SECTION 3.0

Transmission System Engineering

This section discusses the transmission interconnection between the Huntington Beach Energy Project (HBEP) and the existing electrical grid, and the anticipated impacts that operation of HBEP will have on the flow of electrical power in the Southern California region. This analysis contains the following discussions:

- A description of the electrical interconnection between HBEP and the electrical grid
- The impacts of HBEP on the existing transmission grid
- Potential nuisances (electrical effects, aviation safety, and fire hazards)
- Safety of the interconnection
- Description of applicable laws, ordinances, regulations, and standards (LORS)

Sections 3.2 and 3.3 discuss the transmission alternatives investigated and the results of the transmission interconnection studies.

3.1 Transmission Lines Description, Design, and Operation

HBEP will connect to the regional electrical grid using the existing Southern California Edison (SCE) 230-kilovolt (kV) switchyard located on a parcel owned by SCE within the existing Huntington Beach Generating Station site. No new offsite transmission lines will be needed for HBEP. HBEP Blocks 1 and 2 will connect into the existing SCE switchyard via new double-circuit 230-kV lines. Figure 3.1-1, Electrical One-line Diagram, shows the interconnection configuration of HBEP to the SCE electric transmission system. Figure 3.1-2 shows typical support tower designs that could be used for the transmission lines connecting HBEP to the SCE switchyard.

3.1.1 Overhead Transmission Line Characteristics

No changes are planned for the SCE transmission line circuits connecting HBEP to the California Independent System Operator (CAISO) transmission system. Each proposed 230-kV line will be designed as a combination of single- and/or double-circuit self-supporting steel structures, which may be installed on concrete pier foundations.

The insulators for the 230-kV generation tie lines will be polymer or porcelain with overall lengths of approximately 10 to 15 feet for suspension insulators. The length of the insulator strings will be increased on structures other than tangent to ensure compliance with National Electrical Code (NEC) and National Electrical Safety Code (NESC) clearances.

3.1.2 230-kV Interconnection Switchyard Characteristics

The interconnection at the SCE 230-kV switchyard will utilize 230-kV air or gas-insulated circuit breakers in a ring bus arrangement to obtain a high level of service reliability.

Station service power will be provided via the onsite SCE 230-kV switchyard. Auxiliary controls and protective relay systems for the SCE 230-kV switchyard will be located in a control building separate from HBEP.

3.1.3 Power Plant Interconnect Characteristics

Each of the two new HBEP power blocks will interconnect to the CAISO transmission system through a ring bus breaker arrangement presently located in the existing SCE switchyard. HBEP Blocks 1 and 2 are both rated higher than the existing Huntington Beach Generating Station's Units 1, 2, 3 and 4; therefore, the existing 230-kV breakers may be replaced with higher-rated circuit breakers acceptable for each of HBEP power blocks. The HBEP interconnection will use 230-kV air- or gas-insulated circuit breakers for Blocks 1 and 2 and an individual generator step-up transformer for each of the generating units within each power block. The interconnection to the SCE switchyard and all equipment will be designed to ensure compliance with applicable NEC and NESC rules following the CAISO requirements. The main buses and the bays will also be designed following these requirements. Power for HBEP will be back-fed through the generator step-up transformer and auxiliary transformer. Auxiliary controls and protective relay systems for the SCE switchyard may be located in the HBEP control building. No existing underground interconnect lines will be affected by the project.

3.2 Transmission Interconnection Studies

On May 15, 2008, the CAISO requested permission from the Federal Energy Regulatory Commission (FERC) to implement proposed reforms to generator interconnection processes. The CAISO filed a revised version of the proposal on June 27, 2008 (CAISO, 2008). The reform process includes the following goals:

- Clearing the backlog of Interconnection Requests existing in the CAISO queue
  - Reduce the number of projects through increased Interconnection Cost financial commitments or project viability tests
  - Apply group study principles to the remaining projects
  - Develop procedures to ensure a more efficient interconnection of resources that more closely match system needs
- Provide interconnection applicants with reasonable cost and timing certainty
- Better integrate transmission planning with the generation interconnection process

In many cases, system impact studies show that network upgrades are needed to connect new generation to deliver the full project output from the first point of interconnection with the transmission provider system to the grid. Network upgrades can include transmission lines, transformer banks, substation breakers, voltage support devices and other equipment needed to transfer the generation output to the customer load. The specific network upgrades and their costs, if needed, are determined from the Feasibility Study, System Impact Study, and Facility Study of the CAISO Generator Interconnection Procedure.

