The project owner shall provide the video to the CPM prior to the start of site mobilization.

If damage to any **of the identified** public roads, easements, or rights-of-way occurs during construction, the project owner shall notify the CPM and the affected agency/agencies to identify the sections to be repaired. At that time, the project owner and CPM shall establish a schedule for completion and approval of the repairs. Following completion of any repairs, the project owner shall provide the CPM with letters signed by the affected agency/agencies stating their satisfaction with the repairs.

TRANS-4 Hazardous Materials

The project owner shall contract with licensed hazardous materials delivery and waste hauler companies in order to obtain the necessary permits and/or licenses from the California Highway Patrol, Caltrans, and any relevant local jurisdictions for the transportation of hazardous materials. The project owner shall ensure compliance with all applicable regulations and implementation of the proper procedures.

Verification: In the Monthly Compliance Reports (MCRs) during construction and the Annual Reports during operation, the owner shall provide copies of all permits/licenses obtained for the transportation of hazardous materials.

At least 30 days prior to the start of construction, the project owner shall provide copies of any comment letters received from the relevant agencies, along with any resulting changes in plans for transportation of hazardous materials.

TRANS-5 Encroachment into Public Rights-of-Way

Prior to any ground disturbance, improvements, or obstruction of traffic within any public road, easement, or right-of-way, the project owner shall coordinate with all applicable jurisdictions, including the city of Long Beach, Los Angeles County, and Caltrans, to obtain necessary encroachment permits and comply with all applicable regulations, including applicable road standards.

Verification: At least 10 days prior to ground disturbance, improvements, or interruption of traffic in or along any public road, easement, or right-of-way, the project owner shall provide copies of all permit(s), relevant to the affected location(s), received from Caltrans or any other affected jurisdiction/s to the CPM. In addition, the project owner shall retain copies of the issued/approved permit(s) and supporting documentation in its compliance file for a minimum of 180 calendar days after the start of commercial operation.

TRANS-6 Notification of FAA for Construction Equipment at or Exceeding 132 feet Above Ground Level

The project owner or its contractor(s) shall file Form 7460-1 (construction or alteration of airspace) with the FAA for any construction equipment at the project site 132 feet above ground level (AGL) or taller.

Verification: At least 60 days prior to the presence of any construction equipment onsite 132 feet AGL or taller, the project owner shall submit to the CPM for review, supporting documentation that Form 7460-1 is filed with the FAA. Once FAA issues a hazard determination, the project owner shall provide a copy to the CPM for review.

TRANS-7 Obstruction Marking and Lighting for Construction Equipment

The project owner shall install blinking obstruction marking and lighting on any construction equipment 200 feet AGL or taller, in accordance with FAA requirements, as expressed in FAA Advisory Circular 70/7460-1L or as updated.

Lighting shall be operational 24 hours a day, 7 days a week for the duration of project construction. Upgrades to the required lighting configurations, types, location, or duration shall be implemented consistent with any changes to FAA obstruction marking and lighting requirements.

Verification: At least 60 days prior to the presence of any construction equipment onsite which is or exceeds 200 feet in height, the project owner shall submit to the Compliance Project Manager for approval of final design plans for construction equipment depicting the required air traffic obstruction marking and lighting.

TRANS-8 Pilot Notification and Awareness

The project owner shall initiate the following actions to ensure pilots are aware of the project location and potential hazards to aviation:

1. Submit a letter to the Federal Aviation Administration (FAA) requesting a Notice to Airmen (NOTAM) be issued advising pilots of the location of the power plant and recommending avoidance of overflight of the project site. The letter should also request that the NOTAM be maintained in active status until all navigational charts and Airport Facility Directories (AFDs) have been updated.
2. Submit a letter to the FAA requesting a power plant depiction symbol be placed at the power plant site location on the Los Angeles Sectional Chart with a notice to “avoid direct overflight”.
3. Submit a request to the FAA and the Los Alamitos Army Airfield Manager to add a new remark to the Automatic Terminal Information Service (ATIS) identifying the location of the power plant and advising pilots to avoid direct overflight as they approach or depart the airport.
4. Submit aerodrome remarks describing the location of the power plant and advising against direct overflight to the:
 - A. FAA Airport/Facility Directory – Southwest U.S.
 - B. Jeppesen (Airway Manual Services - Western U.S. Airport Directory)
 - C. Pilots Guide to California Airports

Verification: Within 60 days prior to start of construction, the project owner shall submit draft language for the letters of request to the FAA and Los Alamitos Army Airfield to the Compliance Project Manager (CPM) for review and approval. The letters should request a response within 30 days that includes a timeline for implementing the required actions.

Within 60 days after CPM approval of draft language, the project owner shall submit the required the letters of request to the FAA, Los Alamitos Army Airfield, and the identified publications. The project owner shall submit copies of these requests to the CPM. A copy of any resulting correspondence shall be submitted to the CPM within 10 days of receipt. If the FAA, Los Alamitos Army Airfield, or the listed publications do not respond within 30 days, the project owner shall contact the CPM.

SOCIOECONOMICS CONDITIONS OF CERTIFICATION

SOCIO-1 The project owner shall pay the one-time statutory school facility development fee to the Long Beach Unified School District required by Education Code Section 17620.

Verification: At least 30 days prior to the start of project construction, the project owner shall provide to the Compliance Project Manager (CPM) proof of payment to the Long Beach Unified School District of the statutory development fees.

SOCIO-2 The project owner shall pay the one-time statutory police facilities impact fee to the city of Long Beach required by Long Beach Municipal Code Chapter 18.22.

Verification: At least 30 days prior to the start of project construction, the project owner shall provide to the Compliance Project Manager (CPM) proof of payment to the city of Long Beach of the statutory development fees.

NOISE AND VIBRATION CONDITIONS OF CERTIFICATION

PUBLIC NOTIFICATION PROCESS

NOISE-1 Prior to the start of ground disturbance, the project owner shall notify all residents within one mile of the project site and one-half mile of the linear facilities, by mail, or by other effective means, of the commencement of project construction. At the same time, the project owner shall establish a telephone number for use by the public to report any undesirable noise conditions associated with the construction demolition, and operation of the project. If the telephone is not staffed 24 hours a day, the project owner shall include an automatic answering feature, with date and time stamp recording, to answer calls when the phone is unattended. This or a similarly effective telephone number shall be posted at the project site during construction where it is visible to passersby. This telephone number shall be maintained until the project has been operational for at least one year.

Verification: At least 15 days prior to ground disturbance, the project owner shall transmit to the compliance project manager (CPM) a statement, signed by the project owner's project manager, stating that the above notification has been performed, and describing the method of that notification. This communication shall also verify that the telephone number has been established and posted at the site, and shall provide that telephone number.

NOISE COMPLAINT PROCESS

NOISE-2 Throughout the construction, demolition, and operation of the project, the project owner shall document, investigate, evaluate, and attempt to resolve all project-related noise complaints³. The project owner or its authorized agent shall:

- use the Noise Complaint Resolution Form (below), or a functionally equivalent procedure acceptable to the CPM, to document and respond to the noise complaint;
- attempt to contact the person(s) making the noise complaint within 24 hours;
- conduct an investigation to determine the source of noise in the complaint;

³ A project-related noise complaint is a complaint about noise that is caused by the AEC project as opposed to another source and may constitute a violation by the project of any noise condition of certification, which is documented by an individual or entity affected by such noise.

- if the noise is project related, take all feasible measures to reduce the source of the noise; and
- submit a report documenting the complaint and actions taken. The report shall include: a complaint summary, including the final results of noise reduction efforts and, if obtainable, a signed statement by the complainant that states that the noise problem has been resolved to the complainant's satisfaction.

Verification: Within five days of receiving a noise complaint, the project owner shall file with the CPM a Noise Complaint Resolution Form, shown below, that documents the resolution of the complaint. If mitigation is required to resolve the complaint, and the complaint is not resolved within a three business-day period, the project owner shall submit an updated Noise Complaint Resolution Form when the mitigation is implemented.

