

4.12 NOISE

4.12.1 Overview

The following section is intended to provide a preliminary overview and introductory discussion regarding noise and noise impacts related to the construction and operation of the TRTP. Additional analysis is currently being performed and will be submitted to the California Public Utilities Commission (CPUC) upon completion.

This section addresses acoustic noise issues and potential impacts related to the proposed Tehachapi Renewable Transmission Project (TRTP) (and alternatives). Section 4.12.2 provides a description of the Technical Methodology for the noise assessment, where the tasks performed to assess the potential noise impacts of the Project are discussed; the noise sources and sensitive receptors that relate to each of the segments are also generally discussed. Other sections identify Regulations, Plans, and Standards (Section 4.12.3); Significance Criteria (Section 4.12.4); and Applicant Proposed Measures (APMs) (Section 4.12.5). Section 4.12.6, Proposed Project and Alternatives, presents assessments of the noise issues and potential Project impacts for each TRTP segment.

4.12.1.1 General Characteristics of Community Noise

Noise levels and standards are expressed on a logarithmic scale in units called decibels (dBA), using a frequency-weighting pattern that duplicates the sensitivity of the human ear. Since noise levels from various sources vary over time, they are frequently expressed as an equivalent noise level (Leq), which is a computed steady noise level that represents the same energy transmission over a specified time. Leq values are commonly expressed for one-hour periods, but different averaging times may be specified.

For the evaluation of environmental or community noise effects, it is customary to define a 24-hour-long noise level based on hourly Leq values, and to apply an excess or “penalty” noise during the evening and/or nighttime hours to account for the added nuisance of noise during those periods. Depending on the exact penalty scheme, the resulting noise descriptor is either a Community Noise Equivalent Level (CNEL) or a Day-Night Average Noise Level (Ldn). The two ways of expressing such noise levels are nearly equivalent, and are often used interchangeably.

4.12.2 Technical Methodology

This section provides a discussion of the technical aspects of the procedures used to quantify the potential noise impacts of the Project. Following a review of the assessment objectives, the Project documents, consisting of aerial photographs, tables of sensitive receptors, and the

Project description were examined. Previous noise studies for several of SCE's existing substations were reviewed. Sensitive noise receptors in the area of the Project were identified on maps and field surveys were performed to verify their location. While this noise discussion was based on the edge of the substation expansion areas, it is expected that noise-generating equipment would be located well within the expansion area boundaries and noise effects would be lower than discussed in this section. This section also contains discussions of the estimated Project construction, and operational, and maintenance phase noise sources. The estimated Project impact on sensitive receptors is generally assessed in Section 4.12.6; additional analysis is currently being performed and will be submitted upon completion.

The proposed and alternative TRTP route segments are shown on Figure 3.1-1 (Section 3.0 of the PEA) and Figures P.1-2 and P.1-73 (Appendix P).

4.12.2.1 Assessment Objectives

The objective of this noise assessment was to determine the extent of potential noise impacts resulting from construction, operation, and maintenance of the TRTP. The TRTP extends from near Tehachapi in Kern County south and east through Los Angeles County to SCE's Mira Loma Substation in southwestern San Bernardino County. The proposed TRTP segments pass through a wide variety of land uses. There are open desert areas, mountainous open and forested areas, residential communities, commercial, and industrial areas. Refer to Section 4.10 (Land Use) for more information on land uses in the vicinity of the TRTP segments.

4.12.2.2 Overview of Existing Noise Sources

A wide range of existing noise sources are present in the area of the proposed Project transmission line (T/L) routes, due to the wide range of land uses that are traversed. The types of sources that contribute to ambient noise levels may include the following:

- Street traffic such as cars, trucks, and buses
- Rail traffic
- Aircraft over-flights
- Commercial and industrial noise sources
- Noise from existing power lines
- Residential noise sources
- Rural environment sources (wildlife, etc.)

Ambient noise levels tend to be lowest (below 50 dBA) in the recreational and open areas on Angeles National Forest (ANF) lands (e.g., Segments 6 and 11) and away from highways and urban or suburban areas. Existing noise levels are also low in the remote desert reaches of southern Kern County and northern Los Angeles County (Segments 4 and 10). Noise levels are generally highest (over 50 dBA) near major thoroughfares and in the densely populated areas and close to commercial or industrial noise sources (e.g., Segments 7, 8, and 11).

4.12.2.3 Sensitive Noise Receptors

Sensitive noise receptors are facilities or areas such as residences, hospitals, and schools where excessive noise may create annoyance. In addition to single and multi-family residences, there are a number of schools, churches, and health centers in the general vicinity of portions of the TRTP T/L routes and substations. Recreational areas where solitude and quiet are important components of the recreational experience may also be noise-sensitive receptors. This latter category does not include all remote areas, but only those that are designated as wilderness areas or subject to other programs specifically intended to preserve the natural remoteness and separation from man-made activities and noise levels. Although the edge of the TRTP right-of-way (R-O-W) passes approximately 100 feet from a designated wilderness area (San Gabriel Wilderness Area in the ANF), designated wilderness areas are not traversed by the TRTP, therefore, no impacts to recreational users are analyzed.

The key sensitive noise receptor locations are shown on Figure P.1-73 in Appendix P.

4.12.2.4 Construction Noise

Construction of the proposed Project would include the use of heavy equipment to build the proposed T/Ls and substation upgrades as well as to remove and relocate existing T/Ls. Noise levels associated with construction equipment that would likely be used on the Project would range between approximately 70 to 90 dBA. However, it is anticipated that the combined maximum noise level from operation of heavy equipment would be approximately 95 dBA at 50 feet from the construction activity (SCE, 2004). At 100 feet, these levels would be up to 89 dBA and at 200 feet the level would be about 83 dBA. Average noise levels from construction activity would be lower because most equipment would not be operated simultaneously. At 50 feet it is estimated that construction noise levels would average about 77 dBA and at 100 feet and 200 feet they would be about 6 dB and 12 dB lower, respectively. Typically, ground-borne vibration generated by construction activity attenuates rapidly with distance from the source of the vibration. Therefore, vibration issues are generally confined to distances of less than 500 feet and, thus, it is anticipated that ground-borne vibration would not affect potential receptors beyond the nearby work areas.