During 2007 and 2008, the CAISO, as directed by FERC, implemented Generator Interconnection Process Reform. A key element of the reform is that projects are now evaluated in groups called clusters, not in a serial, first in, first out manner. This reform has delayed the issuance of studies for projects that were to be included in the initial cluster (which CAISO labeled the “transition cluster”).

Because HBEP is largely replacing megawatts from the existing Huntington Beach Generating Station at the same electrical node, the actual marginal addition of generation to the grid at this connection point is small (approximately 34 MW). This will make system impact issues minimal.

The HBEP interconnection request was filed on March 30, 2012. The interconnection fee has been paid and HBEP has a position in the CAISO queue. Appendix 3A contains a copy of the Generator Interconnection Study documents and proof of payment. This is the equivalent of the “signed System Impact Study Agreement” required of data adequacy requirement B (b)(2)(E)).

3.3 Transmission Line Safety and Nuisances

It is anticipated that no modifications are necessary on the 230-kV transmission lines connecting the SCE switchyard at HBEP to the CAISO transmission system. The only new transmission lines that will be built are the 230-kV electrical lines that will connect each of the HBEP generator’s step-up transformers to the SCE switchyard, this section discusses the safety and nuisance issues associated with the project’s transmission lines.

Notes:

1. Breakers shown in switching station are currently existing; rating TBD.
2. Ground is optional.
3. Total project size is 938.612 MW @ 95% PF (Net Capacity)