EMPLOYEE NOISE CONTROL PROGRAM

NOISE-3 The project owner shall submit to the CPM for review and approval a noise control program. The noise control program shall be used to reduce employee exposure to high (above permissible) noise levels during construction and demolition in accordance with Title 8, California Code of Regulations, Sections 5095-5099, and Title 29, Code of Federal Regulations, Section 1910.95.

Verification: At least 30 days prior to the start of ground disturbance, the project owner shall submit the noise control program to the CPM. The project owner shall make the program available to Cal-OSHA upon request.

OPERATIONAL NOISE RESTRICTIONS

NOISE-4 The project design and implementation shall include appropriate noise mitigation measures adequate to ensure that the operation of the project will not cause the noise levels due to normal steady-state plant operation alone, during the four quietest consecutive hours of the nighttime, to exceed an average of 55 dBA L_{90} measured at or near monitoring location M1, 51 dBA L_{90} measured at or near monitoring location M2, and 53 dBA L_{90} measured at or near monitoring location M3.

No new pure-tone components (as defined in **Noise Table A1**⁴, bottom row defining pure tone) shall be caused by the project. No single piece of

⁴ A pure tone is defined by the Model Community Noise Control Ordinance as existing if the one-third octave band sound pressure level in the band with the tone exceeds the arithmetic average of the two contiguous bands by 5 decibels (dB) for center frequencies of 500 Hz and above, or by 8 dB for center frequencies between 160 Hz and 400 Hz, or by 15 dB for center frequencies less than or equal to 125 Hz. (Ex. 2000 [FSA TN213768], pp.4.6-44 – 4.6-45).

equipment shall be allowed to stand out as a source of noise that draws project-related noise complaints.

When the project first achieves a sustained output of 85 percent or greater of its rated capacity for each power block, the project owner shall conduct a 25-hour community noise survey at monitoring locations M1, M2, and M3, or at a closer location acceptable to the CPM. This survey shall also include measurement of one-third octave band sound pressure levels to ensure that no new pure-tone noise components have been caused by the project.

The measurement of power plant noise for the purposes of demonstrating compliance with this condition of certification may alternatively be made at a location, acceptable to the CPM, closer to the plant 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 receptor locations to determine the presence of pure tones or other dominant sources of plant noise.

If the results from the noise survey indicate that the power plant noise at the affected receptor sites exceed the above values, mitigation measures shall be implemented to reduce noise to a level of compliance with these limits.

If the results from the noise survey indicate that pure tones are present, mitigation measures shall be implemented to reduce the pure tones to a level that complies with **Noise Table A1** (bottom row defining pure tone) below.

Verification: The above noise survey shall be conducted each time a power block becomes operational and shall take place within 90 days of the power block first achieving a sustained output of 85 percent or greater of its rated capacity. The second survey shall include the combined operation of both power blocks at 85 percent, or greater, of the overall plant rated capacity with all turbine generators operating. Within 15 days after completing this survey, the project owner shall submit a summary report to the CPM. Included in the survey report shall be a description of any additional mitigation measures necessary to achieve compliance with the above listed noise limits, and a schedule, subject to CPM approval, for implementing these measures. When these measures are implemented and in place, the project owner shall repeat the noise survey.

Within 15 days of completion of the new survey, the project owner shall submit to the CPM a summary report of the new noise survey, performed as described above and showing compliance with this condition.

OCCUPATIONAL NOISE SURVEY

NOISE-5 Following the project's attainment of a sustained output of 85 percent or greater of its rated capacity, the project owner shall conduct an occupational noise survey to identify any noise hazardous areas within the power plant.

The survey shall be conducted by a qualified person in accordance with the provisions of Title 8, California Code of Regulations, Sections 5095-5099 (Article 105) and Title 29, Code of Federal Regulations, Section 1910.95. The survey results shall be used to determine the magnitude of employee noise exposure.

The project owner shall prepare a report of the survey results and, if necessary, identify proposed mitigation measures to be employed in order to comply with the above regulations.

Verification: Within 30 days after completing each 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 from OSHA and Cal-OSHA.

CONSTRUCTION AND DEMOLITION NOISE RESTRICTIONS

NOISE-6 Heavy equipment operation and noisy⁵ construction and demolition work relating to any project features, including pile driving, shall be restricted to the times delineated below:

Mondays through Fridays and designated holidays: 7:00 a.m. to 7:00 p.m.

Saturdays: 9:00 a.m. to 6:00 p.m.

Sundays: Construction not allowed

Limited construction activities may be performed outside of the above hours, with CPM approval as set forth below.

Haul trucks and other engine-powered equipment shall be equipped with adequate mufflers and other state-required noise attenuation devices. Haul trucks shall be operated in accordance with posted speed limits. Truck engine exhaust brake use (jake braking) shall be limited to emergencies.

Verification: Prior to ground disturbance, the project owner shall transmit to the CPM a statement acknowledging that the above restrictions will be observed throughout the construction of the project.

⁵ "Noisy" means noise that has the potential to cause project-related noise complaints (for the definition of "project-related noise complaint", see the footnote in condition of certification NOISE-2).

In consultation with the CPM, construction equipment generating excessive⁶ noise shall be updated or replaced if beneficial in reducing the noise and if feasible. In addition, temporary acoustic barriers shall be installed around stationary construction noise sources if beneficial in reducing the noise and if feasible. The project owner shall reorient construction equipment, and relocate construction staging areas, when possible, to minimize the noise impact at nearest noise-sensitive receptors.

At least 10 days prior to any heavy equipment operation or noisy construction activities that would occur outside of the above hours, the project owner shall submit a request to the CPM for review and approval. The request submitted to the CPM shall specify the activities that need to occur outside of the restricted days and times set forth above; the need for such activities; the days, dates, and times during which these activities will occur; the approximate distance of activities to residential and other sensitive receptors; the expected sound levels at these receptors; and a statement that the activities will be performed in a manner to ensure excessive noise is prohibited as much as practicable. At the same time, the project owner shall notify the residents and property owners within one-half mile of the project site of the request. In this notification, the project owner shall state that it will perform this activity in a manner to ensure excessive noise is avoided as much as practicable.

STEAM BLOW RESTRICTIONS

NOISE-7 When using a high-pressure steam blow process, the project owner shall equip steam blow piping with a temporary silencer that quiets the noise of steam blows to no greater than 89 dBA measured at a distance of 50 feet. The steam blows shall be conducted between 7:00 a.m. and 7:00 p.m. Mondays through Fridays, and between 9:00 a.m. and 6:00 p.m. on Saturdays. The project owner shall notify the residents and business owners in the vicinity of the project site prior to start of steam blow activities.

Verification: At least 15 days prior to the first steam blow, the project owner shall notify all residents and business owners within one mile of the power block for which steam blow activities are scheduled. The notification may be in the form of letters, or other effective means as approved by the CPM. The notification shall include a description of the purpose and nature of the steam blows, the planned schedule, expected sound levels at monitoring locations M1, M2, and M3 and explanation that it is a one-time activity and not part of normal plant operation.

⁶ "Excessive noise" means noise that has the potential to cause project-related noise complaints (for the definition of "project-related noise complaint", see the footnote in condition of certification **NOISE-2**).

PILE DRIVING MANAGEMENT

NOISE-8 The project owner shall perform pile driving in a manner to reduce the potential for any project-related noise and vibration complaints. The project owner shall notify the residents and business owners in the vicinity of pile driving prior to start of these activities.

Verification: At least 15 days prior to first pile driving, the project owner shall submit to the CPM a description of the pile driving technique to be employed, including calculations showing its projected noise impacts and peak particle velocity at monitoring locations M1, M2, and M3.

At least 10 days prior to first production pile driving for each power block, the project owner shall notify the residents and business owners within one mile of the pile driving. The notification may be in the form of letters, or other effective means, as approved by the CPM. In this notification, the project owner shall state that it will perform this activity in a manner to reduce the potential for any project-related noise and vibration complaints. The project owner shall submit a copy of this notification to the CPM prior to the start of pile driving for each power block.

