4.13 Noise and Vibration

4.13.1 Introduction

This section describes the regulatory setting and existing noise environment in the vicinity of the Proposed Project, reasonably foreseeable distribution components, and alternatives; identifies sensitive noise and vibration receptors that could be affected by proposed activities; and evaluates the potential noise and vibration impacts of the Proposed Project, reasonably foreseeable distribution components, and alternatives.

4.13.2 Overview of Noise and Vibration Concepts and Terminology

Noise

In the CEQA context, noise can be defined as unwanted sound. Sound is characterized by various parameters, including the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude). In particular, the sound pressure level is the most common descriptor used to characterize the loudness of an ambient sound level, or sound intensity. The decibel (dB) scale is used to quantify sound intensity. Because sound pressure can vary enormously within the range of human hearing, a logarithmic scale is used to keep sound intensity numbers at a convenient and manageable level. The human ear is not equally sensitive to all frequencies in the spectrum, so noise measurements are weighted more heavily for frequencies to which humans are sensitive, creating the A-weighted decibel (dBA) scale. Different types of measurements are used to characterize the time-varying nature of sound. Below are brief definitions of these measurements and other terminology used in this section.

- *Decibel (dB)* is a measure of sound on a logarithmic scale that indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The reference pressure is 20 micro pascals.

- *A-weighted decibel (dBA)* is an overall frequency weighted sound level in decibels that approximates the frequency response of the human ear.

- *Maximum sound level (Lmax)* is the maximum sound level measured during a given measurement period.

- *Minimum sound level (Lmin)* is the minimum sound level measured during a given measurement period.

- *Equivalent sound level (Leq)* is the equivalent steady-state sound level that, in a given period, would contain the same acoustical energy as a time-varying sound level during that same period.

- *Day night sound level (Ldn)* is the energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the A-weighted sound levels during the period from 10:00 p.m. to 7:00 a.m. (typical sleeping hours). This weighting adjustment reflects the elevated sensitivity of individuals to ambient sound during nighttime hours.

- *Community noise equivalent level (CNEL)* is the energy average of the A-weighted sound levels during a 24-hour period, with 5 dB added to the A-weighted sound levels between 7:00 p.m. and 10:00 p.m. and 10 dB added to the A-weighted sound levels between 10:00 p.m. and 7:00 a.m.

In general, human sound perception is such that a change in sound level of 3 dB is barely noticeable, a change of 5 dB is clearly noticeable, and a change of 10 dB is perceived as doubling or halving the sound level. Table 4.13-1 presents approximate noise levels for common noise sources.

Table 4.13-1. Examples of Common Noise Levels

Common Outdoor Activities	Noise Level (dBA)
Jet flyover at 1,000 feet	110
Gas lawnmower at 3 feet	100
Diesel truck at 50 feet traveling 50 miles per hour	90
Noisy urban area, daytime	80
Gas lawnmower at 100 feet, commercial area	70
Heavy traffic at 300 feet	60
Quiet urban area, daytime	50
Quiet urban area, nighttime	40
Quiet suburban area, nighttime	30
Quiet rural area, nighttime	20

Notes: dBA = A-weighted decibel

Source: Caltrans 2013

Corona Noise

Corona generates audible noise during operation of high-voltage transmission lines. Under certain conditions, the localized electric field near an energized conductor can be sufficiently concentrated to produce a tiny electric discharge that can ionize air close to the conductors. This partial discharge of electrical energy is called corona discharge, or corona. Several factors, including conductor voltage, shape and diameter, and surface irregularities such as scratches, nicks, dust, or water drops, can affect a conductor's electrical surface gradient and its corona performance. Corona is the physical manifestation of energy loss, and can transform discharge energy into very small amounts of sound, radio noise, heat, and chemical reactions of the air components (NEET West and PG&E 2017).

Transmission lines can generate a small amount of sound energy during corona activity. This audible noise from the line can barely be heard in fair weather conditions on higher voltage lines. During wet weather conditions (such as rain or fog), water drops collect on the conductor and increase corona activity so that a crackling or humming sound may be heard near the line. This noise is caused by small electrical discharges from the water drops. However, during heavy rain, the ambient noise generated by the falling raindrops will typically be greater than the noise generated by corona. Corona noise is generally more noticeable on high-voltage lines, and is not a design issue for power lines rated at 230 kV and lower (NEET West and PG&E 2017).

Vibration

Ground-borne vibration propagates from the source through the ground to adjacent buildings by surface waves. Vibration may be composed of a single pulse, a series of pulses, or a continuous oscillatory motion. The frequency of a vibrating object describes how rapidly it is oscillating, measured in Hertz (Hz). Most environmental vibrations consist of a composite, or "spectrum," of many frequencies. The normal frequency range of most ground-borne vibrations that can be felt generally starts from a low frequency of less than 1 Hz to a high of about 200 Hz. Vibration information for this analysis has been described in terms of the peak particle velocity (PPV), measured in inches per second, or of the vibration level measured with respect to root-mean-square vibration velocity in decibels (VdB), with a reference quantity of 1 micro-inch per second.

Vibration energy dissipates as it travels through the ground, causing the vibration amplitude to decrease with distance away from the source. High-frequency vibrations reduce much more rapidly than do those characterized by low frequencies, so that in a far-field zone distant from a source, the vibrations with lower frequency amplitudes tend to dominate. Soil properties also affect the propagation of vibration. When ground-borne vibration interacts with a building, a ground-to-foundation coupling loss usually results but the vibration also can be amplified by the structural resonances of the walls and floors. Vibration in buildings is typically perceived as rattling of windows, shaking of loose items, or the motion of building surfaces. In some cases, the vibration of building surfaces also can be radiated as sound and heard as a low-frequency rumbling noise, known as ground-borne noise.

Ground-borne vibration is generally limited to areas within a few hundred feet of certain types of industrial operations and construction/demolition activities, such as pile driving. Road vehicles rarely create enough ground-borne vibration amplitude to be perceptible to humans unless the receiver is in immediate proximity to the source or the road surface is poorly maintained and has potholes or bumps. Human sensitivity to vibration varies by frequency and by receiver. Generally, people are more sensitive to low-frequency vibration. Human annoyance also is related to the number and duration of events; the more events or the greater the duration, the more annoying it becomes.

4.13.3 Regulatory Setting

Federal Laws, Regulations, and Policies

No federal laws, regulations, or policies for construction-related noise and vibration apply to the Proposed Project, reasonably foreseeable distribution components, and alternatives. However,

the Federal Transit Administration (FTA) guidelines for construction vibration in the Transit Noise and Vibration Impact Assessment Manual (FTA 2018) have been used to analyze the Project's potential noise impacts. These guidelines state that for evaluating daytime construction noise impacts in outdoor areas, a noise threshold of 90 dBA Leq should be used for residential areas (FTA 2018). For construction vibration impacts, the FTA guidelines use an annoyance threshold of 80 VdB for infrequent events (fewer than 30 vibration events per day) and a damage threshold of 0.2 in/sec PPV for non-engineered timber and masonry structures (FTA 2018).

State Laws, Regulations, and Policies

California Public Utilities Commission General Order 131-D

The CPUC has sole and exclusive jurisdiction over the siting and design of the Proposed Project and alternatives because it authorizes the construction, operation, and maintenance of investor-owned public utility facilities. CPUC G.O. 131-D explains that local land use and zoning regulations and discretionary permitting would not apply to the Project or alternatives (i.e., they would not require any land use approval that would involve a discretionary decision to be made by a local agency such as a planning commission, city council, or county board of supervisors). As such, the state and local policies and ordinances that would otherwise be relevant to the Project and alternatives are described in Appendix A of this DEIR for informational purposes only. G.O. 131-D, Section XIV.B, does require that in locating a project "the public utility shall consult with local agencies regarding land use matters."

State Land Use Compatibility Standards for Community Noise Exposure

California requires each local government entity to implement a noise element as part of its general plan and sets compatibility standards for land uses as a function of community noise exposure. The state land use compatibility guidelines (contained in California Administrative Code, Title 4) are listed in Table 4.13-2. In areas where the noise environment is "acceptable," new development may be permitted without requiring noise mitigation. For areas where the noise environment is "unacceptable," new development in compliance with noise policies is usually not feasible. In order for a location to be compatible for utilities, the community noise exposure level should not exceed 75 dB.

Table 4.13-2. State Land Use Compatibility Standards for Community Noise Environment

Land Use Category	Community Noise Exposure - L_{dn} or CNEL (dB)						
	55	60	65	70	75	80	
Residential – Low Density Single Family, Duplex, Mobile Homes							
Residential – Multi-Family							
Transient Lodging – Motels, Hotels							
Schools, Libraries, Churches, Hospitals, Nursing Homes							
Auditoriums, Concert Halls, Amphitheaters							
Sports Arenas, Outdoor Spectator Sports							
Playgrounds, Neighborhood Parks							
Golf Courses, Riding Stables, Water Recreation, Cemeteries							
Office Buildings, Business Commercial and Professional							
Industrial, Manufacturing, Utilities, Agriculture							

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.
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 are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.
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.
Clearly Unacceptable:	New construction or development generally should not be undertaken.

