3.10 Noise

This section describes the environmental setting, regulatory setting, and potential impacts associated with the construction and operation of the proposed project and alternatives with respect to noise.

3.10.1 Environmental Setting

To describe environmental noise at the regional and local levels, and to assess impacts on areas sensitive to community noise, an understanding of noise fundamentals is necessary. Noise is defined as unwanted sound. Airborne sound is a rapid fluctuation of air pressure above and below atmospheric pressure. There are several ways to measure noise, depending on the source, the receiver, and the reason for the noise measurement. The most common metric is the overall A-weighted sound level measurement that has been adopted by regulatory bodies worldwide. The A-weighted network measures sound similarly to how a person perceives sound, thus achieving good correlation with acceptable and unacceptable sound levels. A-weighted sound levels are reported in units of A-weighted decibels and denoted as dBA.

A-weighted sound levels are typically measured or presented as the equivalent sound pressure level (L_{eq}), which is the logarithmic average noise energy level due to all sources (for example, the ambient noise level in addition to construction and traffic noise) in a given area for a defined period of time (for example, 1 hour or 24 hours). The L_{eq} is commonly used to measure steady-state sound or noise that is usually dominant. Statistical methods are used to capture the dynamics of a changing acoustical environment. Statistical measurements are typically denoted by L_{xx}, where $_{xx}$ represents the percentage of time the sound level is exceeded. For example, L_{90} represents the noise level exceeded during 90 percent of the measurement period. Similarly, L_{10} represents the noise level exceeded for 10 percent of the measurement period. The relative A-weighted noise levels of common sounds measured in the environment and industry for various qualitative sound levels are provided in Table 3.10-1.

Table 3.10-1 Typical Sound Levels Measured in the Environment and Industry

Noise Source at a Given Distance (feet)	A-Weighted Sound Level in Decibels (dBA)	Qualitative Description
Carrier deck jet3 operation Jet takeoff (200 feet)	140 130 120	Pain threshold
Auto horn (3 feet) Jet takeoff (1,000 feet) Shout (0.5 feet)	110 100	Maximum vocal effort
N.Y. subway station (50 feet) Heavy truck (50 feet)	90	Very annoying; hearing damage (8-hr, continuous exposure)
Pneumatic drill (50 feet) Freight train (50 feet) Freeway traffic (50 feet)	80 70 to 80 70	Annoying Intrusive (telephone use difficult)
Air conditioning unit (20 feet) Light auto traffic (50 feet) Living room/Bedroom	60 50 40	Quiet
Library/Soft whisper (5 feet) Broadcasting/Recording studio	30 20 10	Very quiet Just audible

Source: NYSDEC 2003 (Adapted from Table E.)

Another metric used to determine the impact of environmental noise considers the differences in human responses to daytime and nighttime noise levels. During the evening and at night, exterior background noises are generally lower

than during the day. However, most household noise also decreases at night and exterior noise becomes more noticeable. Furthermore, most people sleep at night and are therefore more sensitive to intrusive noises. To account for human sensitivity to evening and nighttime noise levels, the Daytime-Nighttime Noise Level (DNL, also abbreviated as L_{dn}) and Community Noise Equivalent Level (CNEL) metrics were developed. The DNL accounts for the greater annoyance of noise during the night (10 p.m. to 7 a.m.). The CNEL accounts for the greater annoyance of noise during the evening (7 p.m. to 10 p.m.) and nighttime hours.

The effects of noise on people can be listed in three general categories:

- Subjective effects of annoyance, nuisance, dissatisfaction
- Interference with activities such as speech, sleep, learning
- Physiological effects such as startling and hearing loss

In most cases, environmental noise may produce effects in the first two categories only. No completely satisfactory way exists to measure the subjective effects of noise or to measure the corresponding reactions of annoyance and dissatisfaction. This lack of a common standard is primarily due to the wide variation in individual thresholds of annoyance and habituation to noise. Thus, an important way of determining a person's subjective reaction to a new noise is to compare it to the existing or "ambient" environment to which that person has adapted. In general, the more the level or the tonal (frequency) variations of a noise exceed the previously existing ambient noise level or tonal quality, the less acceptable the new noise will be, as judged by the exposed individual.

The general human response to changes in noise levels that are similar in frequency content (for example, comparing increases in continuous [L_{eq}] traffic noise levels) is summarized as follows:

- A 3-decibel (dBA) change in sound level is a barely noticeable difference.
- A 5-dBA change in sound level is typically noticeable.
- A 10-dBA change is perceived by the listener as a doubling in loudness.

In addition to noise, construction and traffic can generate low levels of vibration which is also reported in decibels and denoted as VdB.

In the following noise analysis, data were used extensively from the Proponent's Environmental Assessment for the Eldorado–Ivanpah 230-kV Transmission Project, dated May 2009.

3.10.1.1 Regional Setting

The proposed project would be located in a primarily rural area, although the proposed transmission line route would pass through or be adjacent to the community of Primm, Nevada. A detailed description of the land uses and land use designations for the proposed project are discussed in Section 3.9, "Land Use."

3.10.1.2 Local Setting

Ambient Noise Surveys

Ambient noise surveys were conducted on November 20 and 21, 2008, at three representative monitoring locations (sites 1, 2, and 3), in order to assess the existing ambient noise levels of the representative locations (SCE 2009). Surveys were conducted using continuous unattended long-term monitoring stations. Two of the sites were monitored for 24 hours each; one of the sites was monitored for 18 hours (see Figure 3.10-1).

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Figure 3.10-1
Eldorado-Ivanpah Transmission Project

Noise Monitoring Locations

Goodsprings
Jean
Primm
Nipton
IVANPAH
MT. PASS
ELDORADO
Searchlight
Jean Lake (Dry)
Roach Lake (Dry)
Ivanpah Lake (Dry)
Nipton Road
CLARK CO.
SAN BERNARDINO CO.
NEVADA
CALIFORNIA
MOJAVE NATIONAL PRESERVE
Modeling Location 4 - McCulloch Pass
Monitoring Site 3 - Eldorado Substation
Monitoring Site 2 - Desert Oasis Apartment Complex
Modeling Location 1 - Desert Oasis Apartment Complex
Modeling Location 3 - Ivanpah Lake
Modeling Location 2 - Primm Valley Golf Course
Monitoring Site 1 - Primm Valley Golf Club

PROPOSED PROJECT
- Transmission L.ine
- Telecommunications Line
- Redundant Telecommunications Line
- Microwave

ALTERNATIVES
- Transmission Line Alternatives
- Redundant Telecommunications Line - Mountain Pass
- Redundant Telecommunications Line - Golf Course
- Milepost
- Noise Monitoring Location
- Noise Modeling Location
- Half Mile buffer
- Proposed Microwave Tower
- Proposed Substation
- Existing Substation
- City
- Road
- BLM Land
- NPS
- Southern Nevada Supplemental Airport

N

0 1 2 3 4 5
Miles

March 2010

NV UT CO CA AZ NM

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Weather conditions during the survey, as measured in Henderson, Nevada, consisted of clear skies, wind speeds between 4 and 10 miles per hour, temperatures between 45 and 72 degrees Fahrenheit, and relative humidity between 15 and 37 percent.