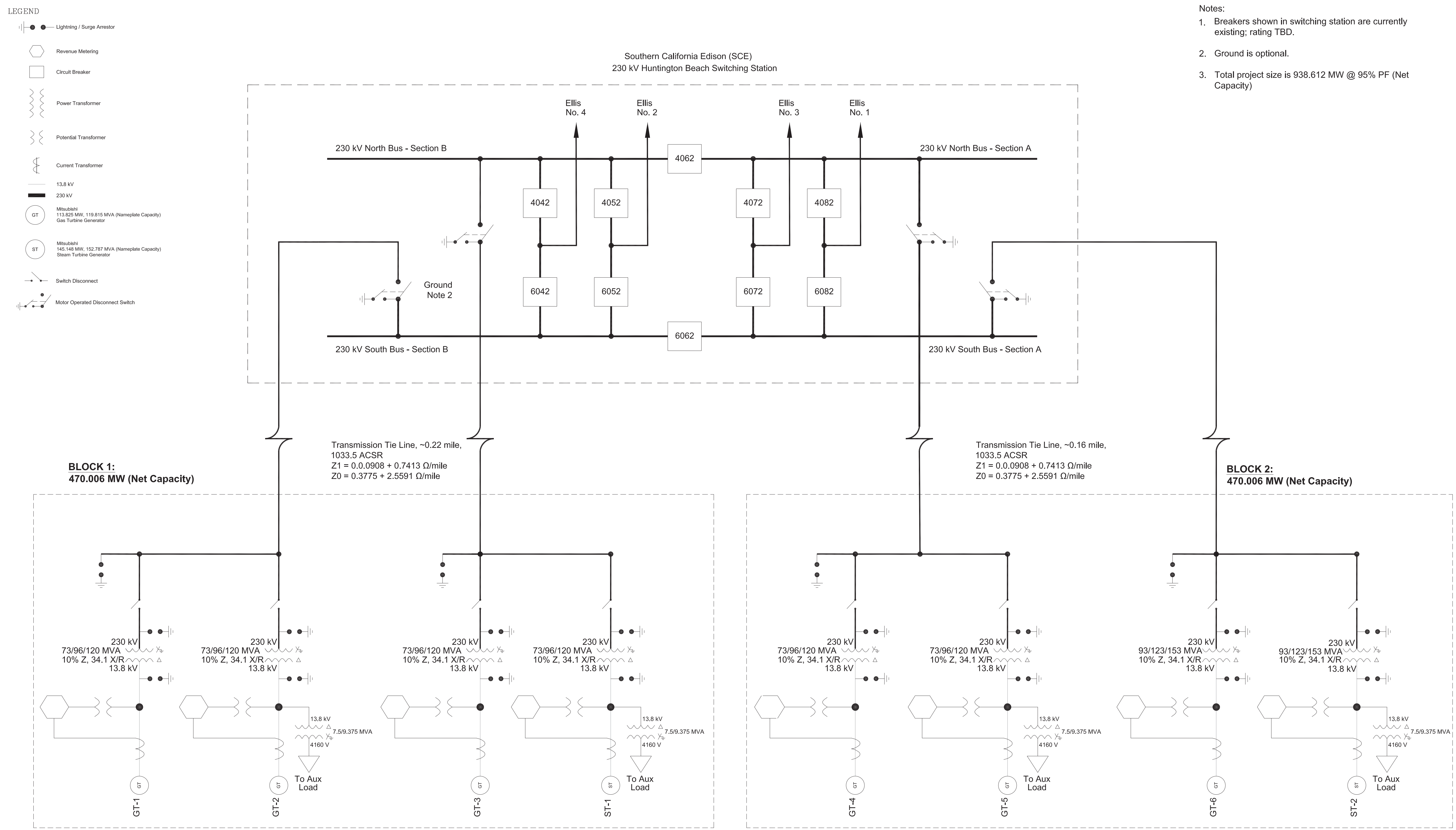

FIGURE 3.1-1
Electrical One line Diagram
AES Huntington Beach Energy Project
Huntington Beach, California

CH2MHILL.

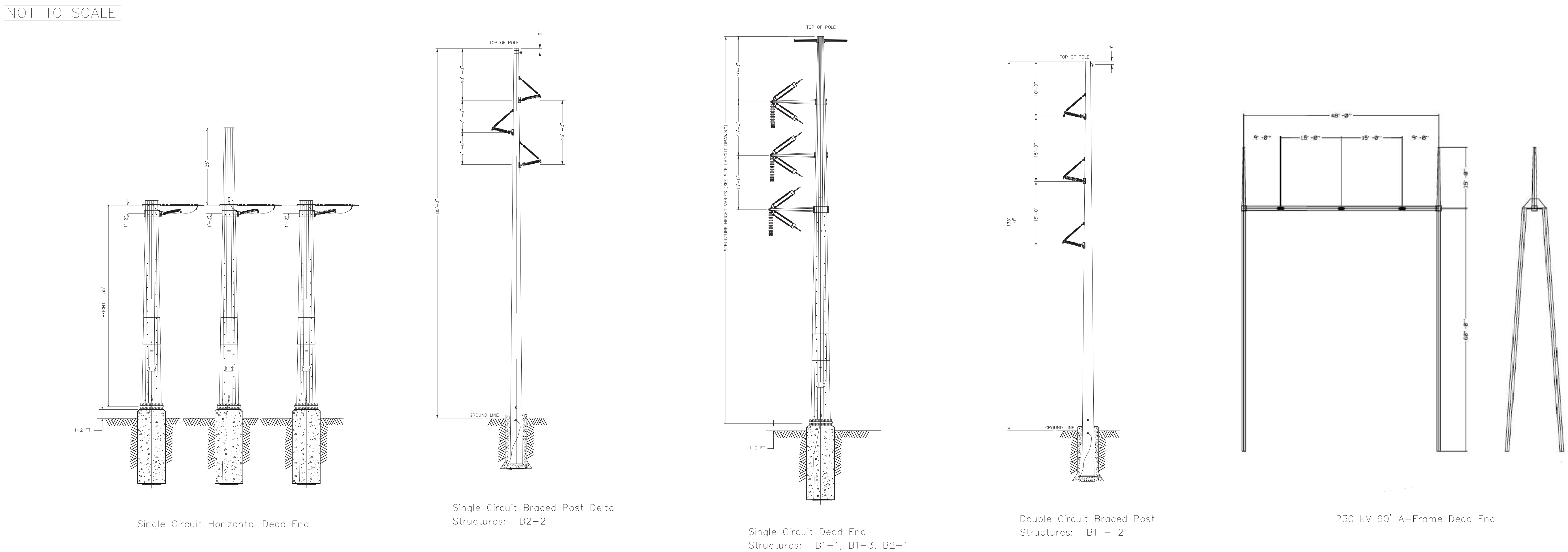

FIGURE 3.1-2
Typical Transmission Structure Configurations
AES Huntington Beach Energy Project
Huntington Beach, California

