

E. Comparison of Alternatives

This section summarizes and compares the environmental advantages and disadvantages of the Proposed Project and the alternatives evaluated in this EIR. This comparison is based on the assessment of environmental impacts of the Proposed Project and each alternative, as identified in Sections D.2 through D.13. Section C introduces and describes the alternatives considered in this EIR; Appendix 2 includes the Alternatives Screening Report, which documents all alternatives considered in the screening process.

Section E.1 describes the methodology used for comparing alternatives. Section E.2 defines the environmentally superior alternative, based on comparison of each alternative with the Proposed Project. Section E.3 presents a comparison of the No Project Alternative with the alternative that is determined in Section E.2 to be environmentally superior.

E.1 Comparison Methodology

CEQA does not provide specific direction regarding the methodology of alternatives comparison. Each project must be evaluated for the issues and impacts that are most important; this will vary depending on the project type and the environmental setting. Issue areas that are generally given more weight in comparing alternatives are those with long-term impacts (e.g., visual impacts and permanent loss of habitat or loss of use of recreational facilities). Impacts associated with construction (i.e., temporary or short-term) or those that are easily mitigable to less than significant levels are considered to be less important.

This comparison is designed to satisfy the requirements of CEQA Guidelines Section 15126.6(d), Evaluation of Alternatives, which states that:

“The EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. A matrix displaying the major characteristics and significant environmental effects of each alternative may be used to summarize the comparison. If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed.”

If the environmentally superior alternative is the No Project Alternative, CEQA requires identification of an environmentally superior alternative among the other alternatives [CEQA Guidelines Section 15126.6(e)(2)].

The following methodology was used to compare alternatives in this EIR:

- **Step 1: Identification of Alternatives.** An alternatives screening process (described in Section C) was used to identify a number of alternatives to the Proposed Project. That screening process identified five alternatives that would utilize the existing ROW with minor route modifications. A No Project Alternative was also identified. No other feasible alternatives meeting most of the project objectives were identified that would lessen or alleviate significant impacts.
- **Step 2: Determination of Environmental Impacts.** The environmental impacts of the proposed and the alternative route segments were identified in Sections D.2 through D.13, including the potential impacts of transmission line and substation construction and operation. There were no significant and unmitigable (Class I) impacts identified that could occur with the Proposed Project and alternatives.
- **Step 3: Comparison of Proposed Project with Alternatives.** The environmental impacts of the Proposed Project were compared to those of each alternative to determine the environmentally superior alternative. The environmentally superior alternative was then compared to the No Project Alternative.

Although this comparison focuses on the most important issue areas (e.g., visual resources, biological resources), determining an environmentally superior alternative is difficult because of the many factors that must be balanced. In order to identify the environmentally superior alternative, the most important impacts in each issue area were identified and compared (see detailed comparison tables in Section E.2). **Although this EIR identifies an environmentally superior alternative, it is possible that the decision-makers (the five members of the CPUC) could balance the importance of each impact area differently and reach a different conclusion.**

E.2 Environmentally Superior Alternative

As stated above, the EIR has not identified any significant unmitigable (Class I) impacts from the Proposed Project. In addition, no Class I impacts are identified for any alternative. Therefore, this comparison is based on the relative importance of the project impacts in the 12 issue areas (described in Sections D.2 through D.13).

The following is a discussion of the advantages and disadvantages of each alternative and a determination of whether the Proposed Project or an alternative is considered to be environmentally superior within each issue area. The preferred alternative is identified for each issue area. In each of the tables presented below, an alternative shown as “preferred” may still have environmental effects, but when compared with the other alternatives, the environmental effects would be minimized with the preferred alternative.

E.2.1 Transmission Line Route Alternatives: Jamacha Valley

The Proposed Project would be located entirely within SDG&E’s existing ROW for the segment in Jamacha Valley. Three alternatives have been developed in order to address the concerns of residents in Jamacha Valley living near or adjacent to the Miguel-Mission ROW regarding potential long-term visual impacts and EMF emissions associated with the Proposed Project. The three available alternatives are: Jamacha Valley 138 kV/69 kV Underground Alternative, Jamacha Valley Overhead A Alternative, and Jamacha Valley Overhead B Alternative.

