

EXHIBIT I

EXHIBIT I – ANTICIPATED NOISE AND INTERFERENCE WITH COMMUNICATION SIGNALS

As stated in Exhibit I of Exhibit 1 to the Rules of Practice and Procedure Before Power Plant and Transmission Line Siting Committee:

“Describe the anticipated noise emission levels and any interference with communication signals which will emanate from the proposed facilities.”

The following sub-exhibits analyze the noise emission levels and any interference with communication signals which will emanate from the CEC Transmission Facilities.

Exhibit I-1	Anticipated Noise and Interference with Communication Signals from the Nogales Interconnection Project
Exhibit I-2	Anticipated Noise and Interference with Communication Signals from the Nogales Tap to Kantor Upgrade Project

Pursuant to Footnote 1 of Exhibit 1 to the Rules of Practice and Procedure Before Power Plant and Line Siting Committee, Applicants refer the Committee to the following studies for additional analysis of anticipated noise in the vicinity of the Nogales Interconnection Project:

- Exhibit B-1(a): PP EA (Section 3.9)
- Exhibit B-1(b): DOE Draft EA (Sections 3.12, 4.12, 4.16.4.10)

Applicants further refer the Committee to the following studies for additional analysis of interference with communication signals in the vicinity of the Nogales Interconnection Project:

- Exhibit B-1(a): PP EA (Section 3.11)
- Exhibit B-1(b): DOE Draft EA (Sections 3.13, 4.13, 4.16.4.11)

Exhibit I-1 – Anticipated Noise and Interference with Communication Signals from the Nogales Interconnection Project

I. NOISE

The Nogales Interconnection Project will generate short-term noise during construction and long-term noise during transmission line operation and maintenance activities.

Construction noise is expected to be variable and intermittent, and would normally be limited to daytime hours. The potential construction noise impacts would primarily affect sensitive receptors consisting of residences and commercial areas in the immediate vicinity of the ROW and upgraded or new access roads. Impacts to one sensitive receptor (Villa San Simone Subdivision) would be limited because construction activities would be limited to conductor installation within an existing ROW, and a second sensitive receptor would experience localized and intermittent construction noise levels comparable to a lawnmower or leaf blower. The planned construction phase is currently expected to last approximately twelve months for the HVDC converter station and six months for the transmission line; the future expansion of the Gateway Substation HVDC converter capacity (Phase II) is anticipated to occur in a separate, future construction phase shorter than six months.

Long-term noise impacts would occur during operation and maintenance. Potential long-term noise includes corona noise, which may occur during operation in very high humidity conditions, audible as a crackling or sizzling sound. These conditions are expected to occur rarely given the geographic location of the project in a dry, desert-like climate. The primary noise sources at the proposed Gateway Substation are: converter transformers, aircooled liquid cooling towers that include fans, and valve enclosures that house water-cooled thyristors. Transformer noise is expected to occur continuously while the transformers are in use.

Pursuant to the City of Nogales noise ordinance (Nogales Code of Ordinances, Chapter 12, Article 3 Noise), which the Applicants assume is applicable to the proposed Gateway Substation, maximum allowable noise levels for continuous noise sources vary by the land use of the noise receiver and time of day.

The proposed Gateway Substation site and the surrounding land are zoned light industrial. The nearest residential land use is a mobile trailer park, located

approximately 2,700 feet east of the proposed Gateway Substation property line. Maximum allowable Project-related noise at that distance (and location) is 65 A-weighted decibels (“dBA”) and 55 dBA during daytime and nighttime, respectively. The nearest industrial property line is located approximately 330 feet south of the Gateway substation. Maximum allowable Project-related noise at that distance (and location) is 85 dBA and 70 dBA during daytime and nighttime, respectively.

To reduce the effects of noise from the Nogales Interconnection Project, the substation equipment would be designed so that the maximum noise level would be 75 dBA at three meters (approximately 10 feet) away from individual pieces of equipment and 65 dBA at the fence line. This design goal would result in compliance with the maximum allowable noise limits in the Nogales noise ordinance.

Overall, because of the relatively dry nature of the area crossed by the project, the overall level of operational noise will be minimal and will therefore represent a minor, but long-term, impact to ambient soundscapes. Operational noise will decrease rapidly with distance from the transmission line.

Additional information concerning noise impacts can be found in Section 4.12 of the DOE Draft EA (Exhibit B-1(b)).