EXHIBIT 1 - NOISE COMPLAINT RESOLUTION FORM

Alamitos Energy Center (13-AFC-01)		
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).

VISUAL CONDITIONS OF CERTIFICATION

VIS-1 Lighting – Project Construction. Consistent with applicable worker safety regulations, the project owner shall ensure that lighting of on-site construction areas and construction worker parking lots minimizes potential night lighting impacts by implementing the following measures:

- The Lighting Management Plan shall include three printed sets of full-size plans (24" x 36", minimum), three sets of 11" x 17" reductions, and a digital copy in PDF format, and contain the following information:
- All fixed-position lighting shall be hooded and shielded to direct light downward and toward the construction area to be illuminated to prevent illumination of the night sky and minimize light trespass (i.e., direct light extending beyond the boundaries of the parking lots and construction sites, including any security-related boundaries).
- Lighting of any tall construction equipment (e.g., scaffolding, derrick cranes) shall be directed toward areas requiring illumination and shielded to the maximum extent practicable.
- Task-specific lighting shall be used to the maximum extent practicable.
- Wherever and whenever feasible, lighting shall be kept off when not in use and motion sensors shall be used to the maximum extent practicable.
- The Compliance Project Manager (CPM) shall be notified of any construction-related lighting complaints. Complaints shall be documented using a form in the format shown in Attachment 1, and completed forms shall record resolution of each complaint. A copy of each completed complaint form shall be provided to the CPM. Records of lighting complaints shall also be kept in the compliance file at the project site.

Verification: Within 7 calendar days after the first use of fixed-position parking area and construction lighting for major construction milestones, the project owner shall notify the CPM that the lighting is ready for inspection. Verification is to be repeated for these construction milestones:

- construction of Power Block 1
- construction of Power Block 2

If the CPM determines that modifications to the lighting are needed for any construction milestone, within 14 calendar days of receiving that

notification, the project owner shall correct the lighting and notify the CPM that modifications have been completed.

Within 48 hours of receiving a lighting complaint for any construction activity, the project owner shall provide to the CPM a copy of the complaint report and resolution form, including a schedule for implementing corrective measures to resolve the complaint.

The project owner shall report any lighting complaints and document their resolution in the Monthly Compliance Report for the project, accompanied by copies of completed complaint report and resolution forms for that month.

VIS-2

Surface Treatment of Project Structures and Buildings. Prior to commercial operation of the Power Block 1, the project owner shall prepare and implement a Surface Treatment Plan addressing treatment of the surfaces of all project structures and buildings visible to the public such that proposed colors and finishes (1) minimize visual intrusion and reduce contrast by blending with the existing visual environment, (2) avoid creating new sources of substantial glint and glare, and (3) are consistent with all applicable laws, ordinances, regulations, and standards.

The Surface Treatment Plan shall include, at a minimum, the following elements:

- Description of the overall rationale for the proposed surface treatments, including selection of the proposed colors and finishes;
- Discussion of proposed opportunities and options for using color to enhance design quality;
- Schedule for completing the surface treatments;
- Procedure to ensure proper surface treatment maintenance for the life of the project;
- Three printed sets (11" x 17"), and a digital copy in PDF format of elevation drawings depicting the major project structures and buildings, keyed to a spreadsheet that for each structure and building specifies: (1) the proposed color and finish; and (2) the height, length, and width or diameter;
- Two sets of color brochures, color chips, and or physical samples showing each proposed color and finish. Digital files showing proposed colors may not be submitted in place of original samples. Colors must

be identified by vendor, name, and number, or according to a universal designation system; and

- Three printed sets (11' x 17") and a digital copy in PDF format of color of a visual simulation at scale showing the surface treatment proposed for the project structures. The visual simulations for KOP 4 shall be used to prepare an image showing the proposed surface treatment plan.

The Surface Treatment Plan shall be submitted to the Compliance Project Manager (CPM) for review and approval. The project owner shall not submit instructions for colors and finishes to manufacturers or vendors of project structures, or perform final field treatment on any structures, until written approval of the final plan is received from the CPM. Modifications to the Surface Treatment Plan are prohibited without the CPM's approval.

Verification: At least 90 calendar days before submitting instructions for colors and other surface treatments to manufacturers or vendors of project structures, and/or ordering prefabricated project structures, the project owner shall submit the Surface Treatment Plan to the CPM for review and comment.

If the CPM determines that the plan requires revision, the project owner shall provide a plan with the specified revision(s) for review and approval by the CPM. No work to implement the Surface Treatment Plan shall begin until final plan approval is received from the CPM.

Prior to the start of commercial operation of Power Block 1, the project owner shall notify the CPM that surface treatments of all publicly visible structures and buildings identified in the Surface Treatment Plan have been completed and that the facilities are ready for inspection. The project owner shall obtain written confirmation from the CPM that the project complies with the Surface Treatment Plan.

VIS-3 Perimeter Landscape Screening. The project owner shall provide landscaping that provides minimum open space areas on the project site in accordance with local policies. The objective shall be to create landscape of a semi-permanent manner with California-native, drought-tolerant groundcover and tree species.

The project owner shall submit to the Compliance Project Manager (CPM) for review and approval and simultaneously to the city of Long Beach 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.
- 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; and
- D. A procedure for monitoring for and replacement of unsuccessful plantings for the life of the project.

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 Long Beach 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 Long Beach a revised plan for review and approval by the CPM.

Planting must be completed or bonded by the start of commercial operation. Planting must occur during the optimal planting season, but not later than 12 months after the start of commercial operation. The project owner shall simultaneously notify the CPM and the city of Long Beach 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.

Lighting Management Plan – Project Operation

VIS-4 The project owner shall prepare and implement a comprehensive Lighting Management Plan for project operations. The project owner shall not

purchase or order any permanent lighting fixtures or apparatus until written approval of the final plan is received from the CPM. Modifications to the Lighting Management Plan are prohibited without the CPM's approval. Consistent with applicable worker safety regulations, the project owner shall design, install, and maintain all permanent exterior lighting such that light sources are not directly visible from areas beyond the project site, glare is avoided, and night lighting impacts are minimized or avoided to the maximum extent feasible. All lighting fixtures shall be selected to achieve high energy efficiency for the facility. The project owner shall meet these requirements for permanent project lighting:

1. The Lighting Management Plan shall include three printed sets of full-size plans (24" x 36", minimum), three sets of 11" x 17" reductions, a digital copy in PDF format.
2. The Lighting Management Plan shall be prepared with the direct involvement of a certified lighting professional trained to integrate efficient technologies and designs into lighting systems.
3. Exterior lights shall be hooded and shielded and directed downward or toward the area to be illuminated to prevent obtrusive spill light (i.e., light trespass) beyond the project site.
4. Exterior lighting shall be designed to minimize backscatter to the night sky to the maximum extent feasible.
5. Energy efficient lighting products and systems shall be used for all permanent new lighting installations. Smart bi-level exterior lighting using high efficiency directional LED fixtures shall be used as appropriate for exterior installations. The lighting system shall work in conjunction with occupancy sensors, photo sensors, wireless controls, and/or other scheduling or controls technologies to provide adequate light for security and maximize energy savings.
6. Lighting fixtures shall be kept in good working order and continuously maintained according to the original design standards.
7. The Lighting Management Plan shall be consistent with all applicable laws, ordinances, regulations, and standards.

The Compliance Project Manager (CPM) shall be notified of any complaints about permanent lighting at the project site. Complaints shall be documented using a form in the format shown in Attachment 1, and completed forms shall record resolution of each complaint. A copy of each completed complaint form shall be provided to the CPM. Records of

lighting complaints shall also be kept in the compliance file at the project site.

Verification: At least 90 calendar days before installation of any permanent lighting equipment for the project, the project owner shall submit the comprehensive Lighting Management Plan to the CPM for review and approval.

If the CPM determines that the plan requires revision, the project owner shall provide a plan with the specified revision(s) for review and approval by the CPM. No work to implement the plan (e.g., installation of fixtures) shall begin until final plan approval is received from the CPM.