3.3.1 Electrical Clearances

Typical high-voltage overhead transmission lines are composed of bare conductors connected to supporting structures by means of porcelain, glass, or plastic insulators. The air surrounding the energized conductor acts as the insulating medium. Maintaining sufficient clearances, or air space, around the conductors to protect the public and utility workers is paramount to the safe operation of the transmission line. The required safety clearance required for the conductors is determined by considering various factors such as: the normal operating voltages, conductor temperatures, short-term abnormal voltages, wind-blown swinging conductors, contamination of the insulators, clearances for workers, and clearances for public safety. Minimum clearances are specified in the NESC (IEEE C2) and California Public Utilities Commission (CPUC) General Order (GO) 95. Electric utilities, state regulators, and local ordinances may specify additional (more restrictive) clearances. Typically, clearances are specified for the following:

- Distance between the energized conductors themselves
- Distance between the energized conductors and the supporting structure
- Distance between the energized conductors and other power or communication wires on the same supporting structure, or between other power or communication wires above or below the conductors
- Distance from the energized conductors to the ground and features such as roadways, railroads, driveways, parking lots, navigable waterways, and airports
- Distance from the energized conductors to buildings and signs
- Distance from the energized conductors to other parallel power lines

The 230-kV lines connecting the HBEP power blocks to the SCE switchyard will be designed to meet appropriate national, state, and local clearance requirements.

3.3.2 Electrical Effects

The electrical effects of high-voltage transmission lines, both within the HBEP site and outside of the HBEP site, fall into two broad categories: corona effects and field effects. Corona is the ionization of the air that occurs at the surface of the energized conductor and suspension hardware because of high electric field strength at the surface of the metal during certain conditions. Corona may result in radio and television reception interference, audible noise, light, and production of ozone. Field effects are the voltages and currents that may be induced in nearby conducting objects. A transmission line’s inherent electric and magnetic fields cause these effects. Based on the analyses below, HBEP will not result in any significant impacts to electric and magnetic fields or audible noise or radio and television interference.

3.3.2.1 Electric and Magnetic Fields

Operating power lines, like the energized components of electrical motors, home wiring, lighting, and other electrical appliances, produce electric and magnetic fields and a corresponding electromagnetic force (EMF). The fields produced by the alternating current electrical power system in the United States has a frequency of 60 hertz, meaning that the intensity and orientation of the field changes 60 times per second.

Electric fields around transmission lines are produced by electrical charges on the energized conductor. Electric field strength is directly proportional to the line’s voltage; that is, increased voltage produces a stronger electric field. At a given distance from the transmission line conductor, the electric field is inversely proportional to the distance from the conductors, so the electric field strength declines as the distance from the conductor increases. The strength of the electric field is measured in units of kilovolts per meter. The electric field around a transmission line remains steady and is not affected by the common daily and seasonal fluctuations in usage of electricity by customers.

Magnetic fields around transmission lines are produced by current flow, measured in terms of amperes, through the conductors. The magnetic field strength is directly proportional to the current; that is, increased amperes produce a stronger magnetic field. The magnetic field is inversely proportional to the distance from the conductors. Thus, like the electric field, the magnetic field strength declines as the distance from the conductor increases. Magnetic fields are expressed in units of milligauss (mG). The amperes and, therefore the magnetic field around a transmission line, fluctuate daily and seasonally as the usage of electricity varies.

Considerable research has been conducted over the last 30 years on the possible biological effects and human health effects from EMF. This research has produced many studies that offer no uniform conclusions about whether long-term exposure to EMF is harmful. In the absence of conclusive or evocative evidence, some states, including California, have chosen not to specify maximum acceptable levels of EMF and California, as well as other states, does not have a regulatory level of EMF. Instead, these states, including California, mandate a program of prudent avoidance whereby EMF exposure to the public would be minimized by encouraging electric utilities to use cost-effective techniques to reduce the levels of EMF.