Larson Davis 820 Type 1 (precision) sound level meters were used. The meters were factory calibrated within the previous 12 months and were field calibrated prior to and after each measurement series with a Larson Davis CAL200 field calibrator. Microphones were attached to tripods at a height of approximately 5 feet. Shrouds and windscreens were used to protect the microphones from moisture and wind. A shroud and windscreen were not available for the Eldorado Substation site; however, weather conditions were such that the absence of protective equipment should not have impacted the results (i.e., calm winds and no rain).

A description of each site, the date each survey was conducted, and a summary of the collected data are presented in Table 3.10-2.

Table 3.10-2 November 20 and 21, 2008, Noise Survey Results Summary (dBA)

Noise Monitoring Location	Description	Primary Noise Source	Monitoring Period	L_{dn}	L_{eq} (24 hr)	Max Hourly L_{eq}	Min Hourly L_{eq}
1 Primm Valley Golf Club	Rural	I-15, golf course activities	24 hours	62	55	58	45
2 Desert Oasis Apartment Complex	Residential	I-15, truck stop	24 hours	58	51	55	48
3 Eldorado Substation	Rural	Substation	18 hours	56	49[a]	51	47

Note:
[a]Monitoring at the Eldorado Substation was limited to 18 hours; therefore, the L_{dn} and the 24-hour L_{eq} were calculated using noise levels from representative periods for the missing hours. Given the relatively steady noise level (indicated by close agreement between the Max and Min L_{eq}), this assumption is reasonable.

Key:
dBA = Decibels A-scale
L_{dn} = Daytime-Nighttime Noise Level
L_{eq} = equivalent sound pressure level

Transmission Line

Proposed Transmission Line

The proposed transmission line would be constructed from the existing Eldorado Substation to the location of the future Ivanpah Substation. The only residences within the project area are located in Primm, Nevada, at the Desert Oasis Apartment Complex, which contains mobile homes as well as apartments. The complex is approximately 50 feet from the proposed transmission line route. As noted in Section 3.11, "Public Services and Utilities," there are no other sensitive receptors such as hospitals, libraries, schools, places of worship, or other facilities in the project area. With the exception of the location of the transmission line through Primm, the route setting is rural and undeveloped.

The noise levels measured during the noise survey at the Eldorado Substation are representative of the noise levels at the northern end of the transmission line. The minimum hourly L_{eq} and L_{90} noise levels measured at the substation during the noise survey were 47 dBA and 46 dBA, respectively. The noise levels measured during the noise survey at the Desert Oasis Apartment Complex are representative of the noise levels through the center portion of the transmission line. The minimum hourly L_{eq} and L_{90} noise levels measured at the Desert Oasis Apartment Complex were 48 dBA and 46 dBA, respectively. The noise levels measured during the noise survey at the Primm Valley Golf Club are representative of the noise levels at the southern end of the transmission line. The minimum hourly L_{eq} and L_{90} noise levels measured at the Primm Valley Golf Club during the noise survey were 45 dBA and 41 dBA, respectively.

Transmission Line Alternatives

The transmission line and telecommunication alternatives would be constructed and operated in noise conditions similar to those associated with the proposed project; therefore, the measured noise levels throughout the project vicinity as reported for the proposed transmission line would also apply to the transmission line and telecommunication alternatives.

Substations

Eldorado Substation

The Eldorado Substation is an existing substation. No residences are located within 5 miles. The nearest receptors would be recreational users on the Eldorado Dry Lake, north of the substation, 3.5 miles distant at its closest point. There are no hospitals, libraries, schools, places of worship, or other facilities in the study area. The setting is rural and undeveloped. The minimum hourly L_{eq} and L_{90} noise levels measured at the Eldorado Substation during the noise survey were 47 dBA and 46 dBA, respectively.

Ivanpah Substation

The new Ivanpah Substation would be located at the south end of the proposed transmission line. The closest residences to the Ivanpah Substation are those at the Desert Oasis Apartment Complex, roughly 6.7 miles to the northeast. The nearest receptors are at the Primm Valley Golf Club, a distance of 2.4 miles. No hospitals, libraries, schools, places of worship, or other facilities are located in the project area. The setting is rural and undeveloped.

The noise levels measured during the noise survey at the Primm Valley Golf Club are representative of the noise levels in the project area nearest the proposed Ivanpah Substation. The minimum hourly L_{eq} and L_{90} noise levels measured at the substation during the noise survey were 45 dBA and 41 dBA, respectively.

3.10.2 Applicable Laws, Regulations, and Standards

Federal

No federal regulations limit overall environmental noise levels, but several federal guidance documents address environmental noise and regulations for specific sources (for example, aircraft or federally funded highways).

The only energy-facility-specific requirements are those of the Federal Energy Regulatory Commission (FERC) for interstate electrical transmission lines, natural gas pipelines, and petroleum pipelines. The FERC limits specifically address compressor facilities associated with pipelines under FERC jurisdiction. Under these regulations, the noise attributable to any new natural gas compressor station; added compression to an existing station; or any modification, upgrade, or update of an existing station must not exceed an L_{dn} of 55 dBA at any pre-existing noise sensitive area (FERC 2002).

Federal highway and aircraft guidelines and regulations have been established by Federal Highway Administration (FHWA; United States Code of Federal Regulations [CFR] Title 23 Part 772) and Federal Aviation Administration (FAA) regulations (CFR Title 18 Part 150). Federal guidelines and regulations are summarized in Table 3.10-3.

Table 3.10-3 Federal Guidelines and Regulations for Exterior Noise (dBA)

Agency	$L_{eq\,(1)}$	L_{dn}
Federal Energy Regulatory Commission	[49]	55
Federal Highway Administration	67	[67]
Federal Aviation Administration	[59]	65
U.S. Department of Transportation – Federal Rail and Transit Authorities[a,b]	Sliding scale; refer to Figure 3.10-2	Sliding scale; refer to Figure 3.10-2

Table 3.10-3 Federal Guidelines and Regulations for Exterior Noise (dBA)

Agency	$L_{eq\ (1)}$	L_{dn}
U.S. Environmental Protection Agency[c]	[49]	55
U.S. Department of Housing and Urban Development[d]	[59]	65

Sources:
[a]FRA 2005 [Updated to latest revision 2005]
[b]FTA 2006
[c]U.S. EPA 1974
[d]CFR Title 24 Part 51B (U.S. Department of Housing and Urban Development 1991)

Note: Brackets around numbers (e.g. [59]) indicate calculated equivalent standard. Because FHWA regulates peak noise level, the DNL is assumed equivalent to the peak noise hour.