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Construction would also cause noise offsite, primarily from commuting workers and from trucks and helicopters bringing materials to the construction sites. Haul trucks would make trips to bring the T/L structure components, conductor lines, and other materials to the construction sites and remove demolished tower debris and excavated material and wastes. The highest noise levels associated with passing trucks and commuting worker vehicles would be approximately 75 dBA at 50 feet.

Construction of the proposed Project would require the use of helicopters to erect towers and move materials and equipment in and out of Project areas that are in remote locations within ANF lands. Public access would be restricted during helicopter use in designated areas within the ANF lands. The heavy-duty helicopters that would be used on ANF lands would generate noise levels of approximately 89 dBA at 200 feet (SCE, 2005). However, heavy-duty helicopters would only be used in remote areas where noise sensitive receptors generally do not exist. Light-duty helicopters would be used during the stringing phase of construction. Helicopter stringing activities would occur along the entire T/L R-O-W and in the area of the helicopter staging area. It is anticipated that helicopter stringing activities would proceed at a rate of approximately 2,000 feet per day using four-hour days. Light-duty helicopters would generate noise levels of approximately 80 dBA at 200 feet (SCE, 2005). Table 4.12-1 provides a listing of the expected equipment that would be used for construction of the Project. Table 4.12-1 also presents typical noise levels produced by this equipment at a distance of 50 feet.

4.12.2.5 Operational Noise Description

The permanent noise sources that would exist during operation are limited to corona noise, the accumulation of dirt on or around insulators, and substation noise. Noise would also be generated by intermittent activities associated with inspection and maintenance of the TRTP T/L and substation facilities. Discussions of each of these noise sources follows.

4.12.2.5.1 Corona and Insulator Noise. The noise from corona discharge and similar electrical phenomena associated with a high-voltage transmission line is heard as a crackling or hissing sound which commonly varies with meteorological conditions, such as humidity and rain. The source of corona noise is the implosion of small ionized water droplets caused by the electrical field along operating T/L conductors. This phenomenon occurs at high ambient humidity levels; usually in excess of 80 percent relative humidity. The generated noise levels diminish rapidly with increasing distance from the power lines. Corona noise measurements taken on a 15-minute average near a 500 kV double-circuit T/L near Serrano Substation in Anaheim Hills, when humidity was greater than 80 percent and temperatures were in the range of 60 degrees F (conditions contributing to high corona noise) are shown in Table 4.12-2. Beyond 100 feet of the T/L, the corona noise level drops at a rate of

**TABLE 4.12-1
ESTIMATED dBA FROM TYPICAL
ELECTRICAL FACILITY CONSTRUCTION EQUIPMENT**

Construction Equipment	Typical Estimated Sound Level dBA at 50'
CAT 973 Track Loader	69
CAT 950 Loader	71
Excavator w/7500 Breaker	78
Excavator w/ Pulverizer	74
10-Wheel Dump Truck	74
Pickup Truck	55
Wood Chipper	89
Jackhammer	88
Rivet Buster	85
Sawcutting Machine	81
Pile driver	101
Crane, Derrick	88
Crane, Mobile	83
Bulldozer	80
Rock Drill	98
CAT 300 Excavator	78
CAT TH-105 Forklift	75
Ford F-550 Flatbed Truck	88
CAT 980F Loader	73
4,000 Gallon Water Truck	70
623 Scraper	81
CAT 14 Blade	81
Ingersol PT125-RTR Roller	74
New Holland 545 Skip Loader	75
Easi-Por 880	81
Concrete Mix Truck	79
Concrete Pump	82
Concrete Vibrator	76
Cr451 Paving Machine	89
CAT CB534C Roller	74

**TABLE 4.12-1 (CONTINUED)
ESTIMATED dBA FROM TYPICAL
ELECTRICAL FACILITY CONSTRUCTION EQUIPMENT**

Construction Equipment	Typical Estimated Sound Level dBA at 50'
Hyster C340B Roller	74
CAT CB224B Roller	74
JD 310 Skip Loader	75
Ditch Witch R-40 Trencher	81
CAT 950 Loader	71
Ford Bobtail Dump Truck	81
15-Ton Crane	83
25 KW Generator	69
Air Compressor	81
Backhoe	85
185-CFM Air Compressor	70
150-Ton Mobil Crane	65
Bell 412 Helicopter at Hover @ 150-foot Altitude	83

**TABLE 4.12-2
CORONA NOISE LEVELS**

Location	Measured Levels ¹	Calculated Levels ²
Directly under the tower	46 dBA	47 dBA
Directly below outside conductor	44 dBA	46 dBA
50 feet from outside conductor	43 dBA	44 dBA
100 feet from outside conductor	39 dBA	42 dBA
200 feet from outside conductor	(Not measured)	38 dBA

¹ Actual noise levels measured near a 500 kV T/L (Veneklasen, 2004).

² These levels are calculated based on Electric Power Research Institute (EPRI) methods.

approximately 4 dB for each doubling of the distance. Ambient sound levels in low density neighborhoods are typically in the range of 35 to 40 dBA. As a comparison, people speaking in soft whispering voices fall in this range of noise levels. Noise levels usually become discernible if they exceed the background ambient levels by more than 3 decibels, thus it is unlikely that corona noise would create a noticeable impact.

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In dry and arid locations such as the Antelope Valley and the ANF, the occurrence of high humidity conditions is rare. In the San Gabriel Valley, high humidity conditions are relatively rare. Under high humidity conditions, any corona noise would be confined to a narrow corridor under and directly beside the T/L R-O-W, noise levels from rain may range from 40 to 50 dBA and noise levels due to wind can be much higher, depending on the wind velocity. Under weather conditions such as rain and high wind, ambient noise levels would generally be high enough to mask corona noise.

Noise levels similar to corona may be generated by arcing on insulators, especially if they are contaminated by smog or other particulate matter. Power line maintenance alleviates this problem and thus insulator arcing noise would not likely create an impact. In addition, the insulators to be utilized for the proposed TRTP are polymer, which would produce less insulator arcing noise than the earlier generation ceramic insulators.

4.12.2.5.2 Substation Noise. Noise from transformers and similar equipment at substations is usually a low-frequency humming sound. Noise from fans and ventilation equipment at substation sites can also contribute to this source. Noise levels generated by transformers similar to those at proposed, expanded, and/or upgraded TRTP substations are presented in Table 4.12-3.