The new transmission lines that connect HBEP Blocks 1 and 2 to the existing SCE 230-kV switchyard located on the Huntington Beach Generating Station will not affect the public because they are located within the HBEP site. No changes are proposed for the transmission lines connecting the SCE switchyard to the CAISO transmission system. The estimated electric field of the existing 230-kV SCE transmission line at the center of the SCE right-of-way (ROW) from the SCE 230-kV switchyard to SCE Ellis substation is 0.9 kV/meter, and is 0.7 kV/meter at the edge of the ROW. The estimated magnetic field under the SCE 230-kV transmission line and at the center of the ROW is 46 mG (0.046 G), and 35 mG (0.035 G) at the edge of the ROW, which are well below regulatory levels established by states that do have limits. Other states have established regulations for magnetic field strengths that have limits ranging from 150 mG to 250 mG at the edge of the ROW, depending on the voltage of the transmission line.

Additionally, the estimated electric field of the new generator transmission tie lines that connect HBEP Block 1 and Block 2 to the existing SCE 230-kV switchyard are within the boundary of the existing Huntington Beach Generating Station. The estimated magnetic field under HBEP generator transmission lines from Blocks 1 and 2 to the SCE 230-kV switchyard is approximately 0.51 kV/meter right under the lines, and is 0.015 kV/meter at the edge of the HBEP site boundary. The estimated magnetic field directly under these HBEP 230-kV transmission tie lines to the SCE switchyard is approximately 32.4 mG (0.0324 G) right under the lines, and 1.0 mG (0.001 G) at the edge of the HBEP site boundary, which are well below regulatory levels established by states that do have limits as stated above.

3.3.2.2 Audible Noise and Radio and Television Interference

Corona from a transmission line may result in the production of audible noise or radio and television interference. Corona is a function of the voltage of the line, the diameter of the conductor, and the condition of the conductor and suspension hardware. The electric field gradient is the rate at which the electric field changes and is directly related to the line voltage.

The electric field gradient is greatest at the surface of the conductor. Large-diameter conductors have lower electric field gradients at the conductor surface and, hence, lower corona than smaller conductors, everything else being equal. Also, irregularities (such as nicks and scrapes on the conductor surface) or sharp edges on suspension hardware concentrate the electric field at these locations and, thus, increase corona at these spots. Similarly, contamination on the conductor surface, such as dust or insects, can cause irregularities that are a source for corona. Raindrops, snow, fog, and condensation are also sources of irregularities.

The existing Huntington Beach Generating Station's Units 1 and 2 interconnect to the SCE 230-kV switchyard with two separate 230-kV interconnection lines. The two new 230-kV interconnection lines from HBEP Blocks 1 and 2 to the existing SCE switchyard will be designed and constructed not to affect the public from audible noise and radio and television interference as they are located within the HBEP site. On a cumulative basis, the existing Huntington Beach Generating Station's Units 3 and 4 interconnect to the SCE 230-kV switchyard with two separate 230-kV interconnection lines. HBEP will replace the four existing 230-kV interconnection lines from the existing Huntington Beach Generating Station with two 230-kV interconnection lines. Therefore, HBEP will have no impacts on audible noise.

No changes are proposed for the transmission lines connecting the SCE switchyard to the CAISO transmission system.

3.3.2.3 EMF, Audible Noise, and Radio and Television Interference Assumptions

EMF, audible noise, and radio and television interference near power lines vary with regard to the line design, line loading, distance from the line, and other factors. The new overhead 230-kV line located between the HBEP power blocks and the SCE 230-kV switchyard are entirely located within the HBEP site. The interferences described in this section are not expected to affect the public outside of the HBEP site.

Electric fields, corona, audible noise, and radio and television interference depend on line voltage and not the level of power flow. Because line voltage remains nearly constant for the new HBEP 230-kV lines to the SCE switchyard during normal operation, the audible noise associated with the transmission lines in the area will be of the same magnitude before and after construction of the HBEP.

Corona typically becomes a design concern for transmission lines having voltages of 345-kV and above. Because the HBEP's transmission lines are rated at less than 345 kV and will be constructed on the HBEP site, no corona-related design issues are expected.