II. COMMUNICATIONS INTERFERENCE

As discussed in more detail in Sections 3.13 and 4.13 of the DOE Draft EA (Exhibit B-1(b)), Applicants analyzed the radio, television, and cellular telephone infrastructure within the vicinity of the Nogales Interconnection Project and the potential impacts of the project on that infrastructure. Communication tower data was obtained from the Federal Communications Commission (“FCC”) and spatially analyzed in a geographic information system to determine direct and indirect impacts. Communication tower locations are provided at Figure I-1(a).

Applicants are not aware of any complaints related to radio or television interference resulting from the operation of existing transmission lines located near the Nogales Interconnection Project, and do not expect that such interference will be an issue. In addition, there are no communication towers located within 250 feet of any of the route segment variations; therefore, construction of the project will not directly affect any communication towers. Indirect impacts to communication towers may occur during operation and maintenance.

Applicants do not anticipate impacts on radio, television, or communication signals, as the transmission line hardware would be designed to minimize gap and corona discharges. Radio frequency noise is generally not an issue for cellular phones, because it is nearly non-existent in their frequency range, and the technology is superior to that of two-way mobile radio units.

A. Radio

Interference from transmission line corona discharges associated with the project could occur for an amplitude modulation (“AM”) radio station within its primary coverage area. That situation is unlikely, however, because AM radio frequency interference typically occurs immediately under a transmission line and dissipates rapidly with increasing distance from the line. Frequency modulation (“FM”) radio receivers usually do not pick up interference from transmission lines, because corona-generated radio frequency noise currents decrease in magnitude with increasing frequency and are quite small in the FM broadcast band (88–108 Megahertz). The interference rejection properties inherent in FM radio systems make them virtually immune to amplitude type disturbances.

B. Television

Television reception could be impacted by the structures or transmission line conductors, as they may cause a shadowing effect that could cause reception interferences. Although this occurrence is rare, a transmission structure or the conductor can create a shadow on adjoining properties that can obstruct or reduce the transmitted signal. Structures may cause a reflection or scattering of the signal. Reflected signals from a structure result in the original signal breaking into two or more signals. Due to the large spaces between individual structures, the project’s structures would not create one large obstacle, and broadcast signals would travel between the structures, minimizing the likelihood of shadowing and reflection effects.

In addition, corona-generated radio frequency noise and transmission line structure placement could cause interference with television broadcast signals. Because digital reception is, in most cases, considerably more tolerant of noise and somewhat less resistant to multipath reflections (i.e., reflections from structures) than analog broadcasts, interference would not be anticipated. However, if the noise level or reflections are great enough, they would impact digital television reception. Due to the higher frequencies of television broadcast signals (i.e., 54 Megahertz and above), a transmission line seldom causes reception problems within a station’s primary coverage

area. Usually, any reception problem can be corrected with the addition of an outside antenna.

Figure I-1(a) – Infrastructure in the Vicinity of the Nogales Interconnection Project