**TABLE 4.12-3
TYPICAL SUBSTATION TRANSFORMER NOISE LEVELS¹**

Transformer	Sound Level at 50 feet (dBA)			Sound Level at 100 feet (dBA)		
	OA ²	FA ³	FOA ⁴	OA ²	FA ³	FOA ⁴
500/220 kV Three Phase 300/400/500 MVA	72	74	75	66	68	69
500/115 kV Three Phase 300/400/500 MVA	74	76	77	68	70	71

¹ Sound levels are based on National Electrical Manufacturers' Association (NEMA) ratings.

² OA --- Operation with no fans.

³ FA --- Operation with cooling fans.

⁴ FOA --- Operation with fans and oil pumps.

There are a few residential areas close to new (i.e., proposed Whirlwind Substation), expanded, and/or upgraded substations associated with the TRTP. Substations that have relatively nearby (closer than 1,000 feet) residential neighborhoods or sensitive receptors are:

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- Vincent Substation – A few homes, south, east, and west. The nearest existing residence is located approximately 680 feet to the northwest of the northwest corner of the Vincent Substation; the substation expansion area would reduce the distance to approximately 540 feet. The nearest existing residence to the west, in the direction of the substation expansion area, is about 1,180 feet to the west. The proposed expansion area would extend westward from the existing substation to within approximately 380 feet of this nearest residence. Distances from the Vincent Substation to the closest residences to the northeast (approximately 1,080 feet), east (approximately 980 feet), southeast (approximately 760 feet), and south (approximately 690 feet) would not be affected by the proposed substation expansion.
- Gould Substation – Homes west and south. The nearest homes are to the south of the Gould Substation, 260 feet from the southern edge of the substation pad.

It should be noted that the noise levels at Vincent Substation are sometimes dominated by traffic on State Highway Route (SR) 14 north of substation. Noise levels produced by a substation are virtually constant; the same during the day or night, therefore the minimum measured level is closest to the actual noise level produced by the substation. The daytime level is controlled by noise from SR 14 and the night level assumes a substation noise level of 40 dBA at 1,000 feet.

Based on data from Caltrans (2005) and using the current Federal Highway Administration Traffic Noise Model (Lau et al., 2004), the daytime hourly equivalent noise level (approximately equal to the L_{50}) from SR 14 traffic at the residence nearest to the Vincent Substation is about 54 dBA. Thus, the existing noise levels from the freeway are approximately 9 dB higher than the noise generated by the substation.

Future expansion or upgrade of any substation in the TRTP could involve the addition or replacement of new equipment. The exact specifications for these modifications are not known at this time and, therefore, it is not possible to predict the noise levels and any possible impact at the property lines and nearby sensitive receptors. The final engineering design process for any modification and/or addition will include a full review of noise impacts and possible mitigation measures. It is also noted that the existing noise levels at these two substations are somewhat lower than levels that may occur if larger transformers were installed.

4.12.2.5.3 Maintenance Noise. Routine inspection and maintenance of the TRTP T/Ls would be accomplished by either ground access or by helicopter and would occur on average once a year. Maintenance of the T/L areas would be performed on an as-needed basis, and would include maintenance of access roads and erosion/drainage control areas. Light-duty helicopters and trucks that would be used during inspection activities would generate noise

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levels of approximately 80 dBA at 50 feet and approximately 75 dBA at 100 feet. This would cause short-term or intermittent increases in noise along the T/L routes.

4.12.3 Regulations, Plans, and Standards

Regulating environmental noise is generally the responsibility of local governments. However the U.S. Environmental Protection Agency (USEPA) has published guidelines on recommended maximum noise levels to protect public health and welfare (USEPA, 1974) (refer to Table 4.12-4). 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 sections summarize the federal and State recommendations and the local requirements.

**TABLE 4.12-4
EXAMPLES OF PROTECTIVE NOISE LEVELS
RECOMMENDED BY U.S. EPA¹**

Effect	Maximum Level	Exterior or Interior Area
Hearing Loss	$L_{eq}(24) < 70$ dB	All areas.
Outdoor activity interference and annoyance	$L_{dn} < 55$ dB	Outdoors in residential areas and farms and other outdoor areas where people spend widely varying amounts of time and other places in which quiet is a basis for use.
	$L_{eq}(24) < 55$ dB	Outdoor areas where people spend limited amounts of time, such as schoolyards, playgrounds, etc.
Indoor activity interference and annoyance	$L_{dn} < 45$ dB	Indoor residential areas.
	$L_{eq}(24) < 45$ dB	Other indoor areas with human activities such as schools, etc.

¹ Source: USEPA, 1974.

4.12.3.1 Federal Guidelines

There are no federal noise standards that directly regulate environmental noise. Table 4.12-4 provides a summary of recommended noise levels for protecting public health and welfare with an adequate margin of safety. With regard to noise exposure and workers, the federal Occupational Safety and Health Administration (OSHA) has established regulations to safeguard the hearing of workers exposed to occupational noise (29 CFR, Section 1910.95, Code of Federal Regulations).

For ANF lands, the existing 2005 ANF Land Management Plan (LMP) does not explicitly identify noise as an issue and does not suggest any specific noise strategies, standards, or regulations.

4.12.3.2 State Guidelines

The State of California requires each local government to perform noise surveys and implement a noise element as part of their general plan. Table 4.12-5 shows the State guidelines for evaluating the compatibility of various land uses as a function of noise exposure.

4.12.3.3 Local Guidelines

The TRTP traverses Kern County and Los Angeles County, as well as several cities with applicable noise ordinances.

4.12.3.3.1 Los Angeles County Unincorporated Areas. The Los Angeles County Noise Ordinance is reflected in Chapter 12.08 of the County Code.

The County Noise Ordinance has a somewhat complex system of allowable noise limits, which is summarized in the following paragraphs.

Activities may not generate noise levels above specified limits, either at the exterior or interior areas of neighboring land uses. The limits are derived from tabulated values that depend on the sensitivity of the land use, with adjustments to create a series of noise standards. The basic exterior limits are presented in Table 4.12-6.

Adjustments are made to the allowable limits depending on the nature of the ambient noise, or the duration of the noise. The ambient noise is specified as a statistical noise level or L_x , where x is the percentage of time that the noise levels exceed the limit L . For example, an L_{80} is the noise level in dBA that is exceeded 80 percent of the time.