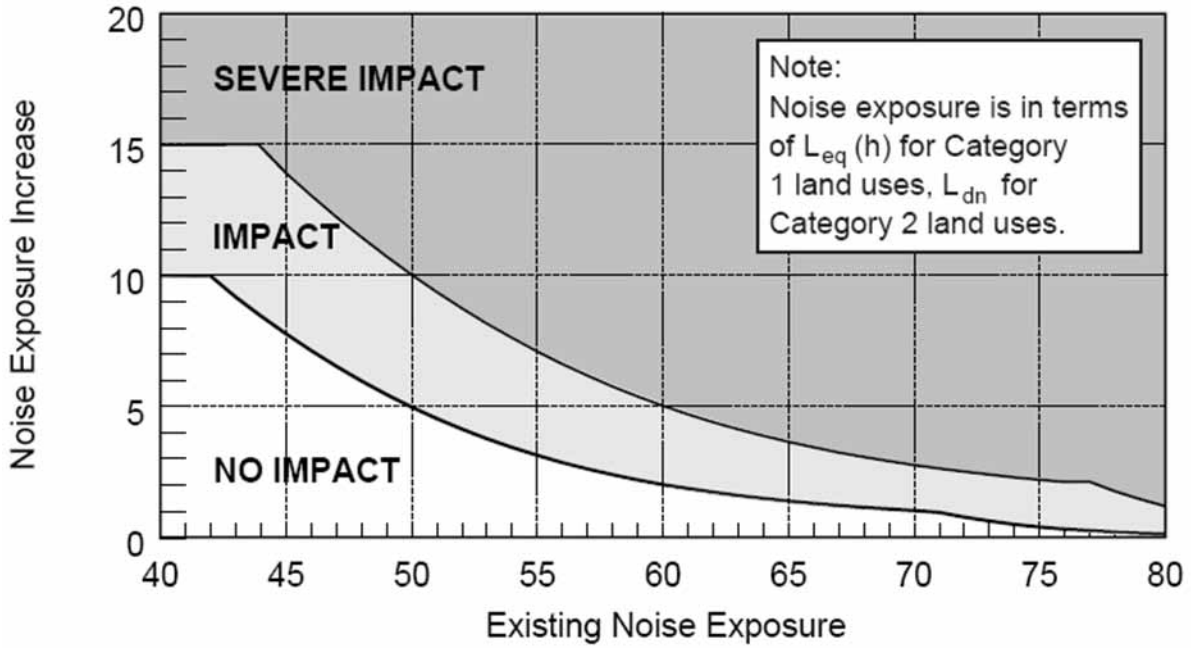

Figure 3.10-2 FRA and FTA Allowable Increase in Cumulative Noise Level
(Note: Residential uses are included in Category 2)

Table 3.10-3 refers to Figure 3.10-2 U.S. Department of Transportation, Federal Railroad Administration (FRA) and U.S. Department of Transportation, Federal Transit Administration (FTA) Allowable Increase in Cumulative Noise Level (Cumulative dBA). The noise impact criteria in Figure 3.10-2 are based on comparison of the existing outdoor noise levels and the future outdoor noise levels from the proposed project. The Y axis is the increase in noise level in Cumulative dBA over the existing noise level on the X axis. Category 1 land uses include tracts of land where quiet is an essential element in their intended purpose. This category includes lands set aside for serenity and quiet, and such land uses as outdoor amphitheaters and concert pavilions, as well as National Historic Landmarks with significant outdoor use. Category 2 land uses include residences and buildings where people normally sleep. This category includes homes, hospitals and hotels where a nighttime sensitivity to noise is assumed to be of utmost importance (FTA 2006).

Department of Interior, Bureau of Land Management

The National Environmental Policy Act (NEPA) of 1969 requires an analysis of local ambient noise levels and effects associated with elevated noise levels in a proposed project area; however, NEPA does not specify a threshold for "significant adverse effect" for noise.

State

California Public Utilities Commission

The CPUC will evaluate the proposed project's noise impacts according to the requirements of CEQA in both California and Nevada. CEQA does not specify a threshold for "substantial increase" for noise. The CPUC General Order (GO) No. 131-D, Section XIV B, clarifies that "local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the Commission's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Due to this GO, the public utilities are directed to consider local regulations and consult with local agencies; however, the counties and cities do not have discretionary jurisdiction over the proposed project

Public Utilities Commission of Nevada

The proposed project would also require approval from the Public Utilities Commission of Nevada (PUCN). The construction of a utility facility, defined as a transmission line that is 200-kV or more, requires a permit by the PUCN under the Utility Environmental Protection Act (UEPA) according to the Nevada Revised Statutes (NRS) 704.820 through 704.900. However, replacement of an existing facility with a like facility, as determined by the Commission, does not constitute construction of a utility facility (NRS 704.865).

Regional and Local

Although the proposed project is exempt from local land use and zoning regulations and discretionary permitting under GO No. 131-D, the applicant intends to develop facility designs that are compatible with local plans and zoning to the extent practicable. Therefore, local plans, laws, ordinances, regulations, and standards related to noise adopted by each of the jurisdictions through which the proposed transmission project would pass were reviewed. Results of the review are presented in Tables 3.10-4 and 3.10-5.

Table 3.10-4 Local Plans, Laws, Ordinances, Regulations, and Standards During Construction by Jurisdiction

Jurisdiction	Source	Standard Construction Hours	Permissible Noise Levels		
			Land Use	Hours	Exterior Noise Level Limits (dBA)
San Bernardino County	Sec 87.0905 (e) Exempt noises. (1) (C) Temporary construction, repair, or demolition activities between 7 a.m. and 7 p.m., except Sundays and federal holidays.	Mon-Sat 7am-7pm	Any	Mon–Sat 7 a.m.–7 p.m.	Exempt
Clark County	Sec 30.68.020 (h): Requirements of this section do not apply to construction and/or demolition activities when conducted during daytime hours.	Daytime	Any	Daytime	Do not apply
Primm	No construction noise guidelines specified.	NS	NS	NS	NS
Boulder City	No construction noise guidelines specified.	NS	NS	NS	NS

Key:
NS = Not specified

1

Table 3.10-5 Local Plans, Laws, Ordinances, Regulations, and Standards During Operation by Jurisdiction