Source: California Governor's Office of Planning and Research 2017

4.13.4 Environmental Setting

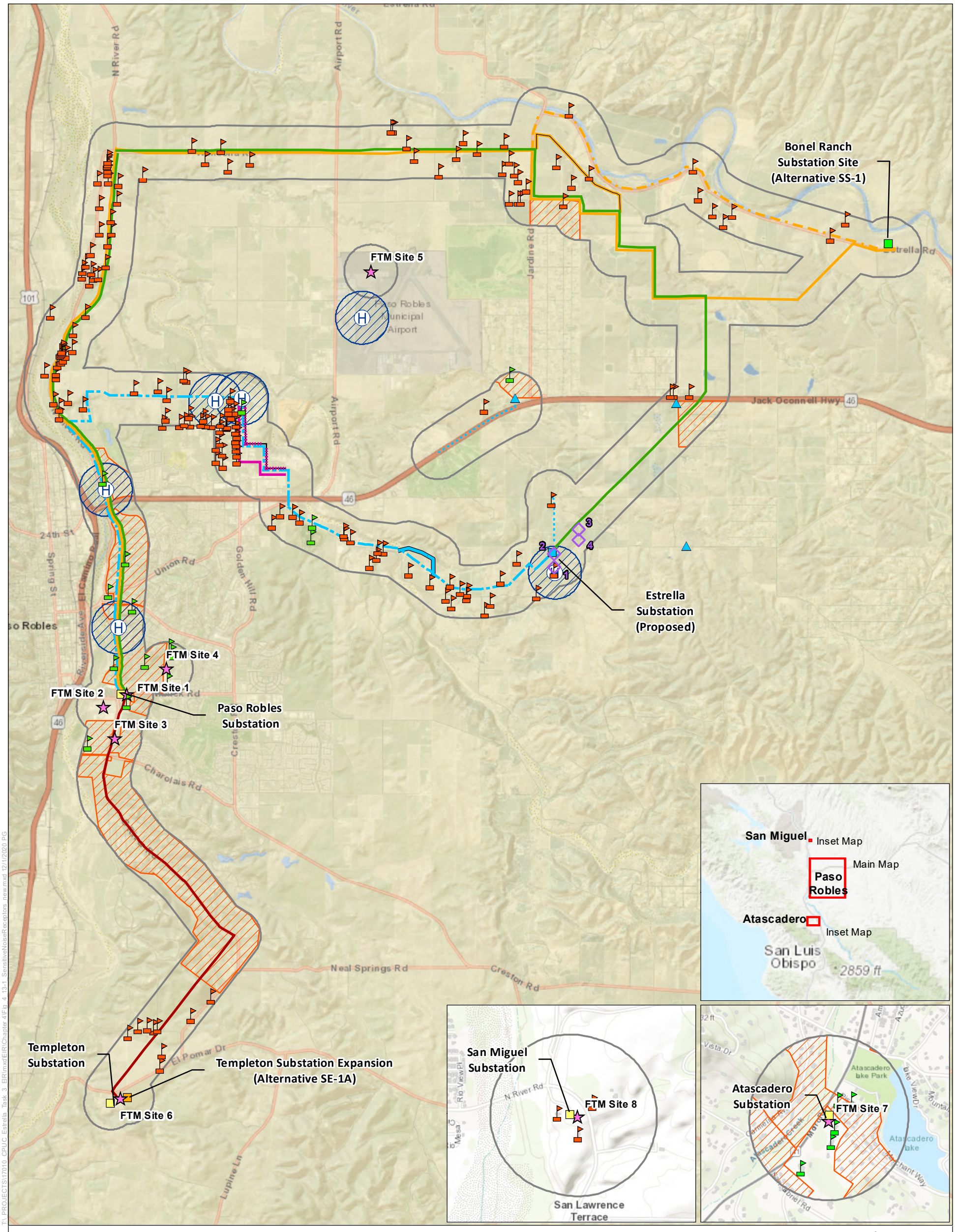
Existing Regional Noise and Land Uses

The Proposed Project, reasonably foreseeable distribution components, and alternatives are located within the northern portion of San Luis Obispo County, including portions of Paso Robles. Contributors to the noise environment primarily consist of traffic along highways and city roads, airplane noise, sounds emanating from neighborhoods, and naturally occurring sounds (e.g., wind). Land uses within and around the proposed Estrella Substation site are mostly agricultural (i.e., vineyards). Land uses within and along the proposed 70 kV power line route include agricultural and residential, as well as industrial (Golden Hill Industrial Park) and public open space and recreation (e.g., Barney Schwartz Park, Cava Robles RV Resort).

In general, the reasonably foreseeable distribution components and many of the alternatives pass through similar or more rural areas. The southern reasonably foreseeable new distribution line segment would follow an existing road through agricultural fields north of the Estrella Substation site, while the northern reasonably foreseeable new distribution line segment would follow the SR 46 right-of-way. The additional 21/12 kV pad-mounted transformers would be installed along existing roads in relatively rural areas of San Luis Obispo County. Both of the alternative substation sites (Alternative SS-1 and SE-1A) are located in rural parts of the County on parcels currently being used for agricultural purposes. Alternatives PLR-1A and PLR-1C would both route the 70 kV power line through rural and agricultural areas east and north of Paso Robles. Alternative SE-PLR-2 would connect the substation under Alternative SE-1A to Paso Robles Substation and would pass through agricultural, rural residential, and urban areas. Several of the example FTM battery storage sites considered as part of the DEIR analysis for the purposes of discussion under Alternative BS-2, would be located in residential and commercial areas of Paso Robles (i.e., FTM Sites 1-4); while the remaining sites would be located in more rural areas adjacent to the CAL FIRE Air Attack Base (FTM Site 5) and area substations (FTM Sites 6-8) (note: FTM Site 7 is located within the City of Atascadero and is close to an existing church).

Baseline Noise Survey

As described in the PEA, SWCA Environmental Consultants conducted a community noise survey to measure background ambient noise levels at the proposed Estrella Substation site. The survey measured existing noise levels at roughly each corner of the Estrella Substation study area. The noise monitoring locations are shown in Figure 4.13-1. Table 4.13-3 provides a summary of the sound measurement data obtained from the noise survey, which the analysis uses as the baseline noise levels for the substation site.



Proposed Project

- Estrella Substation
- 70kV Route
- 70 kV Minor Route Variation 1

Reasonably Forseeable Distribution Components

- New Distribution Line Segments
- Additional 21/12 kV Pad-Mounted Transformer

Existing Infrastructure

- Existing Substations

Project Alternatives

- Front-of-the-Meter (FTM) Battery Storage Sites (Alternative BS-2)
- Alternative SS-1: Bonel Ranch Substation Site
- Alternative SE-1A: Templeton Substation Expansion - 230/70 kV Substation
- Alternative PLR-1A: Estrella Route to Estrella
- Alternative PLR-1C: Estrella Route to Bonel Ranch, Option 1
- Alternative PLR-1C: Minor Route Variation 1
- Alternative PLR-1C: Minor Route Variation 2
- Alternative PLR-3A: Strategic Undergrounding, Option 1
- Alternative PLR-3B: Strategic Undergrounding, Option 2
- Alternative SE-PLR-2: Templeton-Paso South River Road Route

Sensitive Receptor Features

- Non-residence Sensitive Receptor
- Noise Level Monitoring Location
- Residence
- Residential Area (Approximate)
- Helicopter Landing Zones (HLZ)
- HLZ dB Theshold Distance (1,427 feet)*
- dB Theshold Distance (1,427 feet)

*threshold does not include helicopter flight paths

Source: Paso Robles General Plan 2018, PG&E 2019, SCWA 2017

Note: The route variations shown are offset and simplified in order to display the alignments of the alternative routes that may overlap in places

N

0 1 Miles

Horizon WATER and ENVIRONMENT

Figure 4.13-1
Sensitive Noise Receptors

Estrella Substation and Paso Robles Area Reinforcement Project

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Table 4.13-3. Summary of Ambient Sound Measurements

Source	L_{eq}	CNEL	L_{dn}	L_{day} 7 a.m. – 10 p.m.	L_{night} 10 p.m. – 7 a.m.
Location 1[1]	48.4	53.3	52.8	49.6	45.5
Location 2	47.6	50.9	50.0	49.3	41.0
Location 3	45.7	50.9	50.4	46.7	43.4
Location 4	50.5	53.7	53.2	52.1	44.5
Average Baseline	48.1	52.2	51.6	49.4	43.6
Maximum Baseline	50.5	53.7	53.2	52.1	45.5

Notes:

L_{eq} = equivalent sound level; CNEL = community noise equivalent level; L_{dn} = day night sound level; L_{day} = day sound level; L_{night} = night sound level

1. Location 1 is the approximate location of the nearest residence to Estrella Substation.

Source: NEET West and PG&E 2017

As shown in Table 4.13-3, in general, noise levels observed during the survey were relatively low, with a maximum baseline CNEL of 53.7 dBA, which is roughly equivalent to a quiet urban area in the daytime (see Table 4.13-1). However, nighttime ambient noise levels at Location 1 slightly exceed the County of San Luis Obispo's hourly nighttime exterior noise standard of 45 dBA; see Section 4.13.3 and Appendix A of this DEIR for further discussion/information. The baseline noise survey measurements omit several sources of ambient noise resulting from agricultural activities (e.g., farm equipment used during harvest season, pesticide-application machinery, and low-flying fire-fighting aircraft) because they occur only at specific times of the year. During these times of the year, ambient sound levels would be higher than those shown in Table 4.13-3. Baseline noise surveys were not conducted for the Proposed Project's 70 kV power line alignment or the reasonably foreseeable distribution components and alternatives areas because, unlike the substation, the power lines and distribution components are not expected to add any noise beyond corona noise, which would not be perceptible above the noise of the existing 500 kV and 230 kV transmission lines; in addition, no sensitive receptors would be permanently sited at the transmission lines. While not surveyed, it can reasonably be assumed that portions of the proposed sites and alignments close to SR 46 and busy, urban areas of Paso Robles may have higher levels of baseline noise than those measured at the Estrella Substation site. Portions of the 70 kV power line alignment farther away from SR46, and/or in less urbanized areas of Paso Robles, would be expected to have relatively low noise levels and a maximum baseline CNEL similar to that of the Estrella Substation site (see Table 4.13-3).

Highway 101 is located roughly 0.25 mile to the west of the reconductoring segment for the Proposed Project and Alternatives PLR-1A and PLR-1C. The northernmost portion of the Proposed Project's 70 kV power line route also would be located approximately 1 mile southwest of the Paso Robles Municipal Airport in Paso Robles. The alignment crosses into the Safety Zone 6, 5, 4, and 3 boundaries of the Paso Robles Municipal Airport Land Use Plan (ALUP; County of San Luis Obispo Airport Land Use Commission 1977). According to Figure 2 of the ALUP, which depicts airport noise contours, a portion of the power line route falls within the 55

dB noise contour at ground level, which prohibits permitting new land uses near the airport that would expose residents or workers to airport noise greater than 55 dB.

Sensitive Receptors

Noise-sensitive receptors generally are defined as locations where people reside or where the presence of unwanted sound may adversely affect the existing land use. Typically, noise-sensitive land uses include residences, hospitals, places of worship, libraries, performance spaces, offices, and schools, as well as nature and wildlife preserves, recreational areas, and parks.

As described in the PEA and shown in Figure 4.13-1, numerous residences are located in proximity to the Proposed Project's new 70 kV power line segment. The nearest of these are two residences within 20 feet of the alignment, with another two within 100 feet (NEET West and PG&E 2017). The nearest residence to the Estrella Substation site is approximately 265 feet southwest of the site (NEET West and PG&E 2017). Because the Proposed Project's 70 kV reconductoring segment passes through an existing residential area of Paso Robles, the reconductoring segment would be near numerous sensitive receptors (i.e., residences) . Additionally, as noted above, the Proposed Project's new 70 kV power line segment would pass adjacent to Barney Schwartz Park and the Paso Robles Sports Club (both located along Union Road), as well as the Cava Robles RV Resort. Based on aerial imagery, the power line would pass approximately 100 feet west of the nearest RV campsite at the Cava Robles RV Resort. No hospitals or schools are located within 0.25 mile of the Proposed Project components, although Tots Landing Daycare is located approximately 265 feet east of the reconductoring segment (NEET West and PG&E 2017). The Grace Baptist Church is located approximately 790 feet east of the reconductoring segment (NEET West and PG&E 2017).