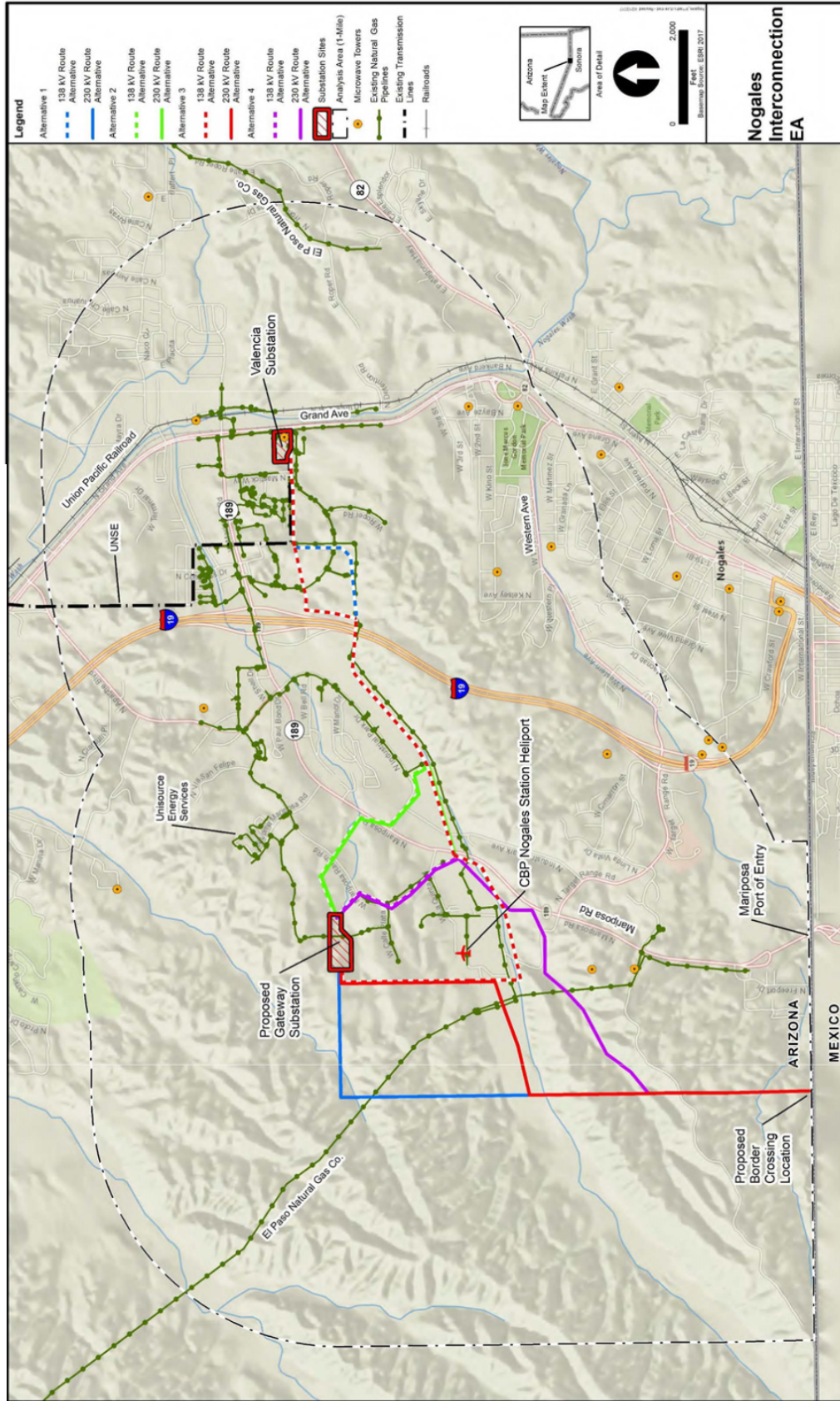


Exhibit I-2 – Anticipated Noise and Interference with Communication Signals from the Nogales Tap to Kantor Upgrade Project

I. NOISE

Baseline ambient noise levels were estimated using the relationship between population density and noise levels. Much of the project area is uninhabited; however, transportation and energy infrastructure development is already present. Populations for the majority of the area immediately adjacent to the proposed project facilities would be classified as Rural (undeveloped), with a population density of less than 20 people per square mile and typical ambient noise levels of 35 dBA.

Sources of noise along the proposed project alignments primarily relate to transportation sources and would include Wilmot Road, nearby I-19, and local access traffic. No hospitals, schools, churches, or other sensitive noise receptors are located in the project area.

Some level of noise will result from transmission line construction, operation, and maintenance. During construction, equipment used for clearing and grading (access roads and structure sites), assembly and erection of structures, wire pulling and splicing, and rehabilitation activities will generate noise. Noise from construction activities would be audible, particularly to the closest residents along the existing transmission line. This construction noise, however, would not be considered to be a major impact because construction would occur during daytime hours when tolerance to noise is higher and likely to be considered only a nuisance, and would be temporary, lasting only a few days at a time in any one location. Long-term noise impacts from transmission line operation and maintenance activities are expected to be minimal.

II. COMMUNICATIONS INTERFERENCE

A. Radio

No communications facilities are located within the study area. Residential areas located in the vicinity of the project alternative alignments are in close proximity to the existing 138-kV line; therefore, additional radio interference as a result of project implementation is not expected.

B. Television

Interference with traditional television reception from the transmission line's corona effects may occur during periods of bad weather, but is usually only a concern for transmission lines of 345-kV or greater and only for receivers within 500 feet of the line. Because the project alternatives would replace the existing 138-kV line and voltage would not exceed 138-kV, television interference is not expected.