Jurisdiction	Source	Permissible Noise Levels		
		Land Use	Hours	Exterior Noise Level Limits (dBA)
San Bernardino County	Sec 87.0905 (b) (1): Areas within San Bernardino County shall be designated as "noise-impacted" if exposed to existing or projected future exterior noise levels from ... stationary sources exceeding the standards listed. (2) No person shall operate or cause to be operated any source of sound at any location or allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, which causes the noise level, when measured on any other property, either incorporated or unincorporated, to exceed: (A) The noise standard for that receiving land use for a cumulative period of more than 30 minutes in any hour, or (B) The noise standard plus 5 dBA for a cumulative period of more than 15 minutes in any hour, or (C) The noise standard plus 10 dBA for a cumulative period of more than 5 minutes in any hour, or (D) The noise standard plus 15 dBA for a cumulative period of more than 1 minute in any hour, or (E) The noise standard plus 20 dBA for any period of time.	Other Commercia Industrial	Anytime Anytime	60 L_{eq} 70 L_{eq}
Clark County	Sec 30.68.020 (b): The maximum permissible sound pressure level of any continuous, regular, or frequency source of sound produced by any activity shall be established by time period and type of zoning district per Table 30.68-1 [in the Clark County regulations]. Sec 30.68.020 (e): Impulsive type noises shall be subject to the maximum permitted sound level standards described in Table 30.68-2, provided they are capable of being accurately measured with the equipment described above.	Residential, Business and Industrial Residential Business and Industrial	Depends on octave band frequency. Daytime Nighttime Daytime Nighttime	Depends on octave band frequency. 56 46 65 61
Primm	No operation noise guidelines specified.	NS	NS	NS
Boulder City	No operation noise guidelines specified.	NS	NS	NS

Key:
NS – Not Specified
Octave Band - A segment of the frequency spectrum separated by an octave.

2
3

3.10.3 Impact Analysis

This section defines the methodology used to evaluate impacts for noise, including CEQA impact criteria. The definitions are followed by an analysis of each alternative, including a joint CEQA/NEPA analysis of impacts. At the conclusion of the discussion is a NEPA impact summary statement and CEQA impact determinations. For mitigation measures, refer to Section 3.10.4.

3.10.3.1 NEPA Impact Criteria

The NEPA analysis determines whether direct or indirect effects to noise would result from the project, and explains the significance of those effects in the project area (40 CFR 1502.16). Significance is defined by Council on Environmental Quality regulations and requires consideration of the context and intensity of the change that would be introduced by the project (40 CFR 1508.27). Impacts are to be discussed in proportion to their significance (40 CFR 1502.2[b]). To facilitate comparison of alternatives, the significance of environmental changes is described in terms of the temporal scale, spatial extent, and intensity.

3.10.3.2 CEQA Impact Criteria

Under CEQA, the proposed project would have a significant impact if it would:

a. cause the exposure of persons to or generation of noise levels in excess of standards established in local general plans or noise ordinances;

b. cause the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels (vibration of 75 vibration velocity level in decibels [VdB]) is generally considered intrusive for residential uses) Vibration velocity levels are commonly reported in decibels relative to a level of 1x10-6 inches per second and denoted as VdB;

c. cause a substantial permanent increase in ambient noise in the project vicinity;

d. cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity; or

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

3.10.3.3 Methodology

Construction Noise

To evaluate potential noise impacts due to construction of the transmission line and substation, reference noise levels were obtained from the Roadway Construction Noise Model User's Guide (FHWA 2006), which provides a comprehensive assessment of noise levels from construction equipment. Based on the reference values in the guide and the list of construction equipment to be used on the project, the loudest equipment would generally emit noise in the range of 80 to 90 dBA at 50 feet, with usage factors of 40 percent to 50 percent that account for the fraction of time that the equipment is in use over the specified time period. Noise at any specific receptor is typically dominated by the closest and loudest equipment. For the EITP, the type of construction equipment and the number of equipment pieces near any specific receptor location would vary over time. To provide a reasonable and conservative estimate of construction noise, the following scenario was modeled:

- One piece of equipment generating a reference noise level of 85 dBA (at 50 feet distance with a 40 percent usage factor) located on the transmission line route or the substation property line.

- Two pieces of equipment generating reference 85 dBA noise levels located 50 feet farther away on the transmission line route or the substation property line.
- Two additional pieces of equipment generating reference 85 dBA noise levels located 100 feet farther away on the transmission line route or the substation property line.

Construction equipment noise levels at various distances, based on this scenario, are presented in Table 3.10-6.

Table 3.10-6 Construction Equipment Noise Levels versus Distance

Distance from Route or Substation Property Line (feet)	L_{eq} Noise Level (dBA)
50	83
100	79
200	74
400	69
800	63
1,600	58
3,200	52
6,400	46

Source: SCE 2009

In addition to the equipment discussed above, project construction noise would also be generated from the operation of a concrete batch plant and helicopters used for tower construction. The existing concrete batch plant located off the I-15 freeway at the Yates Well Road interchange near the Primm Valley Golf Course would be used during construction. The facility is located approximately 0.5 miles from the Primm Valley Golf Club and 5 miles from the Desert Oasis Apartment Complex. The existing concrete batch plant was operating during the noise monitoring that was conducted at the golf club on November 20 and 21, 2008. Noise from the facility was not noticeable over the traffic noise from I-15.

If helicopters are used for transmission line tower construction, noise from the helicopters operated on a regular basis would be audible at staging areas, at tower construction sites, and along flight paths. Helicopters would pick up the towers from staging areas and place them at each location. Using helicopters would allow tower placement to be performed in a relatively short time, with an average flying time of 4 to 6 minutes between two sites. For example, 24 towers for 230-kV transmission lines could be constructed over a 6-mile span in a 2- to 3-day period.

In general, heavy-duty helicopters would be used during construction in remote locations. These locations would be less likely to be near populated areas as compared to locations accessible by truck. Available data indicate that the sound exposure level (SEL) from the overflight of one heavy-duty helicopter flying at an elevation of 1,000 feet would likely be in the range of 85 to 93 dBA. This corresponds to an hourly L_{eq} of 49 to 57 dBA.

Light-duty helicopters may also be used during construction. Light-duty helicopters would be smaller and generate an SEL of 80 to 85 dBA for an overflight at 1,000 feet elevation. This corresponds to an hourly L_{eq} of 44 to 49 dBA for the light-duty helicopters.

Transmission Line Corona Noise

To evaluate the noise impact due to corona, transmission line corona noise levels were calculated based on the Electric Power Research Institute Electromagnetic Workstation ENVIRO (version 3.52) modeling program. Corona is the noise generated from the strong electric field at the surface of a high voltage power line conductor ionizing the nearby air, resulting in an audible continuous low level noise or 'buzz.' The proposed transmission line was evaluated for corona noise at four representative locations. Location 1, Desert Oasis Apartment Complex, is within 0.5 miles of the transmission line. Location 2, Primm Valley Golf Club, is outside of the 0.5-mile buffer. Location 3, Ivanpah Lake,

is adjacent to recreational users of the area. Location 4, McCullough Pass, was selected for its highest elevation and greatest transmission line activity along the proposed transmission line.

For the modeling input parameters, a 230-kV double-circuit tower structure, 28-foot minimum ground clearance, and location-specific elevations were used to demonstrate the most conservative corona noise results for the proposed transmission line. The modeling results for each location are shown below in Table 3.10-7.