Prior to the start of commercial operation of the project, the project owner shall notify the CPM that installation of permanent lighting for the project has been completed and that the lighting is ready for inspection. If the CPM notifies the project owner that modifications to the lighting system are required, within 30 days of receiving that notification, the project owner shall implement all specified changes and notify the CPM that the modified lighting system(s) is ready for inspection.

EXHIBIT LIST

Appendix B



Exhibit List

Docket: 13-AFC-01

Project Title: Alamitos Energy Center

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↑ Exhibit Number	Document Title and Description	Disposition
1001	TN # 201497 Cover Letter Enclosing Air Modeling Files 2 Volumes of Discs Received. Too Large to Upload to e-filing.	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1002	TN # 201503 Cover Letter and Application for Confidentiality	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1003	TN # 201688 Completeness Response Letter to South Coast Air Quality Management District	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1004	TN # 201725 CONFIDENTIAL_AEC_Appendix 5.3B_Cultural Inventory Report	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1005	TN # 201729 CONFIDENTIAL_AEC_Appendix 5.3C - 4 Literature Search Result	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1006	TN # 201730 CONFIDENTIAL_AEC_Appendix 5.3C - 5 Literature Search Result	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1007	TN # 201731 CONFIDENTIAL_AEC_Appendix 5.3C - 6 Literature Search Results	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1008	TN # 201732 CONFIDENTIAL_AEC_Appendix 5.3C - 7 Literature Search Results	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1009	TN # 201733 CONFIDENTIAL_AEC_Appendix 5.3C - 8 Literature Search Results	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1010	TN # 201734 CONFIDENTIAL_AEC_Appendix 5.3E_Full Results Maps	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1011	TN # 201751 Data Adequacy Supplement	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1012	TN # 201940 Alamitos Energy Center Data Response	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1013	TN # 202163 Responses to CEC Staff Query 1– Transmission and Project Description	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1014	TN # 202381 Data Responses Set 1A to CEC Staff Request Alamitos Energy Center Requests 1-8, 10-12, 16-17, 20-25, 38-	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.

	44, 51-54, and 59-62.	
1015	TN # 202416 Informal Staff Query 2 Responses to CEC Staff Requests	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1016	TN # 202867 Data Responses, Set 2 Responses to Data Requests 64 to 68	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1017	TN # 202897 AEC Air Dispersion Modeling Addendum	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1018	TN # 202901 AEC Air Dispersion Modeling Addendum Modeling Files	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1019	TN # 202908 AEC Data Response Set 1B	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1020	TN # 202978 Alamitos Energy Center Data Request Set 3 Response	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1021	TN # 203233 Data Response Set 1C Responses to CEC Staff Data Requests 17 and 18	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1022	TN # 203253 Cover Letter re Data Response Set 1C Supplemental Air Quality Files Informational Only - Data not included with Cover Letter	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1025	TN # 206432 Repeated Application for Confidentiality - Cultural Resources	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1026	TN # 206433 Supplemental Application for Certification Air Dispersion Modeling Files and Appendix 5.14A - 2015 EMS Phase I ESA Report Project Manager, Christopher Meyer has the copies of DVDs for the air quality modeling files	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1027	TN # 206505 SAFC Cultural Resources Figure 5.3-1 Figure 5.3-1	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1028	TN # 206589 Appendix 5.3B Cultural Inventory Report	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1029	TN # 206590 Appendix 5.3E Full Results Maps	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1030	TN # 206591 Appendix 5.3C Literature Search Results Document is too large to upload. See docket staff for a CD.	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1031	TN # 206920 Memorandum of Understanding between AES and City of Long Beach 11-16-15 Memorandum of Understanding between AES and city of Long Beach 11-16-15 addressing the future demolition of AGS	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1032	TN # 207013 Data Response Set 6 Response to Data Requests 83 to 168	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1033	TN # 207022 Data Request Number 6 Attachment DR144-2 - AGS Sampling and Analysis Plan, Wastewater Basin Closure Project, SCE, January 2013	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1034	TN # 207265 Alamitos Energy Center SCAQMD Air Permit Application Completeness Response	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1035	TN # 210229 Data Responses, Set 6A Revised Responses to Data Requests 160, 161, and 163	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.

1036	TN # 210269 SCAQMD Correspondence Regarding AEC Questions Set No. 3 - Corrected and Set No. 4	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1037	TN # 210354 AES Response to SCAQMD Email Data Request	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1038	TN # 210528 Record of Conversation on Transmission System Engineering 02/16/16 ROC between CEC Staff and Applicant's Consultant on Transmission System Engineering	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1039	TN # 210533 AES Alamitos Response to SCAQMD Data Request No. 6	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1040	TN # 210604 Alamitos Energy Center Water Supply Assessment dated January 21, 2016	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1041	TN # 210632 AEC Removal of Temporary Secondary Construction Access Road	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1042	TN # 210766 AEC Data Responses, Set 8	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1043	TN # 210780 AEC Data Response Set 6-R1, Data Responses 131-133 (Air Quality)	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1044	TN # 210805 AES Alamitos, LLC's Supplemental Application for Certification Revisions	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1045	TN # 210806 Alamitos Energy Center Data Response Set No. 7 Questions	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1046	TN # 211006 AEC CAISO Section 25.1 Affidavit Application	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1047	TN # 211013 AEC Supplemental Application for Certification Revised Air Quality, Biological Resources and Public Health Assessment Sections	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1048	TN # 211169 Alamitos Energy Center Data Response Set 6-R2 (Revised and Updated Data Response to 133, Air Quality)	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1049	TN # 211419 South Coast Air Quality Management District Correspondance 05-06-16	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1050	TN # 211504 City of Long Beach Comment Letter	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1051	TN # 211654 AEC Thermal Plume Information	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1052	TN # 211759 2016-05-25 AEC Thermal Plume Letter Attachment AEC May 25, 2016 Thermal Plume Letter Attachment to TN# 211654	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1053	TN # 211997 Email Regarding AES AEC Inversion Break-Up Modeling	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1054	TN # 212030 Report of Conversation - Hazardous Materials/ Worker Safety	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1055	TN # 212242 Alamitos Energy Center Supplement to Data Responses Set 8	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1056	TN # 212487 Applicant's Initial Comments on Preliminary Staff	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.