If the ambient noise (defined as the L_{50} , or noise level exceeded 50 percent of the time) exceeds the limit shown in the above table, the ordinance limits are adjusted upward to match the ambient noise.

The adjusted standards, derived from the limits (Table 4.12-6) are as follows:

- Standard 1. The exterior limits, for any generated noises that occur for a cumulative period of more than 30 minutes in any hour. If the ambient L_{50} exceeds this limit, then the L_{50} becomes the exterior noise level limit for Standard 1.

**TABLE 4.12-5
STATE OF CALIFORNIA NOISE AND LAND USE
COMPATIBILITY GUIDELINES**

Land Use Category	Community Noise Exposure <i>L_{dn}</i> or <i>CNEL</i> , <i>dB</i>					
	55	60	65	70	75	80
Residential - Low Density Single Family, Duplex, Mobile Homes	[Light gray bar from 55 to 60]					
Residential - Multi. Family	[Light gray bar from 55 to 65]					
Transient Lodging - Motels, Hotels	[Light gray bar from 55 to 65]					
Schools, Libraries, Churches, Hospitals, Nursing Homes	[Light gray bar from 55 to 70]					
Auditoriums, Concert Halls, Amphitheaters	[Light gray bar from 55 to 70]					
Sports Arena, Outdoor Spectator Sports	[Light gray bar from 55 to 75]					
Playgrounds, Neighborhood Parks	[Light gray bar from 55 to 70]					
Golf Courses, Riding Stables, Water Recreation, Cemeteries	[Light gray bar from 55 to 75]					
Office Buildings, Business Commercial and Professional	[Light gray bar from 55 to 70]					
Industrial, Manufacturing, Utilities, Agriculture	[Light gray bar from 55 to 75]					

INTERPRETATION:

[Light gray bar] **Normally Acceptable**
Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

[Medium gray bar] **Conditionally Acceptable**
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

[Dark gray bar] **Normally Unacceptable**
New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

[Black bar] **Clearly Unacceptable**
New construction or development should generally not be undertaken.

**TABLE 4.12-6
LOS ANGELES COUNTY NOISE ORDINANCE STANDARDS¹**

Noise Zone	Noise Zone Land Use (Receptor Property)	Time Interval	Exterior Noise Level (dB)
I	Noise sensitive area	Anytime	45
II	Residential property	7:00 a.m. to 10:00 p.m. (day)	50
		10:00 p.m. to 7:00 a.m. (night)	45
III	Commercial property	7:00 a.m. to 10:00 p.m. (day)	60
		10:00 p.m. to 7:00 a.m. (night)	55
IV	Industrial property	Anytime	70

¹ Source: Los Angeles County Code Section 12.08.390.A.

- Standard 2. The above exterior limits, plus 5 dBA, which may not be exceeded for a cumulative period of more than 15 minutes in any one hour. If the ambient L_{25} exceeds this limit, then the L_{25} becomes the exterior noise level limit for Standard 2.
- Standard 3. The above exterior limits, plus 20 dBA [sic, probably 10 dBA], which may not be exceeded for a cumulative period of more than 5 minutes in any one hour. If the ambient $L_{8,3}$ exceeds this limit, then the L_{25} becomes the exterior noise level limit for Standard 3.
- Standard 4. The above exterior limits, plus 15 dBA, which may not be exceeded for a cumulative period of more than 1 minute in any one hour. If the ambient $L_{1,7}$ exceeds this limit, then the L_{25} becomes the exterior noise level limit for Standard 4.
- Standard 5. The above exterior limits, plus 20 dBA, which may not be exceeded for any period of time. If the ambient L_0 exceeds this limit, then the L_0 becomes the exterior noise level limit for Standard 5.

There are additional specifications in the Noise Ordinance that relate to limits for noise levels between two different land use zones, limits for interior noise levels, and corrections for pure tone or impulsive sounding noises (limits are 5 dBA more restrictive).

In addition to these measures, the Noise Control Ordinance of Los Angeles County also prohibits construction activities and noise during certain times, in areas that would affect a residential or commercial property line. The prohibited times (without a variance) are between the weekday hours of 7:00 p.m. and 7:00 a.m., and any time on Sundays or holidays

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(Section 12.08.440). The Ordinance (Section 12.08.440, Part B) also identifies maximum noise levels for mobile and stationary construction equipment as identified in Table 4.12-7.¹

**TABLE 4.12-7
LOS ANGELES COUNTY MAXIMUM CONSTRUCTION NOISE LEVELS¹**

Time	Equipment Type ²	Single-family Residential	Multi-family Residential	Semi-residential/ Commercial
Daily, except Sundays and holidays, 7:00 a.m. to 8:00 p.m.	Mobile	75 dBA	80 dBA	85 dBA
	Stationary	60 dBA	65 dBA	70 dBA
Daily, 8:00 p.m. to 7:00 a.m. and all day Sunday and holidays	Mobile	60 dBA	65 dBA	70 dBA
	Stationary	50 dBA	55 dBA	60 dBA

¹ Source: Los Angeles County Code Section 12.08.440.B.1.a.

² Mobile equipment maximum noise levels are for nonscheduled, intermittent, short-term operations (less than 10 days); Stationary equipment maximum noise levels for repetitively scheduled and relatively long-term operations (periods of 10 days or more).

4.12.3.3.2 Kern County. The Noise Control Ordinance in the Kern County Code (Section 8.36.020 et seq.) prohibits a variety of nuisance noises, but does not specifically mention construction or related noise. However, the Kern County General Plan Noise Element (2004) establishes 65 dBA maximum Day-Night Average Noise Level (Ldn) as being considered compatible with residential uses or development.

4.12.3.3.3 City Noise Ordinances. The TRTP traverses several cities with applicable noise ordinances. SCE would comply with applicable noise ordinances.

4.12.4 Significance Criteria

In accordance with CEQA Appendix G, TRTP noise impacts would be considered significant if the proposed Project would 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?
- Exposure of persons to or generation of excessive groundbourne vibration or groundbourne noise levels?
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

¹ Annual helicopter T/L patrol for maintenance purposes is not subject to the Los Angeles County Maximum Construction Noise Levels, as identified in Table 4.12-7.

- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?
- For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 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?
- 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?