Table 3.10-7 Corona Noise Modeling Results Summary (dBA)

Corona Noise Modeling Location	Weather Conditions	Directly Under Tower	50 Feet from Center of Tower	100 Feet from Center of Tower	200 Feet from Center of Tower
1 Desert Oasis Apartment Complex	Fair	2	0	0	0
	Foul	27	24	21	18
2 Primm Valley Golf Club	Fair	2	0	0	0
	Foul	27	24	21	18
3 Ivanpah Lake	Fair	2	0	0	0
	Foul	27	24	21	18
4 McCullough Pass	Fair	4	2	0	0
	Foul	29	27	24	21

Source: SCE 2009
Note:
Results are calculated based on the Electric Power Research Institute Electromagnetic Workstation ENVIRO (version 3.52) modeling program. ENVIRO program results report as 0.0 dBA when corona noise calculations equal less than 0.1 dBA.
dBA = A-weighted decibel

Maintenance activities associated with the transmission line, substations, and the telecommunication system would typically result in noise levels below those associated with construction-related activities, and are anticipated to involve fewer pieces of heavy equipment, occur less frequently, and be of shorter duration than construction activities. Maintenance activities are primarily inspection-related (for example, annual inspection of the transmission line from vehicles). Other maintenance activities, including washing of insulators to ensure proper function, would be conducted on an as-needed basis but are anticipated to occur less than once per year.

Noise associated with maintenance activities is anticipated to be less than construction noise levels. Because the noise level estimates presented for construction are greater than the range of noise levels likely to be associated with maintenance activities, the construction noise assessments provided in this section adequately address the noise levels and potential impacts that would be associated with maintenance activities. As with construction noise, the applicant would use noise reduction measures to be compatible with local plans and zoning to the extent practicable.

3.10.3.4 Applicant Proposed Measures

The applicant has included the following applicant proposed measures (APMs) related to noise:

APM NOI-1: Compliance with Local Noise Ordinances. The proposed construction would comply with local noise ordinances. There may be a need to work outside the aforementioned local ordinances to take advantage of low electrical draw periods during the nighttime hours. The applicant would comply with variance procedures requested by local authorities if required.

APM NOI-2: Construction Equipment Working Order. Construction equipment would be in good working order.

APM NOI-3: Construction Equipment Maintenance. Construction equipment would be maintained per manufacturer's recommendations.

APM NOI-4: Construction Equipment Muffled. Construction equipment would be adequately muffled.

APM NOI-5: Construction Equipment Idling Minimized. Idling of construction equipment and vehicles would be minimized during the construction.

APM NOI-6: Hearing Protection for Workers. Workers would be provided appropriate hearing protection, if necessary, as described in the Health and Safety Plan.

3.10.3.5 Proposed Project / Proposed Action

Construction

Eldorado–Ivanpah Transmission Line

Construction of the transmission line would produce noise that would affect residences located at the Desert Oasis Apartment Complex due to the operation of construction equipment. The Federal Transit Administration (FTA) provides guidelines for reasonable criteria for assessment of construction noise (FTA 2006), which indicate that construction noise that exceeds a 1-hour L_{eq} of 90 dBA or an 8-hour L_{eq} of 80 dBA during the day would provoke adverse community reaction. The apartments are located between 50 and 100 feet from the transmission line, which would result in noise levels between 83 and 79 dBA, respectively, during construction. The apartment complex is separated from potential construction activities by an 8-foot solid concrete block wall. Typically, such a wall provides a minimum 5 to 10 dBA noise level reduction, provided it blocks the line of sight between the noise source and receiver. This would result in estimated construction noise levels between 69 and 78 dBA.

Construction activities would be limited to daytime hours, and Clark County regulations provide an exemption for noise from daytime construction activities. The applicant has also committed to complying with local noise ordinances (APM NOI-1); maintaining construction equipment in working order (APM NOI-2) and adhering to the manufacturer's maintenance recommendations (APM NOI -3); muffling construction equipment (APM NOI-4); and minimizing the amount of time that equipment is idled (APM NOI-5). In addition, the application would have to implement MM NOI-1 (Conduct Construction Activities during Daytime Hours) to minimize the potential impacts to residents of the Desert Oasis Apartment Complex. Impacts would be localized at receptors along the transmission line route and would be short-term.

Ivanpah Substation

The Ivanpah Substation would be located in San Bernardino County, where temporary construction noise is exempt from exterior noise level limits. Because there are no residences near the Ivanpah Substation that would be affected by construction noise, there would be no adverse impact due to noise during its construction. The nearest residences are approximately 6.7 miles from the Ivanpah Substation. The nearest noise receptors are at the Primm Valley Golf Club, more than 2.4 miles from the Ivanpah Substation, resulting in a potential noise level during construction of less than 46 dBA.

Eldorado Substation

Because there are no residences within 5 miles of this substation, there would be no adverse impact due to noise during its construction. The nearest receptors would be recreational users on Eldorado Dry Lake, located 3.5 miles north of the substation at the closest point. The resulting noise level at this location would be less than the ambient noise level. No hospitals, libraries, schools, places of worship, or other facilities are within the project area. The setting is rural and undeveloped.

Telecommunications Line

Stringing the overhead fiber optic cable and installing the fiber optic cable in existing and new underground conduit for the telecommunications line would not result in adverse noise impacts. Fiber optic cable installation equipment typically generates less noise than equipment used to install transmission lines, and the telecommunications path would not be located in the proximity of noise receptors.

Operation & Maintenance

Eldorado–Ivanpah Transmission Line

Operation of the transmission line would not result in any adverse noise impacts. The modeled corona noise levels, including those levels modeled at the Desert Oasis Apartment Complex, are all less than 30 dBA under worst-case foul weather conditions. This noise level is just audible.

Maintenance activities associated with the transmission line might result in direct minor adverse noise impacts to the residences located at the Desert Oasis Apartment Complex during the operation of equipment. Maintenance activities would typically result in noise levels below those associated with construction-related activities and are anticipated to involve fewer pieces of heavy equipment, occur less frequently, and be of shorter duration than construction activities. Although Primm does not have any regulations governing noise, the maintenance activities would be conducted during daylight hours when residents are less likely to be disturbed. The impact would be localized at receptors along the transmission line route and would be short-term, taking less time than the original line construction.

Ivanpah Substation

Because there are no residences near the proposed Ivanpah Substation that would be affected by operation noise, there would be no adverse noise impacts associated with the operation of the substation. The nearest residences are approximately 6.7 miles from the Ivanpah Substation. The nearest noise receptors are at the Primm Valley Golf Club, a distance of more than 2.4 miles from the Ivanpah Substation. Maintenance activities associated with the Ivanpah Substation would not result in adverse noise impacts because there are no residences near the Ivanpah Substation that would be affected by substation maintenance activities.