Sensitive receptors in proximity to the reasonably foreseeable distribution components include a residence off of Mill Road. The northern reasonably foreseeable new distribution line segment also would pass by Hunter Ranch Golf Course and would terminate near several residences along Dry Creek Road. As noted above, many of the alternatives would be sited in, or routed through, rural areas but would have some sections that pass through more developed areas, as shown on Figure 4.13-1. The Alternative SS-1 and SE-1A sites are both in rural areas and there are no homes or other sensitive receptors in immediate proximity to the sites. The Alternative PLR-1A and PLR-1C 70 kV alignments would generally pass through rural areas of San Luis Obispo County north of the Paso Robles Airport; however, both alignments would pass close to a number of residences, particularly along Tower Road near the junction with Jardine Road. Like the Proposed Project, the reconductoring segments for Alternatives PLR-1A and PLR-1C would pass through developed areas of Paso Robles, where there are numerous sensitive receptors. Alternative SE-PLR-2 would pass through rural residential areas, including the Santa Ysabel Ranch HOA, as well as residential areas of Paso Robles.

As described in Chapter 3, *Alternatives Description,* potential FTM battery storage sites are identified under Alternative BS-2 for illustrative purposes for this DEIR. Several of these illustrative FTM BESS sites would be located in proximity to residences or other sensitive receptors (see Figure 4.13-1). Specifically, FTM Sites 1-4 would be located in developed areas of Paso Robles, while remaining sites would be in more rural areas (although FTM Site 7 would be located in Atascadero). With the exception of FTM Site 4, which would be located adjacent to the baseball field at Paso Robles High School, none of the FTM sites are located in proximity to schools. As noted above, FTM Site 7 is located next to an existing church.

Airports and Private Airstrips

The northernmost portion of the Proposed Project's new 70 kV power line segment would be located approximately 1 mile southwest of the Paso Robles Municipal Airport. Figure 4.11-3 in Section 4.11, "Land Use and Planning," shows the proximity of the Proposed Project, reasonably foreseeable distribution components, and alternatives to Paso Robles Municipal Airport Land Use Plan safety zones. According to Figure 2 of the ALUP, portions of the Proposed Project's 70 kV power line route, reasonably foreseeable distribution components, and alternatives (Alternatives PLR-1A, PLR-1C, BS-2 [potential FTM Site 5]) would fall within the 55 dB noise contour at ground level (San Luis Obispo County Airport Land Use Commission 2006). Additionally, the Bonel Airport, a small private airport, is located approximately 0.7-mile south of the Alternative SS-1 site and Alternative PLR-1C route.

4.13.5 Impacts Analysis

Criteria for Determining Significance

Based on Appendix G of the CEQA Guidelines, the Proposed Project, reasonably foreseeable distribution components, and alternatives would have a significant effect related to noise if they would meet any of the following conditions:

A. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in a local general plan or noise ordinance or in the applicable standards of other agencies.

B. Generation of excessive ground-borne vibration or ground-borne noise levels.

C. For a project located within the vicinity of a private airstrip or an airport land use plan area, 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?

Methodology

Ground-Level Construction Noise

Potential construction-related noise impacts from the Proposed Project, reasonably foreseeable distribution components, and alternatives were assessed by applying the FTA's Transit Noise and Vibration Impact Assessment methodology (FTA 2018). This methodology assumes that the two loudest pieces of construction equipment would operate as follows:

- equipment operates at full power for a full 1-hour period,
- there are no obstructions to the noise travel paths,
- typical noise levels from construction equipment are used, and
- all pieces of equipment would operate at the center of the project site.

Using these assumptions, the noise levels at specific distances can be obtained using the following equation:

$$L_{eq}(equip) = EL_{50ft} - 20log_{10}(D/50)$$

Where:

L_{eq} (equip) = the noise emission level at the receiver at distance D over 1 hour

EL_{50ft} = noise emission level of a particular piece of equipment at a reference distance of 50 feet

D = the distance from the receiver to the piece of equipment in feet

To add the two loudest pieces of equipment together, the following equation applies:

$$L_{total} = 10\ log_{10}(10^{\frac{L1}{10}} + 10^{\frac{L2}{10}})$$

Where:

L_{total} = the noise emission level of two pieces of equipment combined

L_1 = the noise emission level of equipment type 1

L_2 = the noise emission level of equipment type 2

Noise levels at the Proposed Project's nearest sensitive receptors that would be generated by equipment used during project construction were estimated by using FTA reference guide (FTA 2018).

Vibration Methodology

Potential construction-related vibration impacts from the Proposed Project, reasonably foreseeable distribution components, and alternatives were assessed by applying the FTA's Transit Noise and Vibration Impact Assessment methodology (FTA 2018). For the vibration analysis, the two pieces of equipment anticipated to be the largest sources of vibration were used, along with VdB and PPV values from the FTA guide (FTA 2018). The formulas below were used in calculations relating to vibration-related threshold distances:

$$PPV = PPV_{ref} \times (\frac{25}{D})^{1.5}$$

$$L_v(D) = L_v(25ft.) - 30\log(\frac{D}{25})$$

Where:

PPV = peak particle velocity in in/sec of the equipment adjusted for distance

PPV_{ref} = the reference vibration level in in/sec at 25 feet

L_v = vibration level

D = the distance from the equipment to the receiver

Vibration levels generated by equipment used during project construction at the Proposed Project's nearest sensitive receptors that could be affected were estimated by using the FTA reference guide (FTA 2018).

Helicopter Noise

The use of a helicopter for construction activities or for routine maintenance and inspections was evaluated separately due to the unique nature of helicopters and the noise they generate. The main cause of noise from a helicopter is the rotors. Helicopters at close range dominate the noise environment, and noise from other equipment would be indistinguishable. Helicopter noise increases with airspeed and in high-rate climbs and sharp turns. Helicopter noise was estimated using methodologies consistent with the FAA's AEDT Version 3c with a few modifications due to lack of specific helicopter information such as model, speed, and hover heights available to do more complex noise adjustments (FAA 2020). Noise-Power-Distance (NPD) data were determined using the following equation:

$$L_d = L_{d1} + \frac{(L_{d2} - L_{d1}) \times (\log_{10} d - \log_{10} d_1)}{(\log_{10} d_2 - \log_{10} d_1)}$$

Where:

L_d= Noise Level at distance d (dBA)

L_{d1}= Noise Level at distance d1 (dBA)

L_{d2}= Noise Level at distance d2 (dBA)

d = distance of desired noise level (ft)

d_1 = distance of noise level at distance 1 (ft)

d_2 – distance of noise level at distance 2 (ft)

No adjustments were made for lateral attenuation, source noise, or lateral directivity of the helicopters as adequate information was not readily available to make these adjustments. The noise estimates assumed use of a Sikorsky S70 helicopter, which is a representative helicopter model that can handle the desired maximum external hook payload specified in the Project Description. This assumption is conservative as smaller helicopters may be utilized, which tend to have lower noise estimates.

Operation Noise

With the exception of the proposed Estrella Substation, a qualitative approach was used to analyze potential operational noise impacts from the Proposed Project, reasonably foreseeable distribution components, and alternatives because, unlike the substation, the power lines and distribution components are not expected to add any noise beyond occasional maintenance activities and corona noise, which would not be perceptible above the existing 500 kV and 230 kV transmission lines; in addition, no sensitive receptors would be permanently sited at the transmission lines. The qualitative analysis considered approximate distances to sensitive receptors and information regarding noise generated from typical electric facilities and their maintenance to determine the potential significance of operation-related noise from the Proposed Project. Given that noise attenuates with distance, receptors closer to the Project's operations and maintenance activities would be anticipated to have a greater potential to experience significant noise impacts. The Estrella Substation would have various noise-generating equipment, including the 230/70 kV transformer, and the heating, ventilation, and air condition (HVAC) units at the 70 kV and 230 KV control buildings. The transformers and HVAC units were selected as the loudest pieces of equipment to model (using the equations detailed under "Methodology – Ground-Level Construction Noise") as the equipment generating the most noise. The actual layout of the facility would have structures (including other noise-generating equipment) that would function to block and attenuate sound from other sources that were not considered in the model because specific, detailed information to incorporate them into the model is not readily available at this time and excluding them from the model is conservative. Noise estimates were based on vendor-supplied equipment noise levels and used the methods described in the PEA (see PEA Section 3.12, "Noise") (NEET West and PG&E 2017).

Environmental Impacts

Proposed Project

Impact NOISE-1: Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in a local general plan or noise ordinance or in the applicable standards of other agencies *– Significant and Unavoidable*

Construction

The Proposed Project would generate temporary noise associated with construction activities, which would cease once construction is complete. Specifically, the noise-causing construction activities include operation of heavy construction equipment and trucks, as well as helicopters, during the construction period would generate noise. As described in Chapter 2, *Project Description,* construction of the Estrella Substation requires excavation and grading of the substation site, necessitating a variety of construction equipment that would generate noise. Construction of the 70 kV power line route would require excavation of pole foundations, potential grading and improvement of access roads, use of helicopters for deliveries of materials and installation of poles, and other activities which would generate noise. Table 2-10 in Chapter 2 shows the construction phases associated with the Estrella Substation and 70 kV power line and the equipment required for each phase.

Consistency with Local Noise Ordinances

The CPUC has exclusive authority over the siting of electric transmission facilities; therefore, it is exempt from local land use and zoning regulations, including noise ordinances and standards. Nevertheless, for the purposes of the Proposed Project DEIR's noise impact analysis, construction or operation activities that substantially exceed the noise regulations of San Luis Obispo County and/or City of Paso Robles would constitute a significant impact. As described in Appendix A, construction noise is exempt from the noise standards defined in the San Luis Obispo County Noise Ordinance, provided that such activities take place from 7 a.m. to 9 p.m. Monday through Friday, and 8 a.m. to 5 p.m. Saturday and Sunday. Similarly, Section 21.60.100 of the City of Paso Robles Municipal Code states that construction and demolition activities located within 1,000 feet of noise-sensitive land uses are exempt from the provisions of the Noise chapter provided that they occur during normal daytime hours. Likewise, general land grading and contour activity that uses equipment in such a manner as to be plainly audible at a distance of 50 feet from the building must only operate between the hours of 7 a.m. and 7 p.m. (Section 9.07.030[j] of City of Paso Robles Municipal Code; see Appendix A of this DEIR).