	Assessment	
1057	TN # 212493 Verification of the Public Notice Distribution for the Alamos Energy Center Project	Offered by Applicant (Alamos Energy Center); Admitted on 11/15/2016.
1058	TN # 212724 AES's Comments on the SCAQMD Preliminary Determination of Compliance	Offered by Applicant (Alamos Energy Center); Admitted on 11/15/2016.
1059	TN # 212771 Alamos Energy Center Preliminary Staff Assessment Summary of PSA Workshop and Supplemental Comments	Offered by Applicant (Alamos Energy Center); Admitted on 11/15/2016.
1060	TN # 212788 Record of Conversation - Air Quality & GHG	Offered by Applicant (Alamos Energy Center); Admitted on 11/15/2016.
1061	TN # 212799 SCAQMD Public Records Request Data 8-15-16 Compilation of data obtained through SCAQMD's Public Records Request process since May 2016.	Offered by Applicant (Alamos Energy Center); Admitted on 11/15/2016.
1062	TN # 212822 AEC Data Responses Set 6-R3, Data Responses to 131-133 (Air Quality)	Offered by Applicant (Alamos Energy Center); Admitted on 11/15/2016.
1063	TN # 212885 AEC Data Responses Set 6-R4, Data Response to 133 (Air Quality)	Offered by Applicant (Alamos Energy Center); Admitted on 11/15/2016.
1064	TN # 212917 AES Alamos Energy Center Offsite Linear Rare Plant Survey	Offered by Applicant (Alamos Energy Center); Admitted on 11/15/2016.
1065	TN # 212930 AES Alamos Energy Center Cumulative Air Quality Modeling Files	Offered by Applicant (Alamos Energy Center); Admitted on 11/15/2016.
1066	TN # 213734 Applicant's Response to Plains West Coast Terminals LLC's Comments	Offered by Applicant (Alamos Energy Center); Admitted on 11/15/2016.
1067	TN # 213749 AES Alamos Energy, LLC's Response to Committee's Questions Regarding Land Use Section of Preliminary Staff Assessment	Offered by Applicant (Alamos Energy Center); Admitted on 11/15/2016.
1068	TN # 213941 AES Alamos Repower Study Report	Offered by Applicant (Alamos Energy Center); Admitted on 11/15/2016.
1069	TN # 214090 Alamos Energy Center SOx Emission Reduction Credit Certificate	Offered by Applicant (Alamos Energy Center); Admitted on 11/15/2016.
1070	TN # 214099 Applicant's Opening Testimony on AEC FSA Part 1	Offered by Applicant (Alamos Energy Center); Admitted on 11/15/2016.
1071	TN # 214175 Preliminary Determination of Compliance Revisions Proposed PDOC revisions based on changes to the AGS retirement plan	Offered by Applicant (Alamos Energy Center); Admitted on 11/15/2016.
1072	TN # 214199 Alamos Energy Center - Applicant's Rebuttal Testimony	Offered by Applicant (Alamos Energy Center); Admitted on 11/15/2016.
1073	TN # 214200 Lease Agreement between San Diego Unified Port District and Duke Energy South Bay LLC, dated 04-01-99	Offered by Applicant (Alamos Energy Center); Admitted on 11/15/2016.
1401	TN # 201620-1 AEC AFC Cover Vol. 1 Previously TN: 201495-1	Offered by Applicant (Alamos Energy Center); Admitted on 11/15/2016.
1402	TN # 201620-2 AEC AFC Cover Letter Previously TN# 201486	Offered by Applicant (Alamos Energy Center); Admitted on 11/15/2016.
1403	TN # 201620-3	Offered by Applicant (Alamos Energy Center); Admitted.

	AEC AFC Title Page, Volume 1 Previously TN #201495-2	
1404	TN # 201620-4 AEC AFC Table of Contents Previously TN# 201495-3	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1405	TN # 201620-5 AEC AFC Acronyms List Previously TN# 201495-4	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1406	TN # 201620-6 AEC AFC 1.0 Executive Summary Previously TN# 201495-5	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1407	TN # 201620-7 AEC AFC 2.0 Project Description Previously TN# 201495-6	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1408	TN # 201620-8 AEC AFC 3.0 Transmission System Engineering Previously TN# 201495-7	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1409	TN # 201620-9 AEC AFC 4.0 Natural Gas Supply Previously TN# 201495-8	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1410	TN # 201620-10 AEC AFC 5.0 Environmental Information Previously TN# 201495-9	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1411	TN # 201620-11 AEC AFC 5.1 Air Quality Previously TN# 201495-10	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1412	TN # 201620-12 AEC AFC 5.2 Biological Resources Previously TN# 201495-11	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1413	TN # 201620-13 AEC AFC 5.3 Cultural Resources Previously TN# 201495-12	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1414	TN # 201620-14 AEC AFC 5.4 Geological Hazards and Resources Previously TN# 201495-13	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1415	TN # 201620-15 AEC AFC 5.5 Hazardous Materials Handling Previously TN# 201495-14	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1416	TN # 201620-16 AEC AFC 5.6 Land Use Previously TN# 201495-15	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1417	TN # 201620-17 AEC AFC 5.7 Noise Previously TN# 201495-16	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1418	TN # 201620-18 AEC AFC 5.8 Paleontological Resources Previously TN# 201495-17	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1419	TN # 201620-19 AEC AFC 5.9 Public Health Previously TN# 201495-18	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1420	TN # 201620-20 AEC AFC 5.10 Socioeconomics Previously TN# 201495-19	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1421	TN # 201620-21 AEC AFC 5.11 Soils Previously TN# 201495-20	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1422	TN # 201620-22 AEC AFC 5.12 Traffic and Transportation Previously TN# 201495-21	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.

1423	TN # 201620-23 AEC AFC 5.13 Visual Resources Previously TN# 2014796-1	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1424	TN # 201620-24 AEC AFC 5.14 Waste Management Previously TN# 201496-2	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1425	TN # 201620-25 AEC AFC 5.15 Water Resources Previously TN# 201496-3	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1426	TN # 201620-26 AEC AFC 5.16 Worker Health and Safety Previously TN# 201496-4	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1427	TN # 201620-27 AEC AFC 6.0 Alternatives Previously TN# 201496-5	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1428	TN # 201620-28 AEC AFC Cover Volume 2 Previously TN# 201493-1	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1429	TN # 201620-29 AEC AFC Title Page, Volume 2 Previously TN# 201493-2	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1430	TN # 201620-30 AEC AFC Table of Contents, Volume 2 Previously TN# 201493-3	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1431	TN # 201620-31 AEC AFC Appendix 1A Legal Description Previously TN# 201493-4	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1432	TN # 201620-32 AEC AFC Appendix 1B Property Owners and Residents Previously TN# 201493-5	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1433	TN # 201620-33 AEC AFC Appendix 1C Persons who Prepared the AFC Previously TN# 201493-6	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1434	TN # 201620-34 AEC AFC Appendix 2A Heat Balance Cases Previously TN# 201493-7	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1435	TN # 201620-35 AEC AFC Appendix 2B Equipment Requirements Previously TN# 201493-8	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1436	TN # 201620-36 AEC AFC Appendix 2C Truck Trips Data Previously TN# 201493-9	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1437	TN # 201620-37 AEC AFC Appendix 2d Engineering Design Criteria Previously TN# 201493-10	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1438	TN # 201620-38 AEC AFC Appendix 2E Will Serve Letters Previously TN# 201493-11	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1439	TN # 201620-39 AEC AFC Appendix 3A CAISO Study, Correspondence and Proof of Payment Previously TN# 201493-12	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1440	TN # 201620-40 AEC AFC Appendix 3B Notice Criteria Tool Previously TN# 201493-13	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1441	TN # 201620-41 AEC AFC Appendix 5.1A Construction Emission Calculations Previously TN# 201493-14	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.

1442	TN # 201620-42 AEC AFC Appendix 5.1B Operational and Commissioning Emission Calculations Previously TN# 201493-15	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1443	TN # 201620-43 AEC AFC Appendix 5.1C Dispersion Modeling Previously TN# 201493-16	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1444	TN # 201620-44 AEC AFC Appendix 5.1D BACT Analysis Previously TN# 201493-17	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1445	TN # 201620-45 AEC AFC Appendix 5.1E SCAQMD Forms Previously TN# 201493-18	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1446	TN # 201620-46 AEC AFC Appendix 5.1F Dispersion Modeling Protocols Previously TN# 201493-19	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1447	TN # 201620-47 AEC AFC Appendix 5.1G Visibility Assessment Previously TN# 201493-20	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1448	TN # 201620-48 AEC AFC Appendix 5.2A Special Status Species Previously TN# 201493-22	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1449	TN # 201620-49 AEC AFC Appendix 5.2B CNDDDB Rarefind Checklist Previously TN# 201493-23	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1450	TN # 201620-50 AEC AFC Appendix 5.2C List of Observed Species Previously TN# 201493-24	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1451	TN # 201620-51 AEC AFC Appendix 5.2D Representative Site Photos Previously TN# 201493-25	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1452	TN # 201620-52 AEC AFC Appendix 5.2E Biological Resources Staff Resumes Previously TN# 201493-26	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1453	TN # 201620-53 AEC AFC Appendix 5.2F Agency Consultation Biological Resources Previously TN# 201493-27	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1454	TN # 201620-54 AEC AFC Appendix 5.3A Agency Consultation Cultural Resources Previously TN# 201493-28	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1455	TN # 201620-55 AEC AFC Appendix 5.3B Cultural Inventory Report Previously TN# 201493-29	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1456	TN # 201620-56 AEC AFC Appendix 5.3C Literature Search Results Previously TN# 201493-30	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1457	TN # 201620-57 AEC AFC Appendix 5.3D Cultural Resources Resume Previously TN# 201493-31	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1458	TN # 201620-58 AEC AFC Appendix 5.3E Results of Cultural Resources Assessment Previously TN# 201493-32	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1459	TN # 201620-59 AEC AFC Appendix 5.4A Preliminary Geotechnical Report Previously TN# 201493-33	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1460	TN # 201620-60	Offered by Applicant (Alamitos Energy Center); Admitted on

