5.12 Noise

NOISE Would the project:		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a.	Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☑	☐	☐
b.	Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☑	☐
c.	A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☑	☐
d.	A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☑	☐	☐
e.	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☑
f.	For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☑

Significance criteria established by CEQA Guidelines, Appendix G.

5.12.1 Setting

Existing Conditions

Community Noise. To describe environmental noise and to assess project impacts on areas that are sensitive to community noise, a measurement scale that simulates human perception is used. The A-weighted scale of frequency sensitivity accounts for the sensitivity of the human ear, which is less sensitive to low frequencies, and correlates well with human perceptions of the annoying aspects of noise. The A-weighted decibel scale (dBA) is cited in most noise criteria. Decibels are logarithmic units that can be used to conveniently compare wide ranges of sound intensities.

Community noise levels can be highly variable from day to day as well as between day and night. For simplicity, sound levels are usually best represented by an equivalent level over a given time period (Leq) or by an average level occurring over a 24-hour day-night period (Ldn). The Leq, or equivalent sound level, is a single value (in dBA) for any desired duration, which includes all of the time-varying sound energy in the measurement period, usually one hour. The L50, is the median noise level that is exceeded 50 percent of the time during any measuring interval. The Ldn, or day-night average sound level, is equal to the 24-hour A-weighted equivalent sound level with a 10-decibel penalty applied to nighttime sounds occurring between 10:00 p.m. and 7:00 a.m. Community Noise Equivalent Level (CNEL) is another metric that is the average equivalent A-weighted sound level during a 24-hour day, obtained after addition of five decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and after addition of 10 decibels to sound levels in the night from 10:00 p.m. to 7:00 a.m. To easily estimate the day-night level caused by any noise source emitting steadily and continuously over 24-hours, the Ldn is 6.4 dBA higher than the source's Leq. For example, if the expected continuous noise level from equipment is 50.0 dBA Leq for every hour, the day-night noise level would be 56.4 dBA Ldn.

Community noise levels usually are closely related to the intensity of human activity. Noise levels generally are considered low when below 45 dBA, moderate in the 45 to 60 dBA range, and high above 60 dBA. In wilderness areas, the Ldn noise levels can be below 35 dBA. In small towns or wooded and lightly used residential areas, the Ldn is more likely to be around 50 or 60 dBA. Levels around 75 dBA are more common in busy urban areas, and levels up to 85 dBA occur near major freeways and airports. Although people often accept the higher levels associated with very noisy urban residential and residential-commercial zones, they nevertheless are considered to be adverse to public health.

Surrounding land uses dictate what noise levels would be considered acceptable or unacceptable. Lower levels are expected in rural or suburban areas than what would be expected for commercial or industrial zones. Nighttime ambient levels in urban environments are about seven decibels lower than the corresponding daytime levels. In rural areas away from roads and other human activity, the day-to-night difference can be considerably less. Areas with full-time human occupation and residency are often considered incompatible with substantial nighttime noise because of the likelihood of disrupting sleep. Noise levels above 45 dBA at night can result in the onset of sleep interference. At 70 dBA, sleep interference effects become considerable (U.S. EPA, 1974).

Noise Environment in the Project Area. Land uses in the vicinity of the proposed substation site and along the alignments of the proposed linear facilities are primarily agricultural with intermittent rural residences. The proposed telecommunication routes would also pass through areas with commercial, light industrial, and manufacturing uses, including the Tehachapi Municipal Airport.

Baseline noise levels are typically around 30 dBA for quiet rural lands during the nighttime, when located away from traffic, whereas commercial and urban areas typically have noise levels between 60 and 70 dBA or higher (Caltrans, 2009). SCE conducted ambient noise measurements in 2011 prior to filing the application for the Proposed Project. These field tests found noise levels along Pelliser Road, at 50 feet from the centerline, to range up to 62 dBA in the daytime and between 40 dBA and 56 dBA at night (SCE, 2014). Table 5.12-1 shows typical sound levels of various environmental noise sources.