4.12.5 Applicant Proposed Measures

SCE has committed to implementing Applicant Proposed Measures (APMs) for noise that would alleviate construction- and operation-related noise impacts to surrounding communities. To minimize these potential impacts SCE has incorporated the following APMs into the Project design:

APM NOISE-1: Limit Hours and Days for Construction. SCE would comply with all applicable noise ordinances. In the event that construction must occur outside the allowable work hours, a variance would be obtained.

APM NOISE-2: Substation Noise Minimization. SCE would conduct noise studies at substations where noise emitting equipment is proposed (e.g., Antelope and Vincent substations). The results of these studies would be used to determine appropriate noise minimization measures, such that no local noise ordinance limits would be exceeded. Measures to accomplish this may include specifying quieter equipment from the manufacturer, installing noise control devices, and installing sound barriers and enclosures.

APM NOISE-3: Advance Notification. SCE would provide advanced notification of construction to the pertinent businesses and residences when appropriate and feasible.

APM NOISE-4: Establish Toll Free Number. SCE would establish a toll free telephone number for receiving questions or complaints during construction and develop procedures for responding to callers.

4.12.6 Proposed Project and Alternatives

The proposed Project consists of two primary phases: construction and operation. The level of construction within each TRTP segment is variable, but generally similar from a noise-generation standpoint. A general discussion of construction- and operation-related noise issues was presented in Sections 4.12.2.3, 4.12.2.4, and 4.12.2.5. Summaries of potential Project-related construction and operation noise impacts follow.

4.12.6.1 Summary of Project-related Construction Impacts

Construction of the proposed Project for TRTP Segments 4 through 11 would involve the use of heavy equipment to transport material and accomplish installation of T/L towers, conductors, and substation facilities or electrical tie-ins. Cranes and other heavy equipment would be used in the erection of towers and for installing conductors. Grading would be required for creating staging areas, T/L tower foundation pads, conductor pull areas, and in creating spur roads and/or improving access along roads. In addition, grading would be required at proposed new (Whirlwind) or expanded substations (Antelope and Vincent). Heavy construction equipment typically generates noise levels up to around 95 dBA at 50 feet. To a large extent, these types of noises are common and associated with any development and building activities.

These discussions of construction noise effects apply equally to the construction activities for TRTP Segments 4 through 11, including T/L routes and at proposed new or expanded substations.

The Project would also involve the use of helicopters to move material in and out from some remote locations (e.g., in the ANF) and for conductor stringing operations. While only a minor component of the overall project, the helicopter operations would result in localized noise conditions for short-term periods. Noise levels from large helicopters, such as the Sikorsky S-64 Skycrane can range from 95-105 dB at distances of about 300 feet (True et al., 1977). Noise levels from smaller helicopters used for conductor stringing operations (e.g., Bell 412 hovering at 150 feet) are estimated at 83 dBA.

The following discussions of potential TRTP-related construction noise effects apply equally to the proposed and alternative T/L routes (Segments 4-8, 10, and 11) and proposed and alternative substation locations (Segment 9). The potential for, or degree of, noise impacts is related to the proximity of sensitive land uses. These include existing residences, schools, hospitals, and wilderness areas.

Depending on the timing of construction for the proposed TRTP segments and proposed residential developments in the Project area, Project construction-related noise may result in temporary noise impacts on the planned developments.

Noise from a point source, such as grading or construction equipment, is reduced according to the inverse square law as it propagates outward from its source. As a general rule, noise levels from point sources are reduced by 6 dBA for each doubling of distance.

Using a construction equipment reference noise level of 95 dBA at 50 feet, the resulting noise level at a distance of 1,000 feet would be about 69 dBA. Heavy construction equipment

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typically does not operate continuously in one position all day long. The effect on the hourly equivalent noise level would depend on the duration and frequency of operation. The potential exists for some construction noise related disruption to nearby receptors, including residences, as applicable.

At any one location along the proposed T/L routes (including alternatives), helicopter operations would occur for short periods several times per day. Since large helicopters would only be used in relatively remote, undeveloped areas, the potential for disturbance to large numbers of residences is small. If necessary, these operations would be limited to daytime working hours only, and would be fairly short-term in nature. Therefore, short-term construction noise impacts from large helicopter operations would be less than significant.

Construction noise impacts are usually sporadic and occur during daytime hours. Because of its potential to cause a nuisance or disturbance, construction noise is usually considered a potentially significant impact, but one that is short-term in nature and that can be typically minimized to less-than-significant levels by limiting the hours of construction. For these reasons, construction noise rarely has a significant influence on 24-hour noise descriptors such as CNEL and L_{dn} . Thus, measured by the standards used in most Noise Elements, construction noise would not be considered a significant impact.

4.12.6.2 Summary of Project-related Operation Impacts

Noise from operation of the TRTP would come from two primary sources: electrical and related equipment (e.g., transformers and fans) at the substations, and corona discharge and similar phenomena associated with the 500 kV and 220 kV T/Ls. In addition, periodic maintenance and inspection activities involving helicopters and/or trucks would result in short-term noise. While this noise discussion was based on the edge of the substation expansion areas, it is expected that noise-generating equipment would be located well within the expansion area boundaries and noise effects would be lower than discussed in this section.

Once the proposed T/L towers were erected and the conductors installed, the 500 kV and 220 kV T/Ls (and limited 66 kV subtransmission lines) associated with the TRTP would generate very little noise during the operational phase. The proposed Segment 9 substation construction (Whirlwind), expansion (Antelope and Vincent), and upgrades (Gould, Mesa, and Mira Loma) would not be expected to result in any significant long-term, operational noise impacts. The proposed Whirlwind Substation is located in a remote, rural area in Kern County and no sensitive receptors are located nearby, therefore, no adverse noise impacts to sensitive receptors would be expected to occur.

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Noise from transformers and similar equipment at substations is usually a low frequency (60 Hz) humming sound. To this sound may be added noise from fans or ventilation equipment on buildings. These types of noises commonly range around 50 to 60 dBA at distances of 100 feet or so. In most circumstances, the resulting exterior noise levels are well below the common noise standard of 65 dBA. Potentially significant noise impacts from substations are usually limited to residences located immediately adjacent to them.

For the TRTP, the nearest residences to the new or expanded substations are located approximately 380 feet away from Vincent, and about 260 feet from Gould. At these distances, the operational noise level from the substations would be below 55 dBA, and would constitute a less than significant impact. At the Vincent Substation, the proposed expansion to the west would extend the substation to within about 380 feet of the nearest residence.