	AEC AFC Appendix 5.7A Noise Monitoring Results Previously TN# 201493-34	11/15/2016.
1461	TN # 201620-61 AEC AFC Appendix 5.9A EDR Sensitive Receptor Report Previously TN# 201494-2	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1462	TN # 201620-62 AEC AFC Appendix 5.9B Supplemental Sensitive Receptors within 6 Miles Previously TN# 201494-3	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1463	TN # 201620-63 AEC AFC Appendix 5.9C Construction HRA Dispersion Modeling Previously TN# 201494-4	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1464	TN # 201620-64 AEC AFC Appendix 5.10A Environmental Justice Previously TN# 201494-5	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1465	TN # 201620-65 AEC AFC Appendix 5.10B Construction Workforce Previously TN# 201494-6	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1466	TN # 201620-66 AEC AFC Appendix 5.10C Records of Conversation Previously TN# 201494-7	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1467	TN # 201620-67 AEC AFC Appendix 5.11A Soil Loss Estimates Previously TN# 201494-1	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1468	TN # 201620-68 AEC AFC Appendix 5.12A Heavy Haul Route Previously TN# 201525	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1469	TN # 201620-69 AEC AFC Appendix 5.13A FHWA Ratings Sheets Previously TN# 201494-9	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1470	TN # 201620-70 AEC AFC Appendix 5.14A Phase I Environmental Site Assessment *** DUE TO PDF ERROR ON THIS DOCUMENT, SEE Previously TN# 201494-10 ***	Offered by Applicant (Alamitos Energy Center); WITHDRAWN.
1471	TN # 201620-71 AEC AFC Appendix 5.15A Drainage Basins Previously TN# 201494-11	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1472	TN # 201620-72 AEC AFC Appendix 5.5A Offsite Consequence Analysis Modeling Protocol Previously TN# 201493-21	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1500	TN # 206428-1 Alamitos Energy Center Supplemental AFC AES Supplemental Application for Certification for the Alamitos Energy Center	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1501	TN # 206428-2 Alamitos Suppl.AFC Appendices 1A to 5.1F Alamitos Energy Center Supplemental AFC Appendices 1A to 5.1F	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1502	TN # 206428-3 Alamitos Suppl. AFC Appendices 5.1G to 5.10B Alamitos Energy Center Supplemental AFC Appendices 5.1G to 5.10B	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1503	TN # 206427-1 Alamitos Energy Center Supplemental AFC AES Supplemental Application for Certification for the Alamitos Energy Center	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1504	TN # 206427-2	Offered by Applicant (Alamitos Energy Center); Admitted on

	<p>Alamitos Suppl.AFC Appendices 1A to 5.1F Alamitos Energy Center Supplemental AFC Appendices 1A to 5.1F</p>	11/15/2016.
1505	<p>TN # 206427-3 Alamitos Suppl. AFC Appendices 5.1G to 5.10B Alamitos Energy Center Supplemental AFC Appendices 5.1G to 5.10B</p>	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1506	<p>TN # 206427-4 Alamitos Suppl.AFC Appendices 5.10C to 5.15A Alamitos Energy Center Supplemental AFC Appendices 5.10C to 5.15A</p>	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1507	<p>TN # 206427-5 Alamitos Suppl. AFC Appendix 1-B 500' of Sewer Line Alamitos Suppl. AFC Appendix 1-B Property Owners and Residences within 500' of Sewer Line</p>	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1508	<p>TN # 206427-6 Alamitos Suppl. AFC Appendix 1-B 1000' of AEC Alamitos Suppl. AFC Appendix 1-B Property Owners and Residences within 1000' of AEC</p>	Offered by Applicant (Alamitos Energy Center); Admitted on 11/15/2016.
1600	<p>TN # 207315 South Coast Air Quality Management District AEC Air Permit Application Completeness Determination</p>	Offered by Applicant (Alamitos Energy Center); Admitted on 12/20/2016.
1601	<p>TN # 207317 South Coast Air Quality Management District AEC Email Correspondence January 14, 2016</p>	Offered by Applicant (Alamitos Energy Center); Admitted on 12/20/2016.
1602	<p>TN # 209909 SCAQMD Letters to EPA/FLMs Submitting the AEC Air Permit Application</p>	Offered by Applicant (Alamitos Energy Center); Admitted on 12/20/2016.
1603	<p>TN # 211009 SCAQMD Letters to EPA and Federal Land Managers Transmitting the Revised AEC Air Permit Application</p>	Offered by Applicant (Alamitos Energy Center); Admitted on 12/20/2016.
1604	<p>TN # 212045 Preliminary Determination of Compliance</p>	Offered by Applicant (Alamitos Energy Center); Admitted on 12/20/2016.
1605	<p>TN # 214373 Additional Determination of Compliance Revisions Proposed revisions based on voluntary reduction of CO emission rate for combined-cycle gas turbines</p>	Offered by Applicant (Alamitos Energy Center); Admitted on 12/20/2016.
1606	<p>TN # 214636 AES AEC Re-Issued PDOC Public Notice Distribution Verification</p>	Offered by Applicant (Alamitos Energy Center); Admitted on 12/20/2016.
1607	<p>TN # 214637 AES's Comments on the SCAQMD Final Determination of Compliance</p>	Offered by Applicant (Alamitos Energy Center); Admitted on 12/20/2016.
1608	<p>TN # 214527 Alamitos Energy Center (AEC) Final Determination of Compliance (FDOC) Package AEC - Final Determination of Compliance (FDOC)</p>	Offered by Applicant (Alamitos Energy Center); Admitted on 12/20/2016.
1609	<p>TN # 214528 Alamitos Energy Center (AEC) Draft Facility Permit for Final Determination of Compliance (FDOC) Package AEC -Draft Facility Permit for FDOC</p>	Offered by Applicant (Alamitos Energy Center); Admitted on 12/20/2016.
1610	<p>TN # 214851 AES's Alamitos Energy Center Opening Testimony Part 2</p>	Offered by Applicant (Alamitos Energy Center); Admitted on 12/20/2016.
1611	<p>TN # 214906 AEC Rebuttal Testimony FSA Part 2</p>	Offered by Applicant (Alamitos Energy Center); Admitted on 12/20/2016.
2000	<p>TN # 213768 Final Staff Assessment Part 1</p>	Offered by Commission Staff (Staff); Admitted on 11/15/2016.
2001	<p>TN # 213943 Visual Resources Final Staff Assessment Appendices This document includes Visual Resources Appendices VR-1 and</p>	Offered by Commission Staff (Staff); Admitted on 11/15/2016.