As such, Proposed Project construction activities would not generally be subject to the noise regulations of San Luis Obispo County or the City of Paso Robles. As described in Chapter 2, *Project Description,* construction activities for the Estrella Substation and 70 kV power line would typically occur 6 days per week (Monday through Saturday) throughout the duration of construction. Daily work hours would generally be 10 hours per day with construction typically occurring between 7 a.m. and 5:30 p.m. Occasionally, work may occur during the evening hours for activities such as monitoring the substation curing process, and testing and commissioning the new substation components; however, such activities would not normally generate loud noise. Nighttime work also may be required (e.g., when electrical clearances are available or for

safe completion of a construction procedure). This planned approach would comply with Section 21.60.100 of the City of Paso Robles Municipal Code, which allows for certain construction activities (e.g., concrete pours) outside of 7 a.m. to 7 p.m. with authorization from the City. There is no similar exception for the San Luis Obispo County noise ordinance; thus depending on the actual noise levels of the nighttime work, any nighttime work occurring within unincorporated areas of San Luis Obispo County may be inconsistent with County noise standards (see Appendix A).

Per APM NOI-1, the Applicants would limit grading, scraping, augering, and pole installation to 7 a.m. to 7 p.m. daily. Additionally, under APM AG-1, the Applicants would provide at least 30 days' advance notice of construction activities to all properties within 300 feet of the substation or power line route. The notice would describe where and when construction activity is planned and shall provide contact information for a point of contact for complaints related to construction activities (including noise-related complaints).

Noise Modeling and Relationship to FTA Impact Guidelines

As described above under, "Methodology," estimated construction equipment noise levels, as provided in Table 4.13-4, was determined by using the FTA's Transit Noise and Vibration Impact Assessment methodology. Estimates of noise from the construction of Estrella Substation are based on a roster of the maximum amount of construction equipment used at the station on a given day. Consistent with FTA methodology, the two noisiest pieces of equipment are assumed to be operating in the center of a given construction work area. Typical noise levels were taken from the FTA or FHWA. It was assumed that most construction phases would require use of the two maximum noise generating pieces of equipment (85 dBA) (see Appendix E, Noise and Vibration Analyses).

Table 4.13-4.Estimated Construction Equipment Noise Levels

Construction Phase	Combined Noise at 50 Feet[1] (dBA)	Distance to 90 dBA from Center of Site (feet)
Estrella Substation	88	39.7
70kv Powerline – Reconductoring Segment	88	39.7
70kv Powerline – New Segment	88	39.7

Notes:

dBA = A-weighted decibel

1. Based on the noisiest two pieces of equipment.

As shown in Table 4.13-4, construction noise for the Proposed Project components from the noisiest two pieces of equipment would reach a maximum of 88 dBA at 50 feet. The distance to 90 dBA, which is the FTA's recommended threshold for impacts to noise-sensitive land uses, is roughly 40 feet for all Proposed Project components. Given the proximity of sensitive receptors to the Estrella Substation site (265 feet to nearest residence), the construction activities would not cause substantial noise impacts. Several sensitive receptors are within 40 feet of the new 70 kV power line segment, including numerous homes located along the reconductoring segment.

Residences that are within this distance would be subjected to substantial noise from ground-level construction equipment, albeit for a limited period of time in any one location.

In addition to noise from the ground-level construction activities, sensitive receptors would be exposed to noise from helicopters, which may be used to install poles and replace transmission towers when the use of cranes is not feasible. Table 4.13-5 shows the estimated helicopter noise levels associated with construction of the Proposed Project in terms of the distance to the FTA's 90 dBA threshold.

Table 4.13-5. Helicopter Noise Levels and Distance to Threshold

Helicopter Activity	Distance to 90 dBA (feet)
Approaching landing zone or installation site[1]	1,427
Ground level idling	(Note 2)
Level flight	1,304 (Note 3)

Notes:

dBA = A-weighted decibel

1. Approaching produced higher noise levels than departing, so departing noise levels is not shown.
2. Ground level idling is below 90 dBA at all distances.
3. Appropriate hovering noise data is not readily available and is highly dependent on how close the helicopter is to the ground.

As indicated in Table 4.13-5, helicopters would make a substantial amount of noise such that the noise level would be above 90 dBA within 1,427 feet of a helicopter landing zone or pole or cable installation site. Based on the NPD data, approaching landing zones and/or installation sites would generate the most noise out of the types of helicopter activities that could occur during Proposed Project construction. Thus, all sensitive receptors within 1,427 feet of helicopter landing zones or pole installation sites would be subjected to noise levels exceeding the FTA's recommended significance threshold. Likewise, all sensitive receptors along or within 1,304 feet of the flight path would be subject to level flight noise in excess of 90 dBA. Noise impacts associated with ground-level idling and hovering above ground would be reduced, comparatively. The most severe impacts associated with helicopter activities would be those along the reconductoring segment, where there are numerous residences in close proximity to the existing 70 kV power line and construction work areas.

Measures to Reduce Impacts

As noted above, under APM NOI-1, the Applicants would limit noise-intensive construction activities to the hours of 7 a.m. to 7 p.m. daily. This would limit impacts because individuals have elevated sensitivity to ambient sound during the evening and nighttime hours. Additionally, APM AG-1 would require that the Applicants provide advance notice of construction activities to all properties within 300 feet of the substation or power line route. This measure would

minimize impacts by potentially allowing affected property owners to schedule their activities around the noise-generating construction activities and ensuring that property owners are not caught off-guard by the activities.

Additionally, APM NOI-2 would minimize the noise impacts from ground-level construction equipment. Specifically, APM NOI-2 would require, when feasible: (1) construction equipment use noise reduction devices that are no less effective than those originally installed by the manufacturer; (2) stationary equipment used during construction be located as far as practical from sensitive receptors; and (3) "quiet" equipment (i.e., equipment that incorporates noise control elements into the design) be used during construction when reasonably available. These measures would limit some of the noise associated with ground-level construction activities, but given that the measures would only be implemented "where feasible," they cannot be guaranteed to reduce impacts. Nevertheless, the ground-level construction noise from the Proposed Project would not be significant given: (1) the limited number of noise-sensitive receptors in proximity to much of the Proposed Project; (2) the relatively rapid attenuation of even the loudest pieces of construction equipment with distance from the source, and (3) the impacts would be temporary and occur over a relatively short duration at individual structure locations or segments of the 70 kV power line alignment (as opposed to work occurring along the entire alignment simultaneously).

As indicated above, the helicopter noise would be substantial, particularly for receptors along the reconductoring segment, where there are numerous residences within 50 feet of the potential work areas. There are residences as close as 100 feet to planned helicopter landing zones in this area and helicopters operating above pole installation locations could be as close as about 250 feet to residences (NEET West and PG&E 2017). Although noise impacts from helicopters would be temporary, occur in one location at a time along the linear power line construction area, and local noise regulations allow for construction noise during daytime hours, residences close to the reconductoring segment and along helicopter flight paths would experience significant helicopter noise impacts. To minimize these impacts, **Mitigation Measures NOI-1** and **NOI-2** would be implemented and supersedes APM NOI-1 but retains APM NOI-2, which would require advanced notification of sensitive receptors in areas potentially affected by helicopter noise, identification and use of helicopter flight paths that minimize impacts to sensitive receptors, and siting final helicopter landing zones as far from sensitive receptors as possible. However, even with implementation of this mitigation measure, the impacts from helicopter construction noise would still be significant. No other feasible mitigation is available given that it is necessary to operate helicopters in close proximity to noise-sensitive receptors to construct the Proposed Project.

Conclusion

Overall, the ground-level construction noise impacts are not expected to be significant. The noise from helicopters used in construction would be significant and, even with implementation of Mitigation Measure NOI-1 and NOI-2, the impacts would not be reduced to a less-than-significant level. No other feasible mitigation is available to reduce these impacts. Therefore, this impact would be **significant and unavoidable**.

Mitigation Measure NOI-1: General Construction Noise.

HWT and PG&E shall implement the following procedures for all construction activities:

- Public Notice. Noise-sensitive receptors within 600 feet of work areas shall be provided written notice at least 7 days prior to beginning construction to inform them of the scheduled construction activities and potential noise disruptions. The specific types of noise-sensitive receptors to be notified include residences and officials for schools, places of worship, parks, hospitals, theatres, auditoriums, libraries, and commercial/industrial facilities with noise sensitive instruments. The notice shall describe procedures for submitting any noise complaints during construction, including a phone number for submitting such complaints.

- Mufflers and Maintenance. Construction equipment shall be properly equipped with feasible noise control devices (e.g., mufflers) and properly maintained in good working order.

- Idling. Vehicles and equipment shall only idle when necessary and should be shut off when not in use.

- Stationary Equipment. Stationary equipment (i.e., compressors and generators) shall be positioned as far away from sensitive receptors as practicable, and equipped with engine-housing enclosures.

- Sensitive Periods. To the extent practicable, construction activities that have a high likelihood of resulting in a noise nuisance for residents in the vicinity shall not be scheduled during sensitive morning or evening periods (7:00 am to 9:00 am, and 7:00 pm to 10:00 pm), to limit the potential for noise nuisance. Nighttime work between the hours of 10:00 pm and 7:00 am shall not occur, except when electrical clearances are available or when safe completion of a construction procedure is needed.

- Noise Complaints. A Construction Noise Coordinator shall be designated to be responsible for responding to any local complaints about construction noise. The Construction Noise Coordinator shall determine the likely cause of the complaint and ensure that reasonable adjustments in the work activities are made to address the problem, to the extent possible. The phone number for noise complaints shall be clearly posted at key work areas in public locations, such as at the entrances to staging areas. Noise complaints shall be addressed within 1 week. HWT and/or PG&E shall provide monthly reports to the CPUC that include a record of any complaints received with a description of the likely cause and how the complaint was resolved.

Mitigation Measure NOI- 2: Minimize Noise Impacts from Helicopters.

HWT and PG&E shall implement the following procedures for helicopter activities:

- Public Notice. Residences and places of worship (e.g., The Cove) within 1450 feet from any location where helicopter activities may occur, including flight paths if applicable, shall be provided written notice at least 30 days prior to beginning helicopter activities to inform them of the schedule for helicopter use and potential noise disruptions. Methods for receptors to reduce noise in structures shall be included in the notice (i.e., closing doors and windows facing the alignment). The

notice shall describe procedures for submitting any noise complaints during construction and provide a phone number for submitting such complaints, as required by MM NOI-1.

- Flight Paths. Helicopter flight paths shall be planned along routes that would result in the least noise exposure possible to receptors. If helicopter noise complaints are received, work crews will attempt to adjust the flight paths to reduce noise exposure to the complainant, without substantially increasing noise exposure to other receptors.