The magnetic field is proportional to line loading (amperes), which varies as demand for electrical power varies and as generation from the generating facility is changed by the system operators to meet changes in demand.

HBEP construction and operation, including the interconnection of HBEP with SCE's existing switchyard and transmission system, are not expected to result in significant changes in EMF levels, corona, audible noise, or radio and television interference.

3.3.2.4 Induced Current and Voltages

A conducting object, such as a vehicle or person, in an electric field will experience induced voltages and currents. The strength of the induced current will depend on the electric field strength, the size and shape of the conducting object, and the object-to-ground resistance. When a conducting object is isolated from the ground and a grounded person touches the object, a perceptible current or shock may occur as the current flows to ground. The mitigation for this potential hazardous and nuisance shocks is to ensure that metallic objects on or near the ROW are grounded, and that sufficient clearances are provided at roadways and parking lots to keep electric fields at these locations low enough to prevent vehicle short-circuit currents from exceeding 5 milliamperes.

Magnetic fields also can induce voltages and currents in conducting objects. Typically, this requires a long metallic object, such as a wire fence or aboveground pipeline that is grounded at only one location. A person who closes an electrical loop by grounding the object at a different location will experience a shock similar to that described above for an ungrounded object. Mitigation for this potential hazard is to ensure multiple grounds on fences or pipelines, especially those orientated parallel to the transmission line.

The proposed 230-kV lines within the HBEP site will be constructed in conformance with CPUC GO-95 and Title 8 California Code of Regulations (CCR) 2700 requirements. Therefore, hazardous shocks are unlikely to occur as a result of project construction, operation, or maintenance.

3.3.3 Aviation Safety

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. These regulations require FAA notification for construction over 200 feet above ground level. Notification also is required if the obstruction is lower than specified heights and falls 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 (3.3 nautical miles) from the runway. For airports with runways measuring 3,200 feet or less, the restricted space extends 10,000 feet (1.7 nautical miles). The nearest public airport to the HBEP is the John Wayne–Orange County Airport, which is approximately 5.9 miles east of

HBEP. The nearest military airport is the Los Alamitos Army Airfield, which is approximately 10.5 miles north of HBEP.

In addition to the two airports, there are also six public or private heliports in the vicinity of HBEP. For public or private heliports, the restricted space extends 5,000 feet (0.8 nautical mile) from the heliport. The six heliports are as follows:

- Onshore Heliports (approx. distance from HBEP)
  - Huntington Beach Police Department 3.6 miles
  - Boeing Huntington Beach Heliport 7.6 miles
  - Civic Center Heliport 2.5 miles
  - Area Energy LLC Heliport 3.6 miles
- Near Off-Shore Heliports (approx. distance from HBEP)
  - Union Eva Heliport 4.5 miles
  - Platform Emmy Heliport 3.5 miles

The HBEP structures, including transmission structures design, are less than 200 feet tall, and fall outside of the restricted airspace for the above airports and heliports. The FAA air navigation hazard review is unlikely to find that the project could cause a hazard to air navigation. However, as part of the analysis for the HBEP, the FAA Notice Criteria Tool has been used to determine whether HBEP may meet Federal Aviation Regulation 77.13 (FAR §77.13) requirements regarding the need to notify FAA of HBEP construction. As shown in Appendix 5.12C of Section 5.12, Traffic and Transportation, the results of the FAA Notice Criteria Tool indicate that the HBEP structures, including the onsite transmission towers and the six exhaust stacks, do not exceed a height of 200 feet; therefore, an FAA air navigation hazard review is unlikely to find that HBEP would have the potential to cause a hazard to air navigation. Based on the findings of the FAA Notice Criteria Evaluation, an FAA Form 7460-1, Notice of Proposed Construction or Alteration, is not necessary because the onsite transmission towers or the exhaust stacks will not exceed the Notice Criteria. See Section 5.6, Land Use, and Section 5.12, Traffic and Transportation, for additional information regarding aviation.