	VR-2. Appendix VR-1 provides Visual Resources terms, definitions and analysis method. Appendix VR-2 provides the Key Observation Point Evaluation Matrix and Visual Impact Determination Conclusions in a table format. These appendices were inadvertently omitted from the Final Staff Assessment for the Alamos Energy Center Project When docketed on September 23, 2016.	
2002	TN # 214007 COMMITTEE RULING RE: STAFF'S MOTION FOR SUMMARY ADJUDICATION	Offered by Commission Staff (Staff); Admitted on 11/15/2016.
2003	TN # 214089 Supplemental Traffic and Transportation Testimony of Lisa Worrall	Offered by Commission Staff (Staff); Admitted on 11/15/2016.
2004	TN # 214203 Rebuttal Testimony, dated October 26, 2016	Offered by Commission Staff (Staff); Admitted on 11/15/2016.
2005	TN # 214213 Rebuttal Testimony Cultural Resources Figures 1-12	Offered by Commission Staff (Staff); Admitted on 11/15/2016.
2006	TN # 213634 Email Regarding Alamos 30413 (d), dated September 8, 2016 Between Keith Winstead, CEC and Tom Luster	Offered by Commission Staff (Staff); Admitted on 11/15/2016.
2007	TN # 211015 Water Supply Assessment	Offered by Commission Staff (Staff); Admitted on 11/15/2016.
2008	TN # 212289 Request for Comments on the Preliminary Staff Assessment for the Proposed Alamos Energy Center	Offered by Commission Staff (Staff); Admitted on 11/15/2016.
2009	TN # 213772 Notice of Availability for the FSA, Part 1 to Agencies, dated September 23, 2016 Agency Notice	Offered by Commission Staff (Staff); Admitted on 11/15/2016.
2010	TN # 214349 GEOLOGY AND PALEONTOLOGY Rebuttal Testimony of Garry Maurath, PG	Offered by Commission Staff (Staff); Admitted on 11/15/2016.
2011	TN # 214356 Gabrielino Tongva Tribal Comments on FSA	Offered by Commission Staff (Staff); Admitted on 11/15/2016.
2012	TN # 214463 Supplemental Testimony for Cultural Resources and Worker Safety and Fire Protection Supplemental Testimony of Gabriel Roark for Cultural Resources and Supplemental Testimony of Brett Fooks, PE and Geoff Lesh, PE for Worker Safety and Fire Protection	Offered by Commission Staff (Staff); Admitted on 11/15/2016.
2013	TN # 214487 Updated LORS Table - Bio, Cultural, Land Use, Traffic, Visual, and Socio	Offered by Commission Staff (Staff); Admitted on 11/15/2016.
2014	TN # 214704 Final Staff Assessment, Part 2, dated December 8, 2016	Offered by Commission Staff (Staff); Admitted on 12/20/2016.
2015	TN # 215087 Exhibit 2015 - Errata to Air Quality Section	Offered by Commission Staff (Staff); Admitted on 12/20/2016.
3001	TN # 214191 South Bay Adopted Findings	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3002	TN # 214190 South Bay Staff Report & Addendum	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3003	TN # 214189 PUC South Bay Substation Relocation Project FEIR	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3004	TN # 214188 Joe Geever Rebuttal of Applicant Testimony	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3005	TN # 214162 Revised Testimony of Joe Geever, J.D., (and Exhibit List) Alamos Energy Center Final Staff Assessment	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.

	*** This document Supersedes TN 214150 ***	
3006	TN # 214152 Vintage Power Plants: Environmental Characterization, Decontamination, & Demolition haz mat lists, decontamination and demo guidance	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3007	TN # 214151 Power Plant Demolition Video	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3008	TN # 214150 Testimony of Joe Geever, J.D., Alamitos Energy Center Final Staff Assessment *** THIS DOCUMENT IS REPLACED BY TN 214162 *** October 21, 2016	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3009	TN # 214149 Testimony of Bill Powers, P.E., Alamitos Energy Center Final Staff Assessment October 21, 2016	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3010	TN # 214148 East Kentucky Power Plant Demolition - Spurlock Unit No. 1 Backend Equipment example of truck trips for hazardous waste from demo	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3011	TN # 214147 South Bay Substation Reolocation Project - D.4.Air Quality	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3012	TN # 214146 Jurisdiction over Demolition of Existing South Bay Power Plant California Energy Commission letter to John Halmer, Manager, Land Use Planning	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3013	TN # 214145 Appendices A-D to Testimony of Southern California Edison on Results of its 2013 Local Capacity Requirements, et al. PUBLIC Appendices A-D to SCE-1 Testimony	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3014	TN # 214144 About the AES Alamitos Modernization Project Fact Sheet 2015	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3015	TN # 214143 Alamitos Generating Station Battery Energy Storage System Project 01-oct-16 Alamitos 300 MW BESS mitigated negative declaration City of Long Beach	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3016	TN # 214142 Testimony of Southern California Edison on Results of its 2013 Local Capacity Requirements Request for Offers A.14-11-012 - SCE-1 PUBLIC Testimony of SCE on LCR RFO in LA Basin	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3017	TN # 214141 Final Staff Assessment - La Paloma Generating Project - Application for Certification April 7, 1999	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3018	TN # 214140 Answer to the California Independent System Operator Corporation to Complaint July 7, 2016 Answer La Paloma Complaint EL16-88	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3019	TN # 214139 Complaint of La Paloma Generating Company, LLC Requesting Fast Track Processing, Shortened Time Period, and Waivers June 2016 La Paloma FERC complaint	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3020	TN # 214138 Decision Authorizing Long-Term Procurement for Local Capacity Requirements Due to Permanent Retirement, et al. Decision Authorizing Long-Term Procurement for Local Capacity Requirements to Permanent Retirement of the San Onofre	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.

	Nuclear Generations Stations - March 14, 2014, D14-03-004 LTPP Track 4 final decision	
3021	TN # 214137 Revised Scoping Ruling and Memo of the Assigned Commissioner and Administrative Law Judge, May 22, 2012 LTPP Track 4 Scoping Memo	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3022	TN # 214136 FERC Order Approving Stipulation and Consent Agreement, December 14, 2012, Docket No. IN13-4-000	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3023	TN # 214135 Bill Powers, P.E. Resume	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3024	TN # 214014 Notice of Prehearing Conference and Evidentiary Hearing, Part 1 This document Notices the 11/9/16 Prehearing Conference and the 11/15/16 Evidentiary Hearing on the subject areas covered in the Final Staff Assessment, Part 1. The Notice also contains a new schedule which supersedes all prior schedules.	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3027	TN # 213929-1 Memo on Upcoming October10th Status Conference	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3028	TN # 213929-2 Attachment - City Staff Report Memorandum of Understanding City of Long Beach Staff Report MOU	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3029	TN # 213870 Email From Intervenor Requesting an Evidentiary Hearing Extension Email from Elizabeth Lambe of the Los Cerritos Wetlands Land Trust to Hearing Officer Kenneth Celli and Staff Project Manager Keith Winstead Requesting a postponement of the evidentiary hearing.	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3030	TN # 213875 Alamitos Energy Center Response to Los Cerritos Wetlands Land Trust Email Request for Evidentiary Hearing Extension	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3032	TN # 213733 Applicant Response in Support of Staff's Motion for Summary Adjudication	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3033	TN # 213732-1 Los Cerritos Wetlands Reply to Staff Motion	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3034	TN # 213732-2 Attachment 1-Memorandum of Understanding between AES and city of Long Beach.	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3035	TN # 213680 Alamitos Energy Center Status Report #22 Status Report	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3036	TN # 213656 Final Status Report 22 Status Report 22	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3038	TN # 213588 Committee Order Setting Deadline for Replies to Staff's Motion for Summary Adjudication Order	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3039	TN # 213403 Revised Committee Scheduling Order	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3040	TN # 213217 Staff's Motion for Summary Adjudication	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3041	TN # 213524 Transcript of 08/24/16 Committee Status Conference	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3042	TN # 214323 Transcript of 10/10/16 Status Conference	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.