- Helicopter Hovering. Light/medium lift helicopters shall not operate closer than 200 feet from any receptors unless actively working at pole locations along the alignment. Helicopters may operate closer than these distances if all affected receptors agree in writing to a shorter distance. Prior to reducing the minimum distance from receptors, PG&E shall provide the CPUC with the names, contact information, and written agreements for all affected persons within the applicable distances. The written agreements shall clearly identify the anticipated helicopter noise levels, daily schedule, and duration of helicopter activities in the vicinity.

- Helicopter Landing Zones. Helicopter landing zones within staging areas shall be positioned as far as possible from receptors. Helicopter landing zones shall not be positioned closer than 1,450 feet from any receptor. Helicopters may land closer than these distances if all affected receptors agree in writing to allow a shorter distance.

Operation and Maintenance

No local land use plans, policies, or regulations requiring discretionary approval would apply to the Proposed Project because, pursuant to GO 131-D, the CPUC has sole and exclusive jurisdiction over the siting and design of such facilities. Additionally, as described in Appendix A, the San Luis Obispo County Noise Ordinance exempts the type of work proposed for this project. The City of Paso Robles exempts the maintenance activity which would be considered construction. Consequently, the Project would not conflict with any applicable standards established in the local general plans and noise ordinances.

As described in the PEA (NEET West and PG&E 2017), the main source of noise at the Estrella Substation during operation would be the stationary electrical equipment. Specifically, the 230/70 kV transformer and the HVAC units at each control building would be the loudest pieces of noise-generating equipment at the substation. Transformer noise generally contains a pure-tone or “hum” component, as well as noise associated with cooling fans and oil pumps that operate periodically. Table 4.13-6 shows the anticipated noise levels associated with equipment at the substation.

Table 4.13-6. Estimated Estrella Substation Equipment Noise Levels

Distance from Source (feet)	230/70 kV Transformer L_{eq} (dBA)	HVAC Unit at 230 kV Substation Control Building L_{eq} (dBA)	HVAC Unit at 70 kV Substation Control Building L_{eq} (dBA)
5	--	70.0	70.0
15	65.0	60.5	60.5
30	59.0	54.4	54.4
60	53.0	48.4	48.4
120	46.9	42.4	42.4
240	40.9	36.4	36.4
480	34.9	30.4	30.4
687	31.8	27.3	27.3[1]
932	29.1[1]	24.6	24.6
960	28.9	24.3	24.3
1,022	28.3	23.8[1]	23.8
2,640 (=0.5 mile)	20.1	15.6	15.6

Notes:

HVAC = Heating, ventilation, and air conditioning; L_{eq} = Equivalent sound level; dBA = A-weighted decibel

[1.] This is the sound level for the source at the nearest residence.

Source: NEET West and PG&E 2017

As shown in Table 4.13-6, the noise from the equipment at the Estrella Substation would attenuate relatively rapidly with increasing distance from the substation. The 230/70 kV transformer would be located approximately 932 feet from the nearest residence, which would experience noise levels at 29.1 dBA (NEET West and PG&E 2017). When combining the transformer noise with the other noise sources at the substation, this equates to 32.0 dBA at the location of the nearest residence (NEET West and PG&E 2017). Further, when considering the existing baseline noise at the nearest residence to the Estrella Substation site (see Table 4.13-3), operation of the substation would result in an increase of 0.1 dBA in the daytime ambient noise and 0.2 dBA in the nighttime ambient noise at this location (NEET West and PG&E 2017).

Given that a 3 dB change in sound level is considered to be barely noticeable, this slight increase in ambient noise would not be significant. Additionally, although the modeled nighttime ambient noise level at Location 1 (nearest residence to the substation) of 45.7 dBA (NEET West and PG&E 2017) would exceed the County of San Luis Obispo's nighttime hourly exterior noise standard of 45 dB, the ambient noise at this location already exceeds the County's noise standard under existing conditions (see Table 4.13-3). Despite this standard, the County's General Plan Noise Element and noise ordinance provide for an exception for noise from the County's existing electrical substations and allows a higher nighttime standard of 50 dB (see

Appendix A). Therefore, the operational noise from the equipment at the Estrella Substation would not be significant.

The Proposed Project's 70 kV power line would not have any moving parts and thus would not include equipment that would generate mechanical noise. As described in Section 4.13.2, transmission lines can sometimes generate corona noise, which is produced when the localized electric field near an energized conductor is sufficiently concentrated such as to produce a tiny electric discharge that can ionize air close to the conductors. Transmission lines can generate a small amount of sound energy during corona activity, which is increased during wet weather conditions. Corona noise from the Proposed Project's 70 kV power line was a concern raised during the scoping period by several commenters. However, corona noise is generally more noticeable on high-voltage lines, and is not a design issue for power lines rated at 230 kV and lower (NEET West and PG&E 2017). Therefore, any noise generated during operation of the 70 kV power line should not be substantial.

Other operation and maintenance-related activities associated with the Proposed Project would generate minor and infrequent noise. As described in Chapter 2, *Project Description*, monthly inspections would be performed at the Estrella Substation and annual inspections would be performed on the power line. Maintenance and repairs of the Proposed Project facilities and equipment would be conducted on an as-needed basis. Noise from these activities would primarily be related to vehicles used to access the substation or power line for inspections or maintenance as well as any equipment that could be used to conduct needed repairs or maintenance, and helicopters that may be used during inspections of the power line. Given the infrequent nature of these activities, the noise impacts would be less than significant. Overall, the operational noise impacts from the Proposed Project would be **less than significant.**

Impact NOISE-2: Generation of excessive ground-borne vibration or ground-borne noise levels – *Less than Significant*

Excessive ground-borne vibration or ground-borne noise levels are considered to be vibration that may result in cosmetic or structural damage to a nearby sensitive receptors. The CPUC does not have a specific vibration threshold for cosmetic or structural damage; FTA standards were used because equipment analyzed by FTA would be similar to equipment used for construction of the Proposed Project. Ground-borne vibration and noise could occur during construction of the Proposed Project due to use of earth-moving equipment. Blasting or pile-driving activities are not anticipated to be necessary during construction of the Estrella Substation and 70 kV power line. Under CEQA, excessive ground-borne vibration or noise levels would be that which may result in substantial annoyance or in cosmetic or structural damage to a nearby sensitive receptors. As described in Section 4.13.2, the FTA guidelines use an annoyance threshold of 80 VdB for infrequent events (fewer than 30 vibration events per day) and a damage threshold of 0.2 in/sec PPV for non-engineered timber and masonry structures (FTA 2018). Table 4.13-7 shows estimated vibration levels from Proposed Project construction in relation to the FTA thresholds, as calculated using the equations provided in "Methodology" above.

Table 4.13-7. Estimated Ground-borne Vibration from Proposed Project Construction Equipment

Equipment	Ground-Borne Vibration at 25 feet (inches/second)	Distance to FTA Structural Damage Threshold of 0.2 inches/second (feet)	Ground-Borne Vibration at 25 feet (VdB)	Distance to FTA Annoyance Threshold of 80 VdB (feet)
Vibratory Roller[1, 2]	0.21	25.8	94.0	73.2
Bulldozer or Drilling	0.09	14.6	87.0	42.8

Notes:

FTA = Federal Transit Administration; VdB = vibration velocity in decibels

1. This equipment would only be used for construction of the Estrella Substation.
2. The analysis assumed that the equipment with the greatest vibration potential would have vibration sound levels similar to those of a vibratory roller.

Source: FTA 2006

As shown in Table 4.13-7, use of certain equipment during construction of the Estrella Substation would create ground-borne vibration that would exceed FTA's recommended thresholds in close proximity to the activities. At 25 feet, the vibratory roller, which is conservatively assumed to be representative of the most vibration-inducing equipment used in construction of the substation, would generate a PPV of 0.21 inches/second, or 94.0 VdB. The vibration from this piece of equipment would attenuate to the level of the FTA threshold for damage to buildings at 25.8 feet, and the FTA threshold for annoyance at 73.2 feet.

Given that there are no buildings within 26 feet of the proposed Estrella Substation site, there would be no potential for existing buildings to be damaged due to the ground-borne vibration associated with construction activities. Likewise, no people would be present within 74 feet of the construction site that could be annoyed due to the activities. Additionally, the vibration from the construction activities would be temporary and would only occur during daytime hours when residents are less sensitive to vibration and less likely to be home. Ground-borne vibration generated during power line construction would generally be less severe than the substation construction, where the majority of the earth-moving activities would occur. While the 70 kV power line construction would involve some grading for site work area preparation and use of a drill for pole installation/construction, these activities would be temporary and the vibration generated would not reasonably affect any nearby structures. Therefore, overall, the impacts from ground-borne vibration would be **less than significant.**

Impact NOISE-3: For a Project Located Within the Vicinity of a Private Airstrip or an Airport Land Use Plan Area, 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 – *Less than Significant.*

Outside of using the Paso Robles Airport as a helicopter landing site, the construction of the Estrella Substation would occur at a distance greater than 2 miles from a public airport. The use of the airport by helicopters is already considered in its airport plan. Once constructed, the Proposed Project would be operated remotely and would only be inspected/maintained on an infrequent basis. As such, even if located within close proximity to the Paso Robles Municipal Airport and within the 55 dBA contour from the ALUP, this would not expose persons to excessive noise associated with the airports and therefore is compatible with the ALUP. Thus, the impacts would **be less than significant.**

Reasonably Foreseeable Distribution Components and Ultimate Substation Buildout

The reasonably foreseeable distribution components would include: installing a 70/21 kV transformer within the Estrella Substation; constructing approximately 1.6 miles of new distribution line; reconductoring approximately 8 miles of existing distribution line; and installing three additional 21/12 kV pad-mounted transformers (see Chapter 2, *Project Description*). In general, construction/installation of these facilities would be a substantially smaller project than the Proposed Project. Construction of the reasonably foreseeable distribution components would require similar equipment to the Proposed Project construction, but generally the intensity and duration of the activities would be substantially reduced. As such, the activities would generate less noise.

The ultimate buildout of Estrella Substation is projected to include constructing an additional 230 kV interconnection between the 230 kV substation and the adjacent 230 kV transmission line; an additional 230/70 kV transformer with associated breakers and switches; and up to three additional 70/21 kV transformers with associated 70 kV breakers, 21 kV breakers, and switches. Ultimate substation buildout also would support installation of additional distribution feeders and/or 70 kV power lines; however, the routes of these lines are not known and thus any impacts associated with the lines are speculative and not evaluated in this DEIR. Similar to the distribution components, construction/installation of the ultimate substation buildout facilities would be a smaller project than the Proposed Project. Construction for ultimate substation buildout would require similar methods, and therefore similar equipment, to the Proposed Project. Generally, the intensity and duration of the activities is expected to be reduced as compared with the Proposed Project.