Table 5.12-1. Typical Sound Levels Measured in the Environment and Industry

Noise Source and Distance	A-Weighted Sound Level (dBA)	Subjective Impression
Civil defense siren (100 ft)	130	Pain threshold
Jet takeoff (200 ft)	120	
Rock music concert (50 ft)	110	
Pile driver (50 ft)	100	Very loud
Ambulance siren (100 ft)	90	
Diesel locomotive (25 ft)	85	Loud
Pneumatic drill (50 ft)	80	
Freeway (100 ft)	70	Moderately loud
Vacuum cleaner (10 ft)	60	
Light traffic (100 ft)	50	
Large transformer (200 ft)	40	Quiet
Soft whisper (5 ft)	30	Threshold of hearing

Noise Sensitive Areas. The Noise Element of the Kern County General Plan identifies the following land uses as noise-sensitive: residential areas, schools, convalescent and acute care hospitals; parks and recreational areas; and churches.

Regulatory Background

Regulating environmental noise generally is the responsibility of local governments. The U.S. EPA once published guidelines on recommended maximum noise levels to protect public health and welfare (U.S. EPA, 1974), and the State of California maintains recommendations for local jurisdictions in the General Plan Guidelines published by the Governor's Office of Planning and Research (OPR, 2003). The following summarizes the local requirements.

Kern County General Plan. The Noise Element (Chapter 3 of the Kern County General Plan) identifies the following policies to protect residents from excessive noise in Kern County:

- Policy 1. Review discretionary industrial, commercial, or other noise-generating land use projects for compatibility with nearby noise-sensitive land uses.
- Policy 2. Require noise level criteria applied to all categories of land uses to be consistent with the recommendations of the California Division of Occupational Safety and Health (DOSH).
- Policy 3. Encourage vegetation and landscaping along roadways and adjacent to other noise sources in order to increase absorption of noise.
- Policy 4. Utilize good land use planning principles to reduce conflicts related to noise emissions.
- Policy 5. Prohibit new noise-sensitive land uses in noise-impacted areas unless effective mitigation measures are incorporated into the project design. Such mitigation shall be designed to reduce noise to the following levels: a) 65 dB Ldn or less in outdoor activity areas; b) 45 dB Ldn or less within interior living spaces or other noise sensitive interior spaces.
- Policy 6. Ensure that new development in the vicinity of airports will be compatible with existing and projected airport noise levels as set forth in the Airport Land Use Compatibility Plan.
- Policy 7. Employ the best available methods of noise control.
- Policy 8. Enforce the State Noise Insulation Standards (California Administrative Code, Title 24) and Chapter 35 of the Uniform Building Code concerning the construction of new multiple-occupancy dwellings such as hotels, apartments, and condominiums.

The Kern County General Plan, Noise Element also includes an implementation strategy that would be relevant to the proposed substation: "Require proposed commercial and industrial uses or operations to be designed or arranged so that they will not subject residential or other noise sensitive land uses to exterior noise levels in excess of 65 dB Ldn and interior noise levels in excess of 45 dB Ldn."

Kern County Municipal Code. The Kern County Municipal Code, Noise Control (Chapter 8.36.020) prohibits noise from construction between the hours of 9:00 p.m. and 6:00 a.m. on weekdays, and between the hours of 9:00 p.m. and 8:00 a.m. on weekends if the construction site is within 1,000 feet from an occupied residential dwelling, and if the construction is audible to a person with average hearing faculties or capacity at a distance of 150 feet from the construction site.

City of Tehachapi. The City of Tehachapi Municipal Code does not include any prohibition on noise levels or time-of-day limitations on construction activity that could apply to the portions of the Proposed Project that would be inside city limits.

Applicant Proposed Measures

There are no applicant proposed measures related to noise.

5.12.2 Environmental Impacts and Mitigation Measures

a. Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

DURING CONSTRUCTION, *LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED*. Construction of the Proposed Project would involve use of heavy-duty equipment at the proposed substation site and along the routes of linear facilities. Equipment needed would include dozers, loaders, graders, backhoes, augers (drill rigs), lifts, a crane, and haul trucks for lifting, delivery, concrete, water, and work crews. All construction activities would create both intermittent and continuous noises, generally in the daytime. Intermittent noise would result from periodic, short-term equipment operation, such as cranes for positioning equipment or drilling rig use during foundation work for poles. Continuous noise would result from steady equipment operation over longer periods, such as a mixer for pouring concrete. The maximum intermittent construction noise levels would range from 80 to 90 dBA at 50 feet from an active construction area. Sound from stationary sources naturally attenuates over distance by decreasing six dBA with every doubling of distance from the source.