Telecommunications Line

Operation of the telecommunication system is not anticipated to result in audible noise at any location. Maintenance of the overhead fiber optic cable and underground fiber optic cable would not result in an adverse noise impact because line splicing and replacement activities would not result in elevated noise levels.

NEPA Summary

The proposed project would result in temporary minor adverse noise impacts at residences located at the Desert Oasis Apartment Complex due to project construction. The impacts would be localized at residential receptors along the transmission line route and would be short-term, lasting up to 2.5 weeks.

The operation of the transmission line, substation, and telecommunication line would not result in adverse noise impacts. Corona noise would be barely audible and would not change current conditions. Maintenance activities associated with substations and transmission lines would typically result in noise levels below those associated with construction-related activities and are anticipated to involve fewer pieces of heavy equipment, occur less frequently, and be of shorter duration and would result in negligible adverse noise impacts.

CEQA Significance Determinations

IMPACT NOI-1: Project Construction Noise Exceeding Noise Levels or Standards
Less than significant with mitigation

Project construction would comply with local noise ordinances and variance procedures requested by local authorities. In addition, as part of the project, the applicant has committed to maintaining construction equipment in working order (APM NOI-2) and adhering to the manufacturer's maintenance recommendations (APM NOI -3); muffling construction equipment (APM NOI-4); and minimizing the amount of time that equipment is idled (APM NOI-5).

Implementation of MM NOI-1 (Conduct Construction Activities during Daytime Hours) would ensure that noise impacts at the Desert Oasis Apartment Complex would be reduced, such that impacts would be less than significant.

IMPACT NOI-2: Transmission Line Operation and Maintenance Noise Exceeding Noise Levels or Standards
Less than significant without mitigation

During the worst-case foul weather conditions, substation noise and corona noise associated with operation of the proposed project is anticipated to be just audible. This level is less than the standards of the noise ordinances of the two applicable counties. Therefore, the impacts from operation noise from the proposed project (including proposed transmission line, alternatives, substations, and telecommunication system) would result in a less than significant impact under this criterion.

Maintenance activities would typically occur over short timeframes up to twice per month and would generate minimal noise. As part of the operation of the project, the applicant would use noise reduction measures to ensure compatibility with local plans and zoning. The impacts from maintenance noise would be short-term and less than significant under this criterion.

IMPACT NOI-3: Generate Groundborne Vibration or Groundborne Noise That Exceeds 75 VdB during Construction
Less than significant without mitigation

Construction activities (e.g., ground-disturbing activities, including grading and foundation excavation, and movement of heavy construction equipment) may generate groundborne vibration and noise. Pile-driving activities typically have the greatest potential to create groundborne vibration and noise, but pile-driving is not anticipated as part of the proposed project. At the nearest residential receptor (the Desert Oasis Apartment Complex, a distance of .01 miles from the line), the vibration level generated by a loaded truck, considered to be the greatest source of construction vibration, is estimated to be 76 VdB (FTA 2006). Although this level exceeds 75 VdB, both groundborne vibration and noise would occur during daytime hours and be short-term and temporary. Therefore, construction of the proposed project would result in a less than significant impact under this criterion.

IMPACT NOI-4: Generate Groundborne Vibration or Groundborne Noise That Exceeds 75 VdB during Operations
Less than significant without mitigation

During worst-case foul weather conditions, substation noise and the corona noise associated with operation of the proposed transmission line and alternatives is anticipated to be considerably less than existing noise levels. The minimum hourly L_{eq} measured at the nearest sensitive receptor, the Desert Oasis Apartment Complex, was 47 dBA (Table 3.10-2). Modeling results indicate that during foul weather conditions (maximum noise conditions) corona noise levels would be 24 dBA. The sum of the two, the existing and future noise levels (47 dBA + 24 dBA), would be 47 dBA given the logarithmic nature of decibel addition. Therefore, no perceptible increase would occur and operation of the proposed project would result in a less than significant impact under this criterion.

IMPACT NOI-5: Cause a Substantial Temporary Increase in Ambient Noise Levels in the Project Vicinity
Less than significant with mitigation

The FTA provides guidelines for reasonable criteria for assessment of construction noise (FTA 2006). Construction noise that exceeds a 1-hour L_{eq} of 90 dBA or an 8-hour L_{eq} of 80 dBA during the day would provoke adverse

community reaction. As discussed in Section 3.10.3.3, "Methodology," construction noise would not be anticipated to exceed 78 dBA at the closest sensitive receptor, the Desert Oasis Construction Complex.

Any increases in ambient noise levels due to construction activities in the project vicinity would be short-term, intermittent, and temporary. Adverse construction noise impacts would not be anticipated (e.g., nighttime construction or pile-driving near residences). As part of the project, construction contractors would comply with local noise ordinances (APM NOI-1); maintain construction equipment in working order (APM NOI-2) and adhere to the manufacturer's maintenance recommendations (APM NOI -3); muffle construction equipment (APM NOI-4); and minimize the amount of time that equipment is idled (APM NOI-5).

In order to reduce potential noise impacts, the contractor will implement appropriate additional noise minimization measures: Relocate Stationary Construction Equipment (MM NOI-2); Turn off Idling Equipment (MM NOI-3); Notify Adjacent Residences (MM NOI-4); and Install Acoustic Barriers (MM NOI-5) to reduce noise levels. Implementation of MM NOI-1 would require the applicant to only work during daytime hours when construction is near the Desert Oasis Apartment Complex. Therefore, with the implementation of MM NOI-1, and with additional noise minimization procedures (MM NOI-2 through MM NOI-5) implemented as needed, construction of the proposed project would result in a less than significant impact under this criterion.

NO IMPACT: Public Airport Combined Noise Impact. No public airstrips are currently located within two miles of the proposed project. Therefore, this criterion is not applicable to the proposed project during construction. The Jean Sport Aviation Center is approximately five miles away from the proposed route of the transmission line.

NO IMPACT. Private Airstrips. No private airstrips are located within two miles of the proposed project (Clark County 2008). Therefore, construction of the proposed project would result in no impacts under this criterion.

3.10.3.6 No Project / No Action Alternative

Under the No Project / No Action Alternative, there would be no construction of the transmission line, substation, or communication lines; therefore, there would be no construction or operational noise impacts.

3.10.3.7 Transmission Alternative Route A

Transmission Line Alternative A is similar to the EITP proposed route with the exception of bypassing a portion of the proposed route that runs north and south near Milepost 2.0, approximately 0.83 miles in the City of Boulder. Alternative Route A was created to bypass this segment by heading west and then north to join the existing ROW. The remainder of the EITP route would be the same.

Regarding potential construction noise impacts to sensitive receptors, Transmission Line Alternative A is similar to the proposed project because there is no change to the proposed project route near these receptors. Therefore, with implementation of MM NOI-1 through MM NOI-5, this alternative would also cause a direct minor short-term adverse noise impact or a less than significant impact with mitigation to residences located at the Desert Oasis Apartment Complex during construction.