As described in Impact NOI-1, construction activities are exempt from the County of San Luis Obispo and City of Paso Robles noise regulations provided that they occur during normal daytime hours. There is one house adjacent to the southern reasonably foreseeable distribution line segment, which would be installed along the existing road through agricultural parcels north of Estrella Substation (see Figure 2-10 in Chapter 2, *Project Description*). It is possible that noise levels at this residence could exceed 90 dBA during the peak construction activities along this portion of the line segment; however, due to the temporary nature of construction, the effects

are not considered significant. Additionally, per Mitigation Measure NOI-1, the Applicants would provide advanced notification to the owner of this residence and other property owners of the scheduled activities. Further, APM NOI-2 and Mitigation Measure NOI-1 would require implementation of practices that minimize construction-related noise, such as mandating feasible noise control devices (e.g., mufflers), prohibiting idling, and avoiding sensitive periods for noise-making equipment and/or worker response to noise complaints. Use of helicopters would not be required for construction of the reasonably foreseeable distribution components. Equipment and facilities associated with ultimate substation buildout would primarily be placed within the fence line of the already-constructed Estrella Substation. Construction of facilities inside the Estrella Substation would not expose the residence to the southwest of the substation site to substantial noise. Sensitive receptors in proximity to the northern reasonably foreseeable distribution line segment (e.g., Hunter Ranch Golf Course) would be subjected to some noise from construction of the reasonably foreseeable distribution components, but this noise (1) would be temporary, (2) would occur during daytime hours, and (3) would occur in an area of high existing ambient noise (i.e., cars and trucks traveling on SR 46).

As described in the PEA, the 70/21 kV transformer would be the primary noise-generating equipment at the Estrella Substation associated with the reasonably foreseeable distribution components. With all fans in operation, the 70/21 kV transformer would generate approximately 64 dBA of noise at 3 feet, with the sound level decreasing as it propagates away from the source due to attenuation (NEET West and PG&E 2017). The 70/21 kV transformer would be located approximately 560 feet from the nearest residence at the south end of Estrella Substation. Even when combining the noise from the 70/21 kV transformer with other substation and ambient noise, there would essentially be no audible increase in noise at this residence. As discussed under Impact NOI-1, although predicted noise in this area would exceed the County's hourly nighttime exterior noise standard, this standard is exceeded under existing conditions and a higher standard is allowed for electrical substations. The additional 70/21 kV transformers installed as part of ultimate substation buildout would generate similar noise, while an additional 230/70 kV transformer would generate noise similar to that described for the Proposed Project (see Impact NOI-1). Therefore, overall, impacts under significance criterion A would be **less than significant.**

Construction of the reasonably foreseeable distribution components would generate some ground-borne vibration associated with grading and minor excavation for installation of new distribution line poles. Installation of the 70/21 kV facilities inside the Estrella Substation would not require any new ground disturbance outside the existing substation fence line. Likewise, ultimate substation buildout would require some ground disturbance for constructing the equipment foundations and substation wiring, but this would primarily occur within the fence line of the already-constructed Estrella Substation (construction of an additional 230 kV interconnection would occur adjacent to the substation). Because construction of the reasonably foreseeable distribution components and ultimate substation buildout is less intensive than the Proposed Project's construction activities, the impacts from ground-borne vibration would not be substantial and would not result in damage to existing structures or annoyance of persons. Operation and maintenance of the reasonably foreseeable distribution components and ultimate substation buildout would be limited to infrequent inspections and as-needed maintenance and repairs by small teams. Otherwise, the distribution components and infrastructure for ultimate substation buildout would be operated remotely. Therefore,

substantial vibration-related impacts would not occur during the operation phase. As a result, impacts under significance criterion B would be **less than significant.**

Portions of the reasonably foreseeable distribution components would be installed within the ALUP area for the Paso Robles Municipal Airport, as shown in Figure 4.11-3 in Section 4.11, "Land Use and Planning." The Estrella Substation would be located outside the ALUP area, and thus ultimate substation buildout activities would take place outside of this area. Once constructed, the reasonably foreseeable distribution components would be operated remotely and would be inspected/maintained on an infrequent basis. As such, these facilities would not expose persons to excessive noise associated with the airports and therefore are compatible with the ALUP. Therefore, impacts under significance criterion C would be **less than significant.**

Alternatives

No Project Alternative

Under the No Project Alternative, no noise impacts would occur. No new substation or new/reconductored power line would be constructed; therefore, there would be no potential for generation of substantial noise during construction or operation. Likewise, no ground-borne vibration or noise would be generated during ground-disturbing activities, nor would people be exposed to significant noise within the vicinity of a private airstrip, public airport, or within an airport land use plan area. As a result, **no impact** would occur under either significance criteria A, B, or C.

Alternative SS-1: Bonel Ranch Substation Site

Alternative SS-1 would have slightly higher potential for noise generation compared to the proposed Estrella Substation because the substation located at the Bonel Ranch site would require a longer 230 kV interconnection and one additional month of construction. Additionally, due to the site's location adjacent to the Estrella River, it is possible that soft/unsuitable soils could be encountered during construction, necessitating greater use of loaded trucks for excavation, off-haul, and/or import of soils than the Proposed Project. Otherwise, construction activities for Alternative SS-1 would be the same as the proposed Estrella Substation with the same potential for noise generation.

As described in Impact NOI-1, construction activities are exempt from the County of San Luis Obispo noise regulations provided that they occur during normal daytime hours. There are no residences or other sensitive receptors in immediate proximity to the Alternative SS-1 site (nearest residences are over 1,000 feet to the northwest and southeast). Thus, ground-level construction activities (e.g., operation of heavy equipment) would not expose sensitive receptors to excessive levels of noise at this substation location. Further, the Applicants would implement APM NOI-2 to limit noise-intensive construction activities to implement construction noise minimization measures. However, construction of Alternative SS-1 would require the use of helicopters, which have potential to generate substantial noise, resulting in a significant impact. Implementation of **Mitigation Measures NOI-1 and NOI-2** would limit construction hours and reduce potential impacts of helicopter-related noise. Nevertheless, given that helicopter activities would occur in close proximity to sensitive receptors located along the 70kV reconductoring segment, impacts would remain significant and unavoidable.

The substation under Alternative SS-1 would include the same equipment as the proposed Estrella Substation and thus would have the same potential to generate noise during the operation phase. Like the Estrella Substation, the 230/70 kV transformer and HVAC units at the 70 kV and 230 kV substations would be the loudest pieces of equipment. The noise from these facilities would be as shown in Table 4.13-6. Because there are no sensitive receptors in immediate proximity to the Alternative SS-1 site, the noise from this substation equipment would not subject any noise-sensitive receptors to excessive noise. As discussed in Impact NOI-1, other operation and maintenance-related activities associated with the substation would generate minor and infrequent noise. Under Alternative SS-1, monthly inspections of the substation would occur (same as the Proposed Project), and maintenance and repairs would be conducted on an as-needed basis. Noise from these activities would primarily be related to vehicles used to access the substation and any equipment that could be used to conduct needed repairs or maintenance. Given the infrequent nature of these activities, the noise impacts from operation would be less than significant. Nevertheless, as discussed above, because construction-related impacts are not able to be mitigated below appropriate levels of significance, impacts under significance criterion A remain **significant and unavoidable.**

Construction of Alternative SS-1 would have the same potential to generate ground-borne vibration as the proposed Estrella Substation. Estimated vibration levels are the same as shown in Table 4.13-7. Because there are no existing structures within 26 feet of the Alternative SS-1 site, there would be no potential for ground-borne vibration from the construction activities to result in damage to structures. Likewise, there are no occupied structures or other sensitive receptors where people could be substantially annoyed from the ground-borne vibration. Operation and maintenance of the substation under Alternative SS-1 would be limited to infrequent inspections and as-needed maintenance and repairs by small teams. Therefore, substantial vibration-related impacts would not occur during the operation phase. As a result, impacts under significance criterion B would be **less than significant.**

While Alternative SS-1 would be outside the ALUP area for the Paso Robles Municipal Airport, the alternative substation site is located roughly 4,000 feet northeast of a private air facility, Bonel Airport. Once constructed, the substation would be operated remotely and would be inspected/maintained on an infrequent basis. As such, this alternative would not expose persons to excessive noise associated with airports. Thus, the impacts under significance criterion C would be **less than significant.**

Alternative PLR-1A: Estrella Route to Estrella Substation

Due to its longer length (approximately 6.5 miles longer) and duration of construction (16 months longer), Alternative PLR-1A would have greater potential for total construction-related noise impacts compared to the Proposed Project's 70 kV power line. However, the Alternative PLR-1A route largely passes through more rural, agricultural areas of San Luis Obispo County (east and north of the Paso Robles Municipal Airport) compared to the Proposed Project's 70 kV power line. Thus, there is reduced potential for construction-related noise to impact sensitive receptors. Apart from its longer length and different geographic route, the 70 kV power line under Alternative PLR-1A would be essentially the same as the Proposed Project and would involve the same construction activities.

As described in Impact NOI-1, construction activities are exempt from the County of San Luis Obispo and City of Paso Robles noise regulations provided that they occur during normal daytime hours. Although the Alternative PLR-1A alignment passes through mostly rural, agricultural areas, there are a number of residences in close proximity to the route, particularly in the area of Tower Road and Jardine Road. Additionally, like the Proposed Project, the reconductoring segment for Alternative PLR-1A would pass close to numerous residences in Paso Robles. As such, ground-level construction activities (e.g., operation of heavy equipment) could expose these sensitive receptors to levels of noise in excess of the FTA's 90 dBA threshold, although these impacts would be temporary for any given receptor. Implementation of APM NOI-2 would limit noise-intensive construction activities through construction noise minimization measures.

Construction of Alternative PLR-1A would require the use of helicopters, which have potential to generate substantial noise. As described in Impact NOI-1, the noise level from helicopters would be above 90 dBA within 1,427 feet of a helicopter landing zone or pole or cable installation site. Likewise, any sensitive receptors along or within 1,304 feet of the flight path would be subject to level flight noise in excess of 90 dBA. Even though these impacts would be temporary and construction noise is permitted under County and City noise regulations, these noise impacts would be considered significant. Implementation of **Mitigation Measures NOI-1 and NOI-2** would reduce the hours of construction and impacts of construction and helicopter-related noise; however, due to the close proximity of helicopter activity to residences along the reconductoring segment for Alternative PLR-1A, even with implementation of Mitigation Measure NOI-1 and NOI-2, these impacts would remain significant.