The nearest existing noise-sensitive receptor to proposed substation site would be an occupied residential dwelling located on Pelliser Road approximately 0.25 miles south of the proposed Banducci Substation (SCE, 2014). The proposed subtransmission and telecommunication facilities would be placed on poles near residences; the nearest occupied residential dwellings are located along South Curry Street, some of which are as close as approximately 25 feet from a proposed pole site along both proposed telecommunications routes (SCE, 2014). The proposed substation site would be approximately 1.6 miles from the California Correctional Institution; the nearest residential development would be in the community of Stallion Springs, approximately 2 miles from the site. Three additional residences are within 0.5 miles of the substation site.

Construction noise at the substation site would be attenuated to approximately 55 to 65 dBA before reaching the nearest residence approximately 0.25 mile away. Obstacles such as trees, existing buildings, and construction equipment in the path of the sound waves would attenuate noise to lower levels.

Construction would also cause noise off site, primarily from commuting workers and from trucks bring materials to the substation site and work sites along the subtransmission and telecommunications routes. The peak noise levels associated with passing trucks and commuting worker vehicles would be approximately 70 to 75 dBA at 50 feet, and would be concentrated along the roads and arterial streets that access the substation site and linear facilities.

Although noise from construction would attenuate with distance, activities for substation construction, heavy truck traffic, and construction of the linear facilities could result in intermittent peak noise levels of approximately 65 dBA for the nearest sensitive receptor from the substation site and levels of 75 to 80 dBA near pole sites for subtransmission and telecommunication facilities. Existing ambient noise levels range up to 62 dBA during the daytime. Therefore, noticeable noise increases would occur temporarily during construction.

Noise from construction activities would be short-term and intermittent in nature and would vary from day to day depending on specific construction activities. In order to ensure that all construction activities, especially equipment and vehicle noise, comply with local ordinances and standards, Mitigation

Measures N-1 and N-2 should be implemented to reduce noise from construction activities and to avoid unnecessary noise from equipment, vehicles, and construction traffic. Considering the short-term and temporary nature of the construction activities and the recommended mitigation measures, noise impacts during construction would be less than significant.

Mitigation Measure for Construction Noise

MM N-1 **Limit Construction Noise to Daytime Hours.** SCE shall limit grading, scraping, hole augering and pole installation to daylight hours, between 6:00 a.m. and 9:00 p.m. Exceptions for work outside of these hours shall be allowed for project safety or to take advantage of the limited times when power lines can be taken out of service or as determined to be warranted by the CPUC. If nighttime work is needed because of clearance restrictions on power lines, SCE shall take appropriate measures to minimize disturbance to local residents by informing them in advance of the work schedule and probable inconveniences.

MM N-2 **Minimize Construction Vehicle and Traffic Noise.** SCE shall maintain construction equipment and vehicle mufflers in accordance with equipment vendor specifications on all engines used in construction. Where feasible, construction traffic shall be routed to avoid noise-sensitive areas, such as residences, schools, religious facilities, hospitals, and parks.

DURING OPERATION, LESS THAN SIGNIFICANT. For long-term noise impacts associated with operations of the Proposed Project, refer to Section 5.12.2(c), below.

b. Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

LESS THAN SIGNIFICANT. Vibration from construction equipment and activities might be perceptible to people in the immediate vicinity of construction activities. Tamping of ground surfaces, the passing of heavy trucks on uneven surfaces, and drilling would each create perceptible vibration in the immediate vicinity of installing poles or conduit for the proposed linear facilities. The level of groundborne vibration that could reach sensitive receptors depends on the distance to the receptor, what equipment is creating vibration, and the soil conditions surrounding the construction site. Construction of utilities on poles may occur within 25 feet of the nearest residences, and construction of the substation site would be about 0.25 mile from the nearest residence.