For the Gould Substation, similar computations using previous measurements and adjusting them to the distance for the nearest residence, indicate that daytime Leq values would be about 42 dBA and nighttime Leq values would be about 43 dBA. The resulting Day-Night Average Noise Level (Ldn) would be 49.3 dBA, well below the common threshold of 65 dBA.

The noise from corona discharge and similar electrical phenomena associated with high voltage T/Ls is heard as a crackling or hissing sound, which commonly varies with the humidity. While distinctive at a short distance, this noise is typically only about 40 to 50 dBA (see Table 4.12-2), or less, near the edge of T/L R-O-Ws; it would not be loud enough to exceed any noise compatibility standards. For this reason, the noise from such electrical discharge would be considered less than significant.

4.12.6.3 Segment 4

4.12.6.3.1 Environmental Setting. The proposed Segment 4 route traverses desert and farm land that is void of residents. There are no sensitive receptors close to this segment.

The new Cottonwind Substation² is located at Segment 4 (S4) milepost (MP) 0 (refer to Figures P.1-2 and P.1-73 in Appendix P). From this location, two new 220 kV lines continue to S4 MP 4 to the Whirlwind Substation, a new facility. At this facility, another new 500 kV line would enter the substation from the Windhub Substation (Segment 10). From S4 MP 4 to MP 16, the proposed new 500 kV line (initially powered at 220 kV) traverses primarily farmland. S4 Segment 4 is devoid of residential and sensitive receptor locations. The

² The Cottonwind Substation is currently undergoing environmental review by the County of Kern in conjunction with a proposed wind farm development and is not part of the TRTP.

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southern end of Segment 4 between S4 MP 16 to 19.6 is west of Lancaster in desert where it ends at the existing SCE Antelope Substation.

4.12.6.3.2 Impact Analysis. Potential construction and operations phase noise impacts associated with Segment 4 are addressed below by CEQA Guidelines (Appendix G) significance criteria.

Would the Project result in the 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?

As discussed in Section 4.12.6.1, construction noise impacts are usually sporadic and occur during daytime hours. For this reason, they rarely have a significant influence on 24-hour noise descriptions such as CNEL and L_{dn} . Thus, measured by the standards used in most Noise Elements, construction noise would not be considered a significant impact. Construction noise is potentially significant, but short-term in nature and minimized by limiting the hours of construction as per APM NOISE-1, which is built into the proposed TRTP design. Construction phase impacts would be expected to be less than significant.

As discussed in Section 4.12.6.2, operational phase corona discharge from 500 kV and 200 kV transmission lines as well as noise from substation transformers are normally well below applicable standards at the edge of the T/L R-O-Ws and at substation boundaries; therefore, operational phase noise impacts would be expected to be less than significant.

Would the Project result in the exposure of persons to or generation of excessive groundbourne vibration or groundbourne noise levels?

Construction and operation of proposed TRTP facilities would not involve activities with the potential to generate excessive groundbourne vibration or noise levels. Impacts related to groundbourne vibration and/or noise would be less than significant.

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

Operation of proposed TRTP facilities (e.g., T/Ls and substations) would not result in substantial increases in noise levels in the Project vicinity due to T/L related corona noise (estimated at 40 to 50 dBA at the edge of the T/L R-O-Ws) or substation transformers (estimated at 50 to 60 dBA at 100 feet from the source). TRTP operational noise impacts would be expected to be less than significant.

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?

The proposed TRTP would not result in substantial temporary or periodic increases in ambient noise levels in the Project vicinity with the possible exception of helicopter generated noise during construction and infrequent maintenance operations (e.g., once per year T/L inspection). Impacts would be short-term, temporary, and less than significant.

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?

The proposed TRTP would not expose people residing or working in the Project area to long-term excessive noise levels regardless of the location with respect to airports. Therefore, there would be no impact.

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?

The proposed TRTP would not expose people residing or working in the Project area to excessive noise levels regardless of the location with respect to private airstrips. Therefore, there would be no impact.

4.12.6.3.3 Mitigation Measures. With implementation of APMs NOISE-1 through NOISE-4, which have been incorporated into the TRTP design, all potential noise impacts would be expected to be minimized to less-than-significant levels and no mitigation measures are needed.

4.12.6.3.4 Impact Significance After Mitigation Measure Application. TRTP related noise impacts would be less than significant.

4.12.6.4 Segment 5

4.12.6.4.1 Environmental Setting. From the Antelope Substation, at Segment 5 (S5) MP 0, the proposed T/L route traverses the desert to S5 MP 3. From S5 MP 3 to S5 MP 17.8, the T/L route is to the west of the City of Palmdale. This area is in desert area and some farmland. The proposed Segment 5 T/L route ends at the existing SCE Vincent Substation.

4.12.6.4.2 Impact Analysis. The potential noise and vibration impacts associated with construction and operation of Segment 5 are generally analogous to those described in Section 4.12.6.3.2 for Segment 4. The Segment 5 T/L route involves an existing T/L corridor

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and traverses desert and farmland with no sensitive receptors currently adjacent to the T/L route. There are several planned residential developments (e.g., Ritter Ranch, Anaverde, and Quail Valley) in the vicinity of the existing SCE T/L R-O-W which would be upgraded from 220 kV to 500 kV as part of Segment 5. Construction methods and operational phase characteristics are essentially the same as those for Segment 4. With implementation of APMs, potential noise impacts would be expected to be less than significant.

4.12.6.4.3 Mitigation Measures. With implementation of APMs which have been incorporated into the TRTP design, all potential noise impacts would be expected to be minimized to less-than-significant levels and no mitigation measures are needed.

4.12.6.4.4 Impact Significance After Mitigation Measure Application. TRTP related noise impacts would be less than significant.

4.12.6.5 Segment 6

4.12.6.5.1 Environmental Setting. From the Vincent Substation, at Segment 6 (S6) MP 0.0 the 500 kV line traverses the desert to S6 MP 1.5, which is the boundary of the ANF. From S6 MP 1.5 to MP 18 the line is within the ANF, which is a remote mountain area. The line continues within the ANF, close to the San Gabriel Wilderness Area to S6 MP 26.9 at the city limits of Azusa.