3.3.4 Fire Hazards

The existing 230-kV transmission interconnection has been designed, constructed, and maintained in accordance with applicable standards including GO-95, which establishes clearances from other manmade and natural structures as well as tree-trimming requirements to mitigate fire hazards. SCE is expected maintain the transmission line corridor and immediate area in accordance with existing regulations and accepted industry practices that will include identification and abatement of fire hazards.

The new 230-kV line within the HBEP site will be designed in accordance with applicable standards including GO-95.

3.4 Applicable Laws, Ordinances, Regulations, and Standards

This section provides a list of applicable LORS that apply to the proposed transmission line, substations, and engineering.

3.4.1 Design and Construction

Table 3.4-1 lists the LORS for the design and construction of the HBEP electrical tie-in line and interconnection to the existing SCE 230-kV switchyard.

TABLE 3.4-1
Design and Construction LORS for the Electrical Transmission

LORS	Applicability	AFC Section Explaining Conformance
Title 8 CCR, Section 2700 et seq. "High Voltage Electrical Safety Orders"	Establishes essential requirements and minimum standards for installation, operation, and maintenance of electrical installation and equipment to provide practical safety and freedom from danger.	Section 3.3
GO-52, CPUC, "Construction and operation of power and communication lines for the prevention or mitigation of inductive interference"	Applies to the design of facilities to provide or mitigate inductive interference.	Section 3.3.2.4
GO-95, CPUC, "Overhead electric line construction"	CPUC rule covers all aspects of design, construction, operation, and maintenance of electrical transmission line and fire safety (hazards).	Section 3.3.1
IEEE 1119, "IEEE Guide for Fence Safety Clearances in Electric-Supply Stations"	Recommends clearance practices to protect persons outside the facility from electric shock.	Section 3.3.1

ANSI = American National Standards Institute

3.4.2 Electric and Magnetic Fields

The LORS pertaining to EMF are listed in Table 3.4-2.

TABLE 3.4-2
Electric and Magnetic Field LORS

LORS	Applicability	AFC Section Explaining Conformance
Decision 93-11-013, CPUC	Presents the CPUC position on EMF reduction.	Section 3.3.2.1
GO-131-D, CPUC, "Rules for Planning and Construction of Electric Generation, Line, and Substation Facilities in California"	Establishes the CPUC construction application requirements, including requirements related to EMF reduction.	Section 3.3.2.1
ANSI/IEEE 544-1994, "Standard Procedures for Measurement of Power Frequency Electric and Magnetic Fields from AC Power Lines"	Presents the standard procedure for measuring EMF from an electric line that is in service.	Section 3.3.2.1

3.4.3 Hazardous Shock

Table 3.4-3 lists the LORS regarding hazardous shock protection that apply to the transmission interconnection and the overall project. LORS for the overall project are discussed in the appropriate section of this Application for Certification (AFC). The existing SCE 230-kV switchyard is located on a separate parcel that is located within the secured area of the existing Huntington Beach Generating Station. The SCE switchyard fence is located to protect any person within the HBEP site from entering the switchyard where they could be exposed to associated hazardous shocks resulting from electrical faults from the new HBEP equipment and also the SCE high-voltage transmission system electrical disturbances.

The new HBEP 230-kV electrical tie-in line and interconnection to the existing SCE 230-kV switchyard will be designed in accordance with applicable LORS.

TABLE 3.4-3
Hazardous Shock LORS

LORS	Applicability	AFC Section Explaining Conformance
8 CCR 2700 et seq. “High Voltage Electrical Safety Orders”	Establishes essential requirements and minimum standards for installation, operation, and maintenance of electrical equipment to provide practical safety and freedom from danger.	Section 3.3.2.4
ANSI/IEEE 80, “IEEE Guide for Safety in Alternating Current Substation Grounding”	Presents guidelines for assuring safety through proper grounding of alternating current outdoor substations.	Section 3.3.2.4
NESC, ANSI C2, Section 9, Article 92, Paragraph E; Article 93, Paragraph C	Covers grounding methods for electrical supply and communications facilities.	Section 3.3.2.4

3.4.4 Communication Interference

The LORS pertaining to communication interference are listed in Table 3.4-4.