Installing poles or conduit could cause vibration levels that could cause some persons to become annoyed, and this would temporarily impact persons in buildings within about 50 feet of construction equipment. Persons in buildings further than 50 feet away from construction activity would not be impacted by construction vibrations. Project-related vibrations would not cause any structural damage. Impacts from vibrations would be temporary (e.g., no more than two or three days at each site) and localized and, therefore, would not be excessive, resulting in a less than significant impact.

c. Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

LESS THAN SIGNIFICANT. The permanent noise sources that would occur with the project are limited to transformer operation at the substation and noise from crews conducting routine inspection and maintenance of the substation and linear facilities.

Substations usually generate steady noise from the process of power conversion, including the operation of transformers and auxiliary equipment needed to cool the transformer. Transformer noise con-

tains pure-tone or "hum" components. This tonal quality is typically the most offensive characteristic of transformer noise. Auxiliary equipment includes cooling fans and pumps that operate depending on the internal temperature of the transformer oil. With all auxiliary cooling fans operating, the worst-case noise level from each of the two proposed transformers at full load would be no more than 74 dBA on a design basis and no more than 68 dBA under contract specifications set by SCE (SCE, 2014).

Simultaneous operation of the two transformers would create a continuous noise level of approximately 71 dBA Leq for every hour, or an equivalent day-night noise level of approximately 77.4 dBA Ldn at the project site. This noise level would exceed the Kern County exterior criteria noise level of 65 dBA Ldn for locations immediately adjacent to the proposed Banducci Substation site, but the proposed low-profile substation design and 8-foot high pre-cast or concrete masonry material perimeter wall enclosing the substation would minimize the potential increase in noise levels experienced off-site. The resulting noise level at the nearest existing residences (0.25 mile away) would be attenuated over distance to a level that would not be audible over the existing background conditions. As such, a substantial increase in ambient noise levels would not occur due to substation operation.

Electric transmission or subtransmission lines emit an audible noise during routing as a result of the electric field that is generated in the air surrounding the conductors forming a "corona." The corona discharge occurs at the conductor surface and results in an audible noise that is characterized as a hissing or crackling sound that may be accompanied by a 120-hertz hum. For the proposed subtransmission lines, the predicted levels due to corona noise would be less than 33.5 dBA (SCE, 2014). The resulting noise levels directly below the proposed 66 kV subtransmission lines would be comparable with the ambient noise levels for locations away from traffic, and would not result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

Routine inspection and maintenance of the Proposed Project would be accomplished through periodic visits to the facilities. Visits to substations do not normally involve a large crew. Additional noise produced at the substation may occur during activation of circuit breakers. Because each of these noise sources would be infrequent and isolated, no substantial noise increase would occur.

d. Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED. Noise impacts associated with construction would mainly affect those receptors closest to the substation site and near construction of subtransmission and telecommunications routes. Existing homes near the substation site and linear facilities would experience a temporary increase in noise above levels now existing without the project. The increase would not be substantial because of the distance involved, and because the short-term and intermittent nature of construction noise would limit the impacts. Compliance with Mitigation Measures N-1 and N-2 would reduce the effects of noise caused by construction vehicles and traffic to levels that would not be substantially over levels existing without the project. With the mitigation, this impact would be less than significant.

e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

NO IMPACT. The proposed substation site would be located approximately 9 miles south and west of the Tehachapi Municipal Airport, and the nearest proposed telecommunication line would be roughly 300 feet south of the airport. The substation site would be unstaffed, and the project would not expose

people to noise from the airport. Similarly, no excessive noise would result from project operations that could impact people residing or working near the airport. As such, there would be no impact.

f. For a project within the vicinity of a private air strip, would the project expose people residing or working in the project area to excessive noise levels?

NO IMPACT. The Proposed Project is located near a private airstrip at PSK Ranch (FAA Identifier: 9CA0), approximately 0.8 miles from the proposed substation site, and limited operations occur at this airstrip as it does not appear to be currently used (SCE, 2014). Because the Proposed Project would not expose people to noise from the airstrip, no impact would occur.

This page intentionally blank.