4.12.6.5.2 Impact Analysis. The potential noise and vibration impacts associated with construction and operation of Segment 6 are generally analogous to those described in Section 4.12.6.3.2 for Segment 4. The Segment 6 T/L route involves an existing T/L corridor with limited rural residences adjacent to the T/L route immediately south of the Vincent Substation. However, the majority of Segment 6 traverses primarily mountainous ANF lands with no sensitive receptors adjacent to the T/L route. Construction methods and operational phase characteristics are essentially the same as those for Segment 4. With implementation of APMs, all potential noise impacts would be less than significant.

4.12.6.5.3 Mitigation Measures. With implementation of APMs which have been incorporated into the TRTP Project design, potential noise impacts would be expected to be minimized to less-than-significant levels, and no mitigation measures are needed.

4.12.6.5.4 Impact Significance After Mitigation Measure Application. TRTP related noise impacts would be less than significant.

4.12.6.6 Segment 7

4.12.6.6.1 Environmental Setting. From the Duarte city limits, at Segment 7 (S7) MP 0 the line traverses vacant hilly land in Duarte and Irwindale to S7 MP 2. From here to S7 MP 5 is open industrial land in Irwindale to the Rio Hondo Substation at S7 MP 5. From S7 MP 5 to 7 the T/L route is adjacent to industrial areas and adjacent to the 605 freeway. The T/L route from S7 MP 7 to 10 is parallel to the 60 freeway in El Monte. Between S7 MP 10 and 11, the surrounding land use is residential near the 60 freeway. From S7 MP 11 to 15.8, the area traversed is mostly open land with some residences near S7 MP 14. The T/L route ends at the Mesa Substation.

4.12.6.6.2 Impact Analysis. The potential noise and vibration impacts associated with construction and operation of Segment 7 are generally analogous to those described in Section 4.12.6.3.2 for Segment 4. The Segment 7 T/L route involves an existing T/L corridor and traverses vacant land, industrial, and residential areas. Construction methods and operational phase characteristics are essentially the same as those for Segment 4. With implementation of APMs, potential impacts would be expected to be less than significant.

4.12.6.6.3 Mitigation Measures. With implementation of APMs which have been incorporated into the TRTP Project design, potential noise impacts would be expected to be minimized to less-than-significant levels and no mitigation measures are needed.

4.12.6.6.4 Impact Significance After Mitigation Measure Application. TRTP related noise impacts would be less than significant.

4.12.6.7 Segment 8A

4.12.6.7.1 Environmental Setting. From the Mesa Substation at Segment 8A (S8A) MP 0, the T/L route is near the 605 freeway and in open areas in the cities of Montebello and Industry. Between S8A MP 9 and 10, the route is adjacent to residences in the City of Industry. From S8A MP 10 to 13 the route passes through uninhabited hills in La Habra Heights. At S8A MP 13.5 there is a park and a few residences. From S8A MP 13.5 to 21 the line is in open areas of Los Angeles County and Chino Hills. It passes residential areas between S8A MP 21 to 25.5 in Chino Hills, and a school is located near S8A MP 22.5. From S8A MP 25.5 to 28 a school and 2 hospitals are passed in an industrial area. The Chino Substation is located at S8A MP 28. From S8A MP 28 to 35.2, the areas traversed are mostly industrial with a small residential area near S8A MP 33.2 to 33.7. The line ends at the Mira Loma Substation.

4.12.6.7.2 Impact Analysis. The potential noise and vibration impacts associated with construction and operation of Segment 8A are generally analogous to those described in

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Section 4.12.6.3.2 for Segment 4. The Segment 8A T/L route involves an existing T/L corridor and traverses open space, residential, and industrial areas. Construction methods and operational phase characteristics are essentially the same as those for Segment 4. With implementation of APMs, all potential impacts would be less than significant.

4.12.6.7.3 Mitigation Measures. With implementation of APMs which have been incorporated into the TRTP Project design, all potential noise impacts would be expected to be minimized to less-than-significant levels and no mitigation measures are needed.

4.12.6.7.4 Impact Significance After Mitigation Measure Application. TRTP related noise impacts would be less than significant.

4.12.6.8 Segment 8B

4.12.6.8.1 Environmental Setting. From the Chino Substation at Segment 8B (S8B) MP 0 the line passes through a short area of industrial use. The line from S8B MP 0.5 to 1.3 is residential in the City of Chino. From S8B MP 1.3 to 4.9 the area is industrial, from S8B MP 4.9 to 5.8 it is residential, and from S8B MP 5.8 to 6.8 the adjacent areas are industrial ending at the Mira Loma Substation.

4.12.6.8.2 Impact Analysis. The potential noise and vibration impacts associated with construction and operation of Segment 8B are generally analogous to those described in Section 4.12.6.3.2 for Segment 4. The Segment 8B T/L route involves an existing T/L corridor and traverses industrial and residential areas. Construction methods and operational phase characteristics are essentially the same as those for Segment 4. With implementation of APMs, potential impacts would be expected to be less than significant.

4.12.6.8.3 Mitigation Measures. With implementation of APMs which have been incorporated into the TRTP Project design, potential noise impacts would be expected to be minimized to less-than-significant levels and no mitigation measures are needed.

4.12.6.8.4 Impact Significance After Mitigation Measure Application. TRTP related noise impacts would be less than significant.

4.12.6.9 Segment 8C

4.12.6.9.1 Environmental Setting. This segment begins at the Chino Substation in an industrial area to Segment 8C (S8C) MP 0.5 and is near residential from S8C MP 0.5 to 1.3. It traverses an industrial area to S8C MP 4.9 where it is adjacent to residential from S8C MP 4.9 to 5.4 and is then industrial to the Mira Loma Substation at S8C MP 6.4.

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4.12.6.9.2 Impact Analysis. The potential noise and vibration impacts associated with construction and operation of Segment 8C are generally analogous to those described in Section 4.12.6.3.2 for Segment 4. The Segment 8C T/L route involves an existing T/L corridor and traverses residential and industrial areas. Construction methods and operational phase characteristics are essentially the same as those for Segment 4. With implementation of APMs, potential impacts would be expected to be less than significant.

4.12.6.9.3 Mitigation Measures. With implementation of APMs which have been incorporated into the TRTP Project design, potential noise impacts would be expected to be minimized to less-than-significant levels and no mitigation measures are needed.