TABLE 3.4-4
Communication Interference LORS

LORS	Applicability	AFC Section Explaining Conformance
47 CFR 15.25, “Operating Requirements, Incidental Radiation”	Prohibits operations of any device emitting incidental radiation that causes interference to communications; the regulation also requires mitigation for any device that causes interference.	Section 3.3.2
GO-52, CPUC	Covers all aspects of the construction, operation, and maintenance of power and communication lines and specifically applies to the prevention or mitigation of inductive interference.	Section 3.3.24
CEC staff, Radio Interference and Television Interference (RI-TVI) Criteria (Kern River Cogeneration) Project 82-AFC-2, Final Decision, Compliance Plan 13-7	Prescribes the CEC’s RI-TVI mitigation requirements, developed and adopted by the CEC in past citing cases.	Section 3.3.2.2

CEC = California Energy Commission

3.4.5 Aviation Safety

Table 3.4-5 lists the aviation safety LORS that may apply to the proposed transmission interconnection and the overall project. LORS for the overall project are discussed in the appropriate sections of this AFC.

TABLE 3.4-5
Aviation Safety LORS

LORS	Applicability	AFC Section Explaining Conformance
Title 14 CFR, Part 77, “Objects Affecting Navigable Airspace”	Describes the criteria used to determine whether a “Notice of Proposed Construction or Alteration” (FAA Form 7450-1) is required for potential obstruction hazards.	Section 3.3.3
FAA Advisory Circular No. 70/7450-1G, “Obstruction Marking and Lighting”	Describes the FAA standards for marking and lighting of obstructions as identified by FAA Regulations Part 77.	Section 3.3.3

TABLE 3.4-5
Aviation Safety LORS

LORS	Applicability	AFC Section Explaining Conformance
CPUC, Sections 21555-21550	Discusses the permit requirements for construction of possible obstructions in the vicinity of aircraft landing areas, in navigable airspace, and near the boundaries of airports.	Section 3.3.3

3.4.6 Fire Hazards

Table 3.4-6 lists the LORS governing fire hazard protection for the proposed transmission interconnection and the overall project. LORS for the overall project are discussed in the appropriate sections of this AFC.

TABLE 3.4-6
Fire Hazard LORS

LORS	Applicability	AFC Section Explaining Conformance
14 CCR Sections 1250-1258, "Fire Prevention Standards for Electric Utilities"	Provides specific exemptions from electric pole and tower firebreak and electric conductor clearance standards, and specifies when and where standards apply.	Section 3.3.4
ANSI/IEEE 80, "IEEE Guide for Safety in AC Substation Grounding"	Presents guidelines for assuring safety through proper grounding of AC outdoor substations.	Section 3.3.4
GO-95, CPUC, "Rules for Overhead Electric Line Construction," Section 35	CPUC rule covers all aspects of design, construction, operation, and maintenance of electrical transmission line and fire safety (hazards).	Section 3.3.4

3.4.7 Jurisdiction

Table 3.4-7 identifies national, state, and local agencies with jurisdiction to issue permits or approvals, conduct inspections, or enforce the above-referenced LORS. Table 3.4-7 also identifies the responsibilities of these agencies as they relate to the construction, operation, and maintenance of the HBEP.

TABLE 3.4-7
National, State, and Local Agencies with Jurisdiction over Applicable LORS

Agency or Jurisdiction	Responsibility
FAA	Establishes regulations for marking and lighting of obstructions in navigable airspace (AC No. 70/7450-1G).
Caltrans Department of Aeronautics	Grants permits to private heliports in California. May advise local jurisdictions regarding obstructions to helicopter navigation.
CPUC	Regulates construction and operation of overhead transmission lines. (GO-95)
CPUC	Regulates construction and operation of power and communications lines for the prevention of inductive interference. (General Order No. 52)
Local Electrical Inspector	Jurisdiction over safety inspection of electrical installations that connect to the supply of electricity (National Fire Protection Association 70).
City of Huntington Beach	Establishes and enforces zoning regulations for specific land uses. Issues variances in accordance with zoning ordinances.

3.5 Permits and Permit Schedule

No permits are required to comply with the transmission impacts of the project.

3.6 References

California Independent System Operator (CAISO). 2008. Generator Interconnection Process Reform, Revised Draft Proposal, June 27, 2008. California Independent System Operator. Available at: http://www.caiso.com/1f42/1f42c00d28c30.html.