Like the Proposed Project's 70 kV power line, the 70 kV power line under Alternative PLR-1A would not have any moving parts and thus would not include equipment that would generate mechanical noise. As described in Section 4.13.2, transmission lines can sometimes generate corona noise, but this is generally more noticeable on high-voltage lines, and is not a design issue for power lines rated at 230 kV and lower (NEET West and PG&E 2017). Therefore, any noise generated during operation of the 70 kV power line should not be substantial. Other operation and maintenance-related activities associated with the Alternative PLR-1A 70 kV power line would generate minor and infrequent noise. Under Alternative PLR-1A, annual inspections of the power line would occur (same as the Proposed Project), and maintenance and repairs would be conducted on an as-needed basis. Noise from these activities would primarily be related to vehicles (and helicopters) that could be used to access and inspect the power line, and any equipment that could be used to conduct needed repairs or maintenance. Given the infrequent nature of these activities, the noise impacts would be less than significant. Overall, due to the construction-related noise from helicopter operation, impacts under significance criterion A would be **significant and unavoidable.**

Construction of Alternative PLR-1A would have the same potential to generate ground-borne vibration as the Proposed Project's 70 kV power line. Generally, this vibration would be less than the levels estimated for the Estrella Substation and would not be expected to cause substantial damage to structures or human annoyance. Much of the Alternative PLR-1A alignment passes through agricultural and rural areas where there are few structures and/or sensitive receptors nearby that could be substantially affected by any ground-borne vibration generated by construction of Alternative PLR-1A. Operation and maintenance of the power line under Alternative PLR-1A would be limited to infrequent inspections and as-needed maintenance and

repairs by small teams. Therefore, substantial vibration-related impacts would not occur during the operation phase. As a result, impacts under significance criterion B would be **less than significant.**

Portions of the Alternative PLR-1A alignment are within the ALUP area for the Paso Robles Municipal Airport. Once constructed, the alignment would be operated remotely and would be inspected/maintained on an infrequent basis. As such, this alternative would not expose persons to excessive noise associated with airports. Thus, the impacts under significance criterion C would be **less than significant.**

Alternative PLR-1C: Estrella Route to Bonel Ranch, Option 1

Alternative PLR-1C would be similar in length to Alternative PLR-1A and would require a similarly extended construction duration compared to the Proposed Project's 70 kV power line. As such, the alternative would have the same potential for increased total construction-related noise impacts as Alternative PLR-1A (see above). Like Alternative PLR-1A, however, the Alternative PLR-1C route largely passes through more rural, agricultural areas of San Luis Obispo County (east and north of the Paso Robles Municipal Airport) compared to the Proposed Project's 70 kV power line. Thus, there is reduced potential for construction-related noise to impact sensitive receptors. Apart from its longer length and different geographic route, the 70 kV power line under Alternative PLR-1C would be essentially the same as the Proposed Project and would involve the same construction activities.

As described in Impact NOI-1, construction activities are exempt from the County of San Luis Obispo and City of Paso Robles noise regulations provided that they occur during normal daytime hours. Although the Alternative PLR-1C alignment passes through mostly rural, agricultural areas, there are a number of residences in close proximity to the route, particularly in the area of Tower Road and Jardine Road (use of MRV 1 or 2 would largely avoid these residences). Additionally, like the Proposed Project, the reconductoring segment for Alternative PLR-1C would pass close to numerous residences in Paso Robles. As such, ground-level construction activities (e.g., operation of heavy equipment) could expose these sensitive receptors to levels of noise in excess of the FTA's 90 dBA threshold, although these impacts would be temporary for any given receptor. APM NOI-2 would be implemented to implement construction noise minimization measures.

Construction of Alternative PLR-1C would require the use of helicopters, which have potential to generate substantial noise. As described in Impact NOI-1, the noise level from helicopters would be above 90 dBA within 1,427 feet of a helicopter landing zone or pole or cable installation site. Likewise, any sensitive receptors along or within 1,304 feet of the flight path would be subject to level flight noise in excess of 90 dBA. Even though these impacts would be temporary and construction noise is permitted under County and City noise regulations, these noise impacts would be considered significant. Implementation of **Mitigation Measures NOI-1 and NOI-2** would reduce the impacts of construction and helicopter-related noise; however, due to the close proximity of construction and helicopter activity to residences along the reconductoring segment for Alternative PLR-1C, even with implementation of Mitigation Measure NOI-1 and NOI-2, these impacts would remain significant.

Like the Proposed Project's 70 kV power line, the 70 kV power line under Alternative PLR-1C would not have any moving parts and thus would not include equipment that would generate mechanical noise. As described in Section 4.13.2, transmission lines can sometimes generate corona noise, but this is generally more noticeable on high-voltage lines, and is not a design issue for power lines rated at 230 kV and lower (NEET West and PG&E 2017). Therefore, any noise generated during operation of the 70 kV power line would not be substantial. Other operation and maintenance-related activities associated with the Alternative PLR-1C 70 kV power line would generate minor and infrequent noise. Under Alternative PLR-1C, annual inspections of the power line would occur (same as the Proposed Project), and maintenance and repairs would be conducted on an as-needed basis. Noise from these activities would primarily be related to vehicles (and helicopters) that could be used to access and inspect the power line, and any equipment that could be used to conduct needed repairs or maintenance. Given the infrequent nature of these activities, the noise impacts would be less than significant. Overall, due to the construction-related noise from operation of construction equipment and helicopters, impacts under significance criterion A would be **significant and unavoidable.**

Construction of Alternative PLR-1C would have the same potential to generate ground-borne vibration as the Proposed Project's 70 kV power line. Generally, this vibration would be reduced compared to the levels estimated for the Estrella Substation and would not be expected to cause substantial damage to structures or human annoyance. Much of the Alternative PLR-1C alignment passes through agricultural and rural areas where there are few structures and/or sensitive receptors nearby that could be substantially affected by any ground-borne vibration generated by construction of Alternative PLR-1C. Operation and maintenance of the power line under Alternative PLR-1C would be limited to infrequent inspections and as-needed maintenance and repairs by small teams. Therefore, substantial vibration-related impacts would not occur during the operation phase. As a result, impacts under significance criterion B would be **less than significant.**

Portions of the Alternative PLR-1C alignment are within the ALUP area for the Paso Robles Municipal Airport. Once constructed, the alignment would be operated remotely and would be inspected/maintained on an infrequent basis. As such, this alternative would not expose persons to excessive noise associated with airports. Thus, the impacts under significance criterion C would be **less than significant.**

Alternative PLR-3: Strategic Undergrounding, Options 1 & 2

The construction processes for Alternative PLR-3 would be more involved compared to the same segment of the Proposed Project's overhead 70 kV power line. Undergrounding the power line would require additional excavation compared to overhead line construction and would use some pieces of equipment (e.g., asphalt saw) that generate elevated noise compared to the construction equipment necessary for the Proposed Project. Modeling showed that due to the higher-noise-generating equipment associated with construction of Alternative PLR-3, the combined noise at 50 feet for Alternative PLR-3 construction would reach 91.2 dBA, while sensitive receptors within 57.4 feet of the alignment would be exposed to noise at or above the FTA threshold of 90 dBA. Sensitive receptors in proximity to the Alternative PLR-3 alignments include the Cava Robles RV Resort and homes in the Circle B homeowners association.

As described in Impact NOI-1, construction activities are exempt from the County of San Luis Obispo and City of Paso Robles noise regulations provided that they occur during normal daytime hours. Although the Alternative PLR-3 construction activities would generate slightly more noise compared to the same segment of the Proposed Project's overhead 70 kV power line, this noise is permitted by local noise ordinance. APM NOI-2 would implement construction noise minimization measures. Helicopters would not be required for construction of Alternative PLR-3, but would be used in other segments of the 70kV line and at the substation. Implementation of **Mitigation Measures NOI-1 and NOI-2** would reduce the impacts of construction and helicopter related noise; however, due to the close proximity of construction and helicopter activity to residences along the undergrounding segment for Alternative PLR-3, even with implementation of Mitigation Measures NOI-1 and NOI-2, these impacts would remain significant.

Once constructed, the underground power line segment would not generate any noise. Likewise, the transition stations at either end of the underground power line segment would not include transformers, HVAC units, or other equipment that would generate substantial noise. Other operation and maintenance-related activities associated with Alternative PLR-3 would generate minor and infrequent noise. Inspections of the underground power line segment and transition stations would occur on a similar schedule to the Proposed Project, and maintenance and repairs would be conducted on an as-needed basis. Noise from these activities would primarily be related to vehicles used to access and inspect the power line segment, and any equipment that could be used to conduct needed repairs or maintenance. Given the infrequent nature of these activities, the noise impacts would be less than significant. Overall, due to the construction and helicopter-related noise from operation of construction equipment, impacts under significance criterion A would be **significant and unavoidable.**

Construction of Alternative PLR-3 would have slightly elevated potential to generate ground-borne vibration and/or ground-borne noise compared to the same segment of the Proposed Project's overhead 70 kV power line. This is due to the increased excavation and asphalt cutting that would be required for installing the underground power line segment. Given the proximity of existing buildings and sensitive receptors to the construction activities, however, this ground-borne vibration and/or ground-borne noise would not result in substantial damage to buildings or annoyance of persons. Operation and maintenance of the underground power line under Alternative PLR-3 would be limited to infrequent inspections and as-needed maintenance and repairs by small teams. Therefore, substantial vibration-related impacts would not occur during the operation phase. As a result, impacts under significance criterion B would be **less than significant.**

Alternative PLR-3 would be within the ALUP area for the Paso Robles Municipal Airport. Once constructed, the alignment would be operated remotely and would be inspected/maintained on an infrequent basis. As such, this alternative would not expose persons to excessive noise associated with airports. Thus, the impacts under significance criterion C would be **less than significant.**

Alternative SE-1A: Templeton Substation Expansion – 230/70 kV Substation

Alternative SE-1A would have slightly higher potential for noise generation compared to the proposed Estrella Substation, as the substation located at the Templeton Substation expansion site would require a longer 230 kV interconnection and one additional month of construction. Otherwise, construction activities for Alternative SE-1A would be the same as the proposed Estrella Substation with the same potential for noise generation.

As described in Impact NOI-1, construction activities are exempt from the County of San Luis Obispo noise regulations provided that they occur during normal daytime hours. There are no residences or other sensitive receptors in immediate proximity to the Alternative SE-1A site (nearest residences are over 1,000 feet to the northwest and southeast); thus, ground-level construction activities (e.g., operation of heavy equipment) would not expose sensitive receptors to excessive levels of noise. Regardless, the Applicants would implement APM NOI-2 to implement construction noise minimization measures. Construction of Alternative SE-1A would require the use of helicopters, which have potential to generate substantial noise. Implementation of **Mitigation Measures NOI-1 and NOI-2** would limit the potential impacts of helicopter-related noise, and given that helicopter activities would not be required in close proximity to any existing sensitive receptors (as opposed to the Proposed Project's 70 kV reconductoring segment), the impacts would be reduced to a level that is less than significant.