4.12.6.9.4 Impact Significance After Mitigation Measure Application. TRTP related noise impacts would be less than significant.

4.12.6.10 Segment 9

Segment 9 involves construction of one new substation and expansion and/or internal modifications at several others.

4.12.6.10.1 Environmental Setting.

Whirlwind Substation. This new substation would join Segment 10 from the northeast to Segment 4. It would occupy approximately 65 to 67 acres on one of three sites being considered in Kern County.

Antelope Substation. Expansion of the Antelope Substation to the southeast of the existing substation was addressed in review of Segment 1 of the Antelope Transmission Project.³ The TRTP would involve further expansion (approximately 18 acres) and the installation of additional electrical equipment, including a Static VAR Compensator (SVC).

Vincent Substation. The area of the Vincent Substation would be expanded by approximately 0.2 acre. The expansion area is to the west of the existing substation. Besides the installation of new equipment and relocation of some internal functions within the substation, the Project would also involve the relocation of about 1,200 feet of Forrester Road—the residential access road on the west side of the substation. This road crosses SCE property and the relocation routes the access around the northern and western edge of the substation expansion area. The expansion of this substation has the potential for creating an impact during system operation since equipment would be placed about 780 feet closer to a

³ CPUC Decision 07-03-012, March 1, 2007.

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small number of residences to the west. These residences are now about 1,180 feet away; following the westward expansion they would be approximately 380 feet away.

Other substations (i.e., Mesa, Gould, and Mira Loma) associated with the TRTP would involve internal, minor modifications within the existing fencelines.

4.12.6.10.2 Impact Analysis. The potential noise and vibration impacts associated with construction and operation of Segment 9 are generally analogous to those described in Section 4.12.6.3.2 for Segment 4. Construction methods and expected noise levels are generally the same as those for Segment 4. The proposed Whirlwind Substation is located in a rural, remote area of Kern County with no sensitive receptors near the three alternative sites under consideration. The Vincent, Gould, Antelope, and Mira Loma substations have residential areas nearby; Mira Loma Substation also has a school nearby. The location of these receptors near these substations can be found on Figure P.1-73. Following is a brief description of the possible impact near these substations:

- **Vincent Substation.** The closest residence to this substation is currently 1,180 feet away. After expansion the closest residence would be approximately 380 feet where the substation generated noise level would be about 45 dBA. The noise from SR 14 at this residence is about 54 dBA.
- **Gould Substation.** The closest homes are approximately 260 feet away where the substation generated noise level is about 42 dBA.
- **Antelope Substation.** The sensitive receptor nearest to the edge of the expansion area would be located approximately 400 feet to the north. However, the new equipment that would have the potential to generate noise would be located substantially further away from the edge of the expansion area. Its location would be determined during final engineering, and noise impacts are expected to be less than significant.
- **Mira Loma Substation.** Homes at 2,500 feet away receive noise at a level of 45 dBA, mostly from street traffic, while a school at 1,200 feet away is predicted to receive levels of 40 dBA.

The proposed modifications to the Gould, Mesa, and Mira Loma substations would not involve the addition of noise emitting equipment, and therefore would not be expected to affect existing offsite noise levels. With implementation of APMs, all potential impacts would be expected to be less than significant.

4.12.6.10.3 Mitigation Measures. With implementation of APMs, which have been incorporated into the TRTP Project design, potential noise impacts would be expected to be minimized to less-than-significant levels and no mitigation measures are needed.

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4.12.6.10.4 Impact Significance After Mitigation Measure Application. TRTP related noise impacts would be less than significant.

4.12.6.11 Segment 10

4.12.6.11.1 Environmental Setting. This segment begins at Segment 10 (S10) MP 0 at the previously permitted Windhub Substation located in Kern County, southeast of Tehachapi, passes through vacant desert land and ends at S10 MP 16.8 at the Whirlwind Substation, which is northwest of Lancaster.⁴

4.12.6.11.2 Impact Analysis. The potential noise and vibration impacts associated with construction and operation of Segment 10 (including Alternatives 10A and 10B) are generally analogous to those described in Section 4.12.6.3.2 for Segment 4. The Segment 10 T/L route traverses desert and limited and/or fallow farmland with no sensitive receptors adjacent to the T/L route. Construction methods and operational phase characteristics are essentially the same as those for Segment 4. With implementation of APMs, all potential impacts would be less than significant.

4.12.6.11.3 Mitigation Measures. With implementation of APMs which have been incorporated into the TRTP Project design, all potential noise impacts would be expected to be minimized to less-than-significant levels and no mitigation measures are needed.

4.12.6.11.4 Impact Significance After Mitigation Measure Application. TRTP related noise impacts would be less than significant.

4.12.6.12 Segment 11

4.12.6.12.1 Environmental Setting. This segment begins at S11 MP 0 at the Vincent Substation and then passes through mountains within the ANF. There are some homes close to the Gould Substation at S11 MP 19 and the proposed T/L then traverses hilly terrain to S11 MP 25.2. From S11 MP 25.2 to 26.7 the route traverses an area where there are some homes and a school. The area from S11 MP 26.7 to 27.6, at the Goodrich Substation, is close to homes and a school. From S11 MP 27.6 to 36.2, at the (Mesa Substation), there are multiple homes, a community center, and a few schools near the Segment 11 T/L route.

4.12.6.12.2 Impact Analysis. The potential noise and vibration impacts associated with construction and operation of Segment 11 are generally analogous to those described in Section 4.12.6.3.2 for Segment 4. The Segment 11 T/L route involves an existing T/L corridor

⁴ The Windhub Substation was included as “Substation One” in SCE’s proposed Antelope Transmission Project Segments 2 & 3 application (A.04-12-008), and approved in Decision 07-03-045.

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and traverses primarily mountainous ANF lands as well as residential areas near its southern end. Construction methods and operational phase characteristics are essentially the same as those for Segment 4. With implementation of APMs, potential impacts would be expected to be less than significant.

4.12.6.12.3 Mitigation Measures. With implementation of APMs which have been incorporated into the TRTP Project design, potential noise impacts would be expected to be minimized to less-than-significant levels and no mitigation measures are needed.

4.12.6.12.4 Impact Significance after Mitigation Measure Application. TRTP related noise impacts would be less than significant.

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