3043	TN # 212764-1 Los Cerritos Wetlands Land Trust Comments on Alamitos Energy Center PSA	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3044	TN # 212764-2 Attachment 1 - PUC final decision 2015	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3045	TN # 212764-3 Attachment 2 - AES Battery Storage Project	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3046	TN # 212764-4 Attachment 3 - Tidal Influence Final Memo Re - AES PSA Aug 2016	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3047	TN # 212284 Preliminary Staff Assessment	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3048	TN # 214345 Los Cerritos Wetlands Land Trust's Motion to Stay Proceedings	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 11/15/2016.
3049	TN # 214968 Redacted Version of Attachment - A1411012 Powers Egr Reply Brief w Attachment A 07-15-01 Attachment to Intervenor Los Cerritos Wetlands Land Trust Part 2 Opening Testimony, TN 214861	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 12/20/2016.
3052	TN # 214856 Attachment - Gas Turbine World 550 MW El Segundo combined cycle provides 300 MW in 10 minutes-1 - 10-13-01 Attachment to Intervenor Los Cerritos Wetlands Land Trust Part 2 Opening Testimony, TN 214853	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 12/20/2016.
3054	TN # 214862 Attachment - CEC Thermal Efficiency Gas Fired Units CEC-200-2016-002 03-16-01 Attachment to Intervenor Los Cerritos Wetlands Land Trust Part 2 Opening Testimony, TN 214853	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 12/20/2016.
3055	TN # 214859 Attachment - CPUC energy storage decision D1310040 Table 2 SDG&E energy storage targets 10-17-13 Attachment to Intervenor Los Cerritos Wetlands Land Trust Part 2 Opening Testimony, TN 214853	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 12/20/2016.
3056	TN # 214857 Attachment - CPUC revised 2014 LTPP planning assumptions Table 3 transmission-connected ES 100% reliable - 05-14-14 Attachment to Intervenor Los Cerritos Wetlands Land Trust Part 2 Opening Testimony, TN 214853	Offered by Intervenor (Los Cerritos Wetlands Trust); EXCLUDED on 12/20/2016.
3058	TN # 214854 Attachment - TN214732 Final Staff Assessment Part 2 and Supplemental Testimony Attachment to Intervenor Los Cerritos Wetlands Land Trust Part 2 Opening Testimony, TN 214853	Offered by Intervenor (Los Cerritos Wetlands Trust); EXCLUDED on 12/20/2016.
3059	TN # 214738 Applicant's Reply Brief Reply Brief on EH, Part 1	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 12/20/2016.
3060	TN # 214860 Attachment - SEASP DEIR Bio Attachment to Intervenor Los Cerritos Wetlands Land Trust Part 2 Opening Testimony, TN 214853	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 12/20/2016.
3061	TN # 214529 Transcript of 11/15/16 Evidentiary Hearing	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 12/20/2016.
3064	TN # 214864 Attachment - SEASP DEIR Traffic Attachment to Intervenor Los Cerritos Wetlands Land Trust Part 2 Opening Testimony, TN 214853	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 12/20/2016.
3065	TN # 214739	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on

	Review of Draft Program Environmental Impact Record For the Southeast Area Specific Plan in the City of Long Beach - Transportation and Traffic Comments	12/20/2016.
3069	TN # 214629-1 Intervenor Los Cerritos Wetlands Land Trust Brief on Part One of Final Staff Assessment	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 12/20/2016.
3070	TN # 214629-2 Before the CPUC - Decision Authorizing Long-Term Procurement for Local Capacity Decision Authorizing Long-Term Procurement for Local Capacity Requirements Due to Permanent Retirement of the San Onofre Nuclear Generations Stations	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 12/20/2016.
3071	TN # 214629-3 Before the CPUC - Decision Approving, In Part, Results of Southern California Edison Company Local Capacity Requirements Before the CPUC - Decision Approving, In Part, Results of Southern California Edison Company Local Capacity Requirements Request for Offers for the Western La Basin Pursuant to Decisions 13-02-015 and 14-03-004	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 12/20/2016.
3072	TN # 214556 Intervenor Comments on Schedule November 23, 2016 email from Elizabeth Lambe (Los Cerritos Wetlands Trust) to Hearing Officer Ken Celli	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 12/20/2016.
3073	TN # 214730 Los Cerritos Wetlands Land Trust's Motion to Postpone Opening Testimony, Rebuttal, and Pre-Hearing Conference Statement	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 12/20/2016.
3076	TN # 214882 Intervenor Part 2 opening testimony (revised final redlined version) Opening Testimony Part 2 REVISED (to replace TN 214853)	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 12/20/2016.
3077	TN # 214883 Declaration of witness Bill Powers, P.E. - AQ testimony Attachment to Opening Testimony Part 2 REVISED redlined version (to replace TN 214853)	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 12/20/2016.
3078	TN # 214884 Declaration of witness Joe Geever - AEC testimony Attachment to Opening Testimony Part 2 REVISED redlined version (to replace TN 214853)	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 12/20/2016.
3079	TN # 214888-1 Revised Intervenor Los Cerritos Wetlands Land Trust, Part 2, Bill Powers Rebuttal Testimony *** THIS DOCUMENT SUPERSEDES TN 214886 - Note: TN 214885 is an attachment for rebuttal and is cited in this revised rebuttal testimony ***	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 12/20/2016.
3080	TN # 214885 SCE LA Basin application decision on denial of rehearing, May 26, 2016 *** Attachment to Intervenor Los Cerritos Wetlands Land Trust, Part 2, Bill Powers Rebuttal Testimony TN 214886 ***	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 12/20/2016.
3081	TN # 214888-2 Attachment - CAISO Final 2017 Local Capacity Technical Report Attachment to Revised Intervenor Los Cerritos Wetlands Land Trust, Part 2, Bill Powers Rebuttal Testimony	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 12/20/2016.
3082	TN # 214908-1 Los Cerritos Wetlands Land Trust Part 2 Pre-Hearing Conference Statement Final	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 12/20/2016.
3083	TN # 214908-2 Los Cerritos Wetlands Land Trust Part 2 Exhibit List Final Sheet1	Offered by Intervenor (Los Cerritos Wetlands Trust); Admitted on 12/20/2016.

PROOF OF SERVICE LIST

Appendix C



Proof of Service List

Docket: 13-AFC-01

Project Title: Alamitos Energy Center

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Applicant

Jennifer Didlo

AES Southland Development, LLC
690 Studebaker Road
Long Beach , CA 90803
jennifer.didlo@aes.com

Stephen O'Kane

AES Southland Development, LLC
690 Studebaker Road
Long Beach , CA 90803
stephen.okane@aes.com

Applicant Representative

Jeff Harris

Ellison, Schneider and Harris, LLP
2600 Capitol Avenue, Suite 400
Sacramento, CA 95816
jdh@eslawfirm.com

Samantha Pottenger

Ellison, Schneider and Harris, LLP
2600 Capitol Avenue, Suite 400
Sacramento, CA 95816
sgp@eslawfirm.com

Applicant Consultant

Jerry Salamy

CH2M Hill
2485 Natomas Park Dr, Ste 600
Sacramento , CA 95833
jerry.salamy@CH2M.com

Intervenor

Elizabeth J. Lambe

Los Cerritos Wetlands Trust
P.O. Box 30165
Long Beach, CA 90853
ejlambe@verizon.net

Commission Staff

efiling archive

California Energy Commission
Sacramento, CA
efilingPOSarchive@energy.ca.gov

Jared Babula, Staff Counsel

California Energy Commission
Office of the Chief Counsel, 1516 Ninth Street,
MS-14
Sacramento, CA 95814
jared.babula@energy.ca.gov

Keith Winstead, Project Manager

California Energy Commission
Siting, Transmission & Environmental Protection
Division, 1516 Ninth Street, MS-15
Sacramento, CA 95814
keith.winstead@energy.ca.gov

Staff

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CA

Committee

JANEA A. SCOTT, Associate Member,
Commissioner

Jennifer Nelson, Adviser to Commissioner
Douglas

KAREN DOUGLAS, Presiding Member,
Commissioner

California Energy Commission
Sacramento, CA

Ken Celli, Hearing Officer
California Energy Commission
Sacramento, CA

Matt Coldwell, Advisor to Commissioner Scott
California Energy Commission
Sacramento, CA

California Energy Commission
Sacramento, CA

Kristy Chew, Commissioners' Technical Advisor
for Energy Facility Siting
Committee
Sacramento, CA

Rhetta deMesa, Advisor to Commissioner Scott
California Energy Commission
Sacramento, CA

California Energy Commission
Sacramento, CA

Le-Quyen Nguyen, Adviser to Commissioner
Douglas
California Energy Commission
Sacramento, CA

Public Adviser

Alana Mathews, Public Adviser
California Energy Commission
Public Advisers Office, 1516 Ninth Street, MS-12
Sacramento, CA 95814
publicadviser@energy.ca.gov

Public Agency

Laki Tisopulos, Ph.D., P.E., Deputy Executive
Director
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765
LTisopulos@aqmd.gov