The substation under Alternative SE-1A would include the same equipment as the proposed Estrella Substation and thus would have the same potential to generate noise during the operation phase. Like the Estrella Substation, the 230/70 kV transformer and HVAC units at the 70 kV and 230 kV substations would be the loudest pieces of equipment. The noise from these facilities would be the same as shown in Table 4.13-6. Because there are no sensitive receptors in immediate proximity to the Alternative SE-1A site, the noise from this substation equipment would not subject any noise-sensitive receptors to excessive noise. As discussed in Impact NOI-1, other operation and maintenance-related activities associated with the substation would generate minor and infrequent noise. Under Alternative SE-1A, monthly inspections of the substation would occur (same as the Proposed Project), and maintenance and repairs would be conducted on an as-needed basis. Noise from these activities would primarily be related to vehicles used to access the substation and any equipment that could be used to conduct needed repairs or maintenance. Given the infrequent nature of these activities, the noise impacts would be less than significant. Overall, impacts under significance criterion A would be **less than significant with mitigation.**

Construction of Alternative SE-1A would have the same potential to generate ground-borne vibration and/or ground-borne noise as the proposed Estrella Substation. Estimated vibration levels are the same as shown in Table 4.13-7. Because there are no existing structures within 74 feet of the Alternative SE-1A site, there would be no potential for ground-borne vibration from the construction activities to result in damage to structures. Likewise, there are no occupied structures or other sensitive receptors where people could be substantially annoyed from the ground-borne vibration and/or ground-borne noise. Operation and maintenance of the substation under Alternative SE-1A would be limited to infrequent inspections and as-needed maintenance and repairs by small teams. Therefore, substantial vibration-related impacts would not occur during the operation phase. As a result, impacts under significance criterion B would be **less than significant.**

The Alternative SE-1A site is not located within the ALUP area for the Paso Robles Municipal Airport or within 2 miles of any airport. Therefore, **no impact** would occur with regard to significance criterion C.

Alternative SE-PLR-2: Templeton-Paso South River Road Route

Due to its shorter length (4.8 miles shorter) and duration of construction (9 months shorter), Alternative SE-PLR-2 would result in less total construction-related noise impacts than compared to the Proposed Project's 70 kV power line. While Alternative SE-PLR-2 would pass through some rural and agricultural areas, it would also pass through rural residential areas comprising HOAs and dense residential areas within the City of Paso Robles. Thus, there is potential for construction-related noise to impact sensitive receptors. Apart from its shorter length and different geographic route, the 70 kV power line under Alternative SE-PLR-2 would be essentially the same as the Proposed Project and would involve the same construction activities.

As described in Impact NOI-1, construction activities are exempt from the County of San Luis Obispo and City of Paso Robles noise regulations provided that they occur during normal daytime hours. Given the proximity of some sensitive receptors to the proposed Alternative SE-PLR-2 route, ground-level construction activities (e.g., operation of heavy equipment) could expose receptors to levels of noise in excess of the FTA's 90 dBA threshold, although these impacts would be temporary for any given receptor. APM NOI-2 would implement construction noise minimization measures. Given implementation of these measures and the fact that noise attenuates relatively rapidly with distance from the source, the ground-level construction noise from Alternative SE-PLR-2 would not be significant.

Construction of Alternative PLR-1C would require the use of helicopters, which have potential to generate substantial noise. As described in Impact NOI-1, the noise level from helicopters would be above 90 dBA within 1,427 feet of a helicopter landing zone or pole or cable installation site. Likewise, any sensitive receptors along or within 1,304 feet of the flight path would be subject to level flight noise in excess of 90 dBA. Even though these impacts would be temporary and construction noise is permitted under County and City noise regulations, these noise impacts would be considered significant. Implementation of **Mitigation Measures NOI-1 and NOI-2** would reduce the impacts of helicopter-related noise; however, due to the close proximity of helicopter activity to residences along South River Road, even with implementation of Mitigation Measure NOI-1, these impacts would remain significant.

Like the Proposed Project's 70 kV power line, the 70 kV power line under Alternative SE-PLR-2 would not have any moving parts and thus would not include equipment that would generate mechanical noise. As described in Section 4.13.2, transmission lines can sometimes generate corona noise, but this is generally more noticeable on high-voltage lines, and is not a design issue for power lines rated at 230 kV and lower (NEET West and PG&E 2017). Therefore, any noise generated during operation of the 70 kV power line would not be substantial. Other operation and maintenance-related activities associated with the Alternative SE-PLR-2 70 kV power line would generate minor and infrequent noise. Under Alternative SE-PLR-2, annual inspections of the power line would occur (same as the Proposed Project), and maintenance and repairs would be conducted on an as-needed basis. Noise from these activities would primarily be related to vehicles and helicopters that could be used to access and inspect the power line, and any equipment that could be used to conduct needed repairs or maintenance. Given the infrequent nature of these activities, the noise impacts would be less than significant. Overall,

due to the construction-related noise from operation of helicopters, impacts under significance criterion A would be **significant and unavoidable.**

Construction of Alternative SE-PLR-2 would have the same potential to generate ground-borne vibration and/or ground-borne noise as the Proposed Project's 70 kV power line. Generally, this vibration would be reduced compared to the levels estimated for the Estrella Substation and would not be expected to cause substantial damage to structures or human annoyance. Operation and maintenance of the power line under Alternative SE-PLR-2 would be limited to infrequent inspections and as-needed maintenance and repairs by small teams. Therefore, substantial vibration-related impacts would not occur during the operation phase. As a result, impacts under significance criterion B would be **less than significant.**

The Alternative SE-PLR-2 site is not located within the ALUP area for the Paso Robles Municipal Airport or within 2 miles of any airport. Therefore, **no impact** would occur with regard to significance criterion C.

Alternative BS-2: Battery Storage to Address the Distribution Objective

Construction of FTM BESSs under Alternative BS-2 would require use of earth-moving equipment for site preparation, grading, and constructing foundations for the BESS facilities. Additionally, heavy trucks may be used to deliver materials and off-haul soil or wastes, and other noise-generating equipment could be used during construction. As discussed in Section 4.13.4, potential FTM battery storage sites are identified under Alternative BS-2 for illustrative purposes for this DEIR. FTM battery storage facilities could be constructed at the example FTM sites (1 through 8) or at other sites identified in the future. Several of the illustrative FTM sites (1 through 4) are located in densely developed areas of Paso Robles, while other FTM sites (5, 6, and 8) are located in more rural areas of Paso Robles and San Luis Obispo County. FTM Site 7 is located in Atascadero and although it is adjacent to the existing substation, it is close to an existing church.

As described in Impact NOI-1, construction activities are exempt from the County of San Luis Obispo and City of Paso Robles noise regulations provided that they occur during normal daytime hours. For illustrative FTM Site 7 located in the City of Atascadero, the noise regulations also exempt construction activities provided they occur during normal daytime hours, unless an exception is granted. Given the proximity of residences and other sensitive receptors to certain illustrative FTM sites, there is potential for ground-level construction activities to expose these receptors to levels of noise in excess of the FTM threshold of 90 dBA; however, these impacts would be temporary. Construction of Alternative BS-2 would not require the use of helicopters. FTM BESSs under Alternative BS-2 may include HVAC units and other equipment that would generate noise during the operation phase. Such noise could be reduced by placing BESSs within buildings or by installing noise control devices. Other operation and maintenance-related activities associated with the FTM BESSs would generate minor and infrequent noise. Inspections of the BESSs would occur from time to time, and maintenance and repairs would be conducted on an as-needed basis. Noise from these activities would primarily be related to vehicles used to access the BESSs and any equipment that could be used to conduct needed repairs or maintenance.

Construction of FTM BESSs under Alternative BS-2 would have similar (albeit reduced) potential to generate ground-borne vibration and/or ground-borne noise as the proposed Estrella Substation. The FTM BESSs could require equipment similar to a vibratory roller, which could generate vibration levels as shown in Table 4.13-7. In general, this ground-borne vibration would not be expected to cause any substantial damage or annoyance because, as shown in Table 4.13-7, the resulting noise is below the significance threshold for damage. Operation and maintenance of the BESSs under Alternative BS-2 would be limited to infrequent inspections and as-needed maintenance and repairs by small teams.

With the exception of example FTM Site 5, none of the proposed FTM sites would be located within an ALUP or within 2 miles of an airport. FTM Site 5 is located directly adjacent to the CAL FIRE Air Attack Base, which is adjacent to the Paso Robles Municipal Airport. Although the BESS at FTM Site 5 would be located very close to the airport, once constructed, an FTM BESS at this location would be operated remotely and would be inspected/maintained on an infrequent basis.

Overall, FTM BESS sites were selected for illustrative purposes only, BESS installations have not been designed and technologies have not been selected, and the specifics of Alternative BS-2 are unknown. Thus, project-level determinations cannot be made as impacts are speculative. Therefore, consistent with CEQA Guidelines Section 15145, no significance conclusion is provided for any of the significance criteria.

Alternative BS-3: Third Party, Behind-the-Meter Solar and Battery Storage

Construction activities under Alternative BS-3 would include deliveries of individual BTM solar and BESS units to customers' properties, installation of the units on-site, and wiring work to connect the solar systems and/or BESSs to existing electrical systems. BESS units for larger commercial properties could be heavy and may require larger/specialized trucks for delivery, and may require use of a small crane for installation. These activities would be considerably smaller in scale compared to the Proposed Project. The third-party DER provider selected via the DIDF would be required to follow all local design, siting, and permitting requirements, including compliance with applicable noise-level requirements. Once installed, BESS facilities under Alternative BS-3 would require minimal maintenance. Operational noise would be low, in particular for units installed inside existing facilities and would not result in substantial noise levels during operation.

Construction of individual BTM solar or BESS units would have minimal potential to generate substantial ground-borne vibration or ground-borne noise except if using a pile driver to install solar mounts. Where individual BESSs may be installed on previously undeveloped portions of properties, the light grading and earth-moving activities that may occur would likely not be of the scale to result in substantial vibration or ground-borne noise, but the use of pile drivers (if needed) may exceed vibration thresholds. Operation and maintenance activities would not result in substantial vibration-related impacts.

BTM solar and BESS units may be located within ALUP areas. However, once installed, the individual BTM solar or BESS units would require minimal maintenance and would generate low operational noise.

Overall, due to the fact that specific locations and characteristics of BTM resources procured under Alternative BS-3 are unknown at this time, project-level impact determinations are not possible as the impacts are speculative. Therefore, consistent with CEQA Guidelines Section 15145, no significance conclusion is reached under any of the significance criteria.