Operational noise would not result in an adverse impact and would be less than significant. Groundborne noise and vibration generated during construction and operation of this alternative would be negligible and less than significant.

3.10.3.8 Transmission Alternative Route B

Transmission Line Alternative B is similar to the proposed route with the exception of bypassing a portion of the proposed route that runs north and south near Milepost 2.0, approximately 0.83 miles in the City of Boulder.

Alternative Route B was created to bypass this segment by heading north and then southwest to join the existing ROW. The remainder of the EITP route would be the same.

Regarding potential construction and operational noise and vibration impacts to sensitive receptors, Transmission Line Alternative B is similar to the proposed project because there is no change to the project route near these receptors. Therefore, potential impacts for Transmission Line Alternative B are similar to those associated with Transmission Alternative Route A.

3.10.3.9 Transmission Alternative Route C

Regarding potential construction and operational noise impacts to sensitive receptors, Transmission Line Alternative C would relocate a portion of the proposed transmission line away from the nearest sensitive receptor (Desert Oasis Apartment Complex). This relocation would likely result in a decrease in potential construction noise impacts on the Desert Oasis Apartment Complex, but such impacts would still be considered adverse and minor. Potential construction impacts associated with Transmission Line Alternative C would be minor and a less than significant impact.

Operational noise impacts would not result in an adverse noise impact and would be negligible and less than significant. Groundborne noise and vibration generated during construction and operation of this alternative would be slightly less than that generated by the proposed project and would be negligible and less than significant.

3.10.3.10 Transmission Alternative Route D and Subalternative E

Where feasible, Alternative Route D would parallel structure-for-structure the existing Los Angeles Department of Water and Power (LADWP) Marketplace–Adelanto 500-kV transmission line through the Ivanpah Dry Lake.

Alternative Route D begins at the Eldorado Substation and follows the proposed route to the point where the line reaches the northeastern edge of the Ivanpah Dry Lake (milepost [MP] 27, Tower 184). The line would be re-routed west and southwest on a new 130-foot ROW around Ivanpah Dry Lake for approximately 3.3 miles before rejoining the existing ROW at MP 30, Tower 203. The line would parallel the LADWP Marketplace–Adelanto 500-kV transmission line as it crosses through the Ivanpah Dry Lake.

Subalternative E replaces the northernmost portion of Alternative Route D. Subalternative E would deviate from the proposed project route at MP 27 and proceed southerly for approximately 1 mile on a new 130-foot ROW before intercepting the route proposed for Transmission Alternative D.

Regarding potential construction and operational noise impacts to sensitive receptors, Transmission Line Alternative D would relocate a portion of the proposed transmission line away from the nearest sensitive receptor (Desert Oasis Apartment Complex). This relocation would likely result in a decrease in potential construction noise impacts on the Desert Oasis Apartment Complex, but such impacts would still be considered adverse, minor, and less than significant.

Operational noise impacts would not result in an adverse noise impact and would be negligible and less than significant. Groundborne noise and vibration generated during construction and operation of this alternative would be slightly less than that generated by the proposed project and would be negligible and less than significant.

3.10.3.11 Telecommunication Alternative (Golf Course)

From the I-15 junction point, this route parallels I-15 in a northerly direction on existing Nipton 33-kV distribution line poles, crosses over I-15 near the Primm Golf Course, and crosses the golf course in an underground duct. After leaving the golf course, the route continues on existing Nipton 33-kV distribution line poles to a point approximately

1 mile from the Ivanpah Substation, where it would be installed in an underground duct for approximately 1 mile to enter the north side of the Ivanpah Substation. This route, from the I-15 junction point to the Ivanpah Substation, is approximately 10 miles. This alternative is located several miles from the Desert Oasis Apartment Complex and would not have any adverse noise impacts on this receptor or result in any other construction noise impacts.

Operational noise impacts would not result in any adverse noise impacts. There would be no groundborne noise or vibration impacts during construction and operation of this alternative.

3.10.3.12 Telecommunication Alternative (Mountain Pass)

This alternative extends from Nipton to the I-15 junction point and consists of a combination of All Dielectric Self-Supporting fiber cable on existing Nipton 33-kV wood pole lines and underground fiber cable. Approximately 1 mile of All Dielectric Self-Supporting fiber cable would be installed on the existing Nipton 33-kV distribution line immediately west of Nipton, on the north side of Nipton Road. An unknown number of poles may need to be replaced to meet the new loading requirement of the All Dielectric Self-Supporting fiber cable. This alternative is located several miles from the Desert Oasis Apartment Complex and would not have any adverse impacts on this receptor or result in construction noise impacts to any other noise receptors.

Operational noise impacts would not result in any adverse noise impacts. There would be no groundborne noise or vibration impacts during construction or operation of this alternative.

3.10.4 Mitigation Measures

MM NOI-1: Conduct Construction Activities during Daytime Hours. The applicant will conduct construction activities only during daytime hours (7 a.m. to 7 p.m.) while in the vicinity of the Desert Oasis Apartment Complex.

MM NOI-2: Relocate Stationary Construction Equipment. The applicant will locate stationary construction equipment at a site location that is as far away from the Desert Oasis Apartment Complex as is feasible.

MM NOI-3: Turn off Idling Equipment. The applicant will turn off idling equipment when not in use.

MM NOI-4: Notify Adjacent Residences. The applicant will notify residents within 200 feet of the transmission line in advance of construction work.

MM NOI-5: Install Acoustic Barriers. The applicant will install acoustic barriers around stationary construction noise sources near sensitive receptors.

3.10.5 Whole of the Action / Cumulative Action

Below is a brief summary of information related to noise in the ISEGS Final Staff Assessment/ Draft Environmental Impact Statement (FSA/DEIS) prepared by the California Energy Commission (CEC) and the BLM. This section focuses on differences in the ISEGS setting and methodology compared to the setting and methodology discussed above for the EITP. This section also discloses any additional impacts or mitigation imposed by the CEC for ISEGS.

3.10.5.1 ISEGS Setting

Environmental Setting

ISEGS would be constructed on 4,073 acres of federally owned land administered by the BLM in San Bernardino County. The site lies approximately 4.5 miles southwest of Primm, Nevada, and 3.1 miles west of the Nevada border, in an area designated compatible with solar energy development in the California Desert Conservation Area Plan. The Primm Valley Golf Club lies approximately 0.5 miles northeast of the eastern boundary of ISEGS. Unlike the EITP, the proposed project would be located entirely within a rural area.

Applicable Laws, Regulations, and Standards

Because ISEGS is located wholly within San Bernardino County—whereas the EITP spans San Bernardino and Clark County—laws, regulations, and standards in Tables 3.10-4, 3.10-4, and 3.10-5 that apply to the EITP would also apply to ISEGS with the exception of the Clark County regulations, which would apply to the EITP only.

Ambient Noise Monitoring

Ambient noise monitoring was not conducted for ISEGS, as it was for the EITP, because CEC regulations require such monitoring only when facilities located where quiet is an important attribute of the environment would be impacted by the project. The community of Primm, Nevada, 4.5 miles from ISEGS, is too far to be significantly impacted by project noise. The Primm Valley Golf Club golf course is considered a less noise-sensitive land use.

3.10.5.2 ISEGS Methodology

Noise analyses for ISGES were conducted for the power plant construction and operation, construction of natural gas and water pipeline, and electrical transmission lines, pile driving, and steam blows. As for the EITP, noise levels generated by these sources were modeled at the nearest noise receptors and then compared with applicable regulatory noise limits.

3.10.5.3 ISEGS Impacts

The CEC and the BLM have published the following impacts related to noise for the ISGES project:

Construction Impacts

Construction of ISEGS would cause a short-term increase in ambient noise levels in the vicinity of the facility. Construction of an industrial facility such as a power plant is typically noisier than permissible under usual noise ordinances. In order to allow the construction of new facilities, construction noise during certain hours of the day is commonly exempt from enforcement by local ordinances. The San Bernardino County Development Code exempts all construction noise from numerical noise limits between 7 a.m. and 7 p.m. Monday through Saturday. If members of the public complain about construction noise, mitigation measures NOISE-1 and NOISE-2 would be implemented. This would establish a notification process to make people aware of ISEGS and a noise complaint process that would require the applicant to resolve any problems caused by noise from the ISEGS project. Mitigation measures NOISE-6 and NOISE-7 would also be implemented to limit the hours of construction to daytime hours.

Operational Impacts

The primary noise sources of the ISEGS project would be the steam turbine generators, boiler feed pumps, transformers, auxiliary boilers, and air-cooled condenser fans. Depending on the equipment noise emissions, distance to nearest receptors, shielding, and other noise control measures, the operation of the ISEGS power plant could result in a noise impact. Mitigation measures NOISE-4 and NOISE-5 would ensure that operation of the plant would not cause noise complaints from residents of Primm, Nevada, or from the operator of the Primm Valley Golf Course or expose plant employees to occupational noise in excess of California and federal regulations.

Decommissioning Impacts

In the future, upon closure of the ISEGS project, all operational noise from the project would cease, and no further adverse noise impacts from operation of ISEGS would be possible. A potential temporary noise source would result from dismantling the structures and equipment and any site restoration work that might be performed. This noise would be similar to that caused by the original construction. Mitigation measures listed for construction noise would also be applied to project decommissioning activities.

3.10.5.4 ISEGS Conditions of Certification / Mitigation Measures

The ISEGS FSA/DEIS recommends that the following Conditions of Certification be required by the CEC and the BLM to lessen impacts to noise if the project is approved:

NOISE-1 requires that at least 15 days prior to the start of ground disturbance, the project owner will notify the operator of the Primm Valley Golf Course, by mail or other effective means, of the commencement of project construction. At the same time, the project owner will establish a telephone number for use by the public to report any undesirable noise conditions associated with the construction and operation of the project and include that telephone number in the above notice. If the telephone is not staffed 24 hours per day, the project owner will include an automatic answering feature, with date and time stamp recording, to answer calls when the phone is unattended. The telephone number will be posted at the project site during construction in a manner visible to passersby. The telephone number will be maintained until the project has been operational for at least one year.

NOISE-2 requires that throughout the construction and operation of ISEGS, the project owner will document, investigate, evaluate, and attempt to resolve all project-related noise complaints. The project owner or authorized agent will:

- Use a noise complaint resolution form or a functionally equivalent procedure acceptable to BLM's Authorized Officer and the Compliance Project Manager (CPM), to document and respond to each noise complaint
- Attempt to contact the person(s) making the noise complaint within 24 hours
- Conduct an investigation to determine the source of noise related to the complaint
- Take all feasible measures to reduce the noise at its source if the noise is project related
- Submit a report documenting the complaint and the actions taken; the report will include a complaint summary, including final results of noise reduction efforts, and, if obtainable, a signed statement by the complainant stating that the noise problem is resolved to the complainant's satisfaction

NOISE-3 requires the project owner to submit to BLM's Authorized Officer and the CPM for review and approval a noise control program and a statement, signed by the project owner's project manager, verifying that the noise control program will be implemented throughout construction of the project. The noise control program will be used to reduce employee exposure to high noise levels during construction and also to comply with applicable OSHA and Cal/OSHA standards.

NOISE-4 requires that the project design and implementation include appropriate noise mitigation measures adequate to ensure that operation of the project will not cause noise complaints from residents of Primm, Nevada, or from the operator of the Primm Valley Golf Course. If project-related noise complaints are received from residents of Primm, the project owner will perform a noise survey to demonstrate that noise levels due to plant operation do not exceed an average of 45 dBA L_{eq} measured at the nearest residence of the community of Primm, Nevada. If project-related noise complaints are received from the operator of the Primm Valley Golf Course, the project owner will perform a noise survey to demonstrate that noise levels due to plant operation do not exceed an average of 55 dBA L_{eq} measured at the nearest boundary of the golf course. No new pure-tone components may be caused by the project. No single piece of equipment shall be allowed to stand out as a source of noise that draws legitimate complaints.

NOISE-5 requires that following each phase (Ivanpah 1, Ivanpah 2, and Ivanpah 3) of the project's first achieving a sustained output of 80% or greater of rated capacity, the project owner will conduct an occupational noise survey to identify the noise hazardous areas in the facility. The survey results will be used to determine the magnitude of

employee noise exposure. The project owner will prepare reports of the survey results and, if necessary, identify proposed mitigation measures that will be employed to comply with the applicable California and federal regulations.

NOISE-6 requires that heavy equipment operation and noisy construction work relating to any project features be restricted to weekdays and Saturdays, 7 a.m. to 7 p.m.

No noisy construction work will be performed on Sundays or federal holidays. Haul trucks and other engine-powered equipment will be equipped with mufflers that meet all applicable regulations. Haul trucks will be operated in accordance with posted speed limits. Truck engine exhaust brake use will be limited to emergencies.

NOISE-7 requires that if a high-pressure steam blow is employed, the project owner will equip steam blow piping with a temporary silencer or take other effective measures that quiet the noise of steam blows to no greater than 60 dBA measured at the Primm Valley Golf Club and no greater than 55 dBA measured at any affected residential locations in Primm, Nevada. The project owner will conduct high-pressure steam blows only during the hours of 7 a.m. to 7 p.m. If a low-pressure continuous steam blow is employed, the project owner will limit the noise of steam blows to no greater than 45 dBA measured at any affected residential location in Primm, Nevada.

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