Proposed Project vs. Jamacha Valley Alternatives

The **Jamacha Valley 138 kV/69 kV Underground Alternative** (see Section C and Section 4.2.1.1 of Appendix 2) would relocate the existing 138 kV and 69 kV circuits underground for 3.5 miles along Willow Glen Drive. Though short-term construction impacts would be greater than the Proposed Project because of the slower pace of underground work, this alternative would eliminate the need to construct 14 proposed 138 kV/69 kV poles. The Jamacha Valley 138 kV/69 kV Underground Alternative would substantially eliminate the visual impacts along Willow Glen Drive and from the Cottonwood community near Hillsdale and Vista Rodeo Roads, and it would avoid construction-related disturbance of biological and cultural resources in the existing ROW and reduce soil erosion. It would, however, result in an increased likelihood of disrupting traffic along Willow Glen Drive during construction and an increased likelihood of affecting unknown buried cultural resources because the underground route would be in an area of higher archaeological sensitivity. It would not substantially reduce magnetic levels because they would be dominated by magnetic field emissions from the 230 kV circuits that would not be relocated. In addition magnetic fields would be added the 3.5-mile segment of Willow Glen Drive.

The **Jamacha Valley Overhead A Alternative** (see Section C and Section 4.2.1.2 of Appendix 2) would locate the new alignment of poles to the east of the proposed location, away from the residents in the southern portion of Jamacha Valley. This alternative would reduce impacts to visual resources because of

the location of the 138 kV and 69 kV poles on the east side of the ROW, but it would cause increased short-term impacts related to disturbance of biological and cultural resources and soil erosion from construction of new pole sites and access road extensions to the east side of the ROW. It would not substantially reduce magnetic field levels at the west edge of the ROW, and levels along the eastern edge of the ROW would be increased by roughly 40 percent because of locating the 138 kV and 69 kV circuits near the eastern edge.

The **Jamacha Valley Overhead B Alternative** (see Section C and Section 4.2.1.3 of Appendix 2) would result in the addition of two new alignments of steel mono-pole structures and removal of the existing 138 kV/69 kV lattice towers. This alternative would substantially eliminate impacts to visual resources by replacing existing lattice towers with less visually intrusive poles, but it would cause increased short-term impacts related to disturbance of biological and cultural resources and soil erosion from construction of new pole sites. It would reduce magnetic field levels at the west edge of the ROW by roughly 10 percent, and levels along the eastern edge of the ROW would be increased by roughly 20 percent because of the 230 kV circuits being closer to that edge.

Comparison of Jamacha Valley Alternatives. The Jamacha Valley 138 kV/69 kV Underground Alternative is preferred overall because it would substantially eliminate long-term and permanent impacts to visual resources. Construction would occur in an existing roadway, so short-term construction-related impacts to earth resources (i.e., biological resources, geology, soils, paleontology, hydrology, and water quality) would also be minimized with the Jamacha Valley 138 kV/69 kV Underground Alternative. Other construction-related, public nuisance-type impacts (i.e., air quality, noise, vibration, and traffic) would be minimized with the Proposed Project. The nuisance-type effects would adversely impact residences, recreational facilities, and transportation facilities, but the impacts would be short-term and mitigated to less than significant levels. Table E-1 compares each of the Jamacha Valley Alternatives with the Proposed Project for each environmental issue area.

Table E-1. Proposed Project vs. Jamacha Valley Alternatives

Issue Area	Proposed Project	Jamacha Valley 138 kV/69 kV Underground Alternative	Jamacha Valley Overhead A Alternative	Jamacha Valley Overhead B Alternative
Air Quality	Preferred because of reduced exposure of residences and reduced construction disturbance	Longest duration of construction and disturbance due to underground work near a greater number of residences	Impacts would be similar to the Proposed Project, but would have a slightly longer construction duration	Impacts would be similar to the Proposed Project, but would have a longer construction duration
Biological Resources	More construction in sensitive areas increasing temporary impacts	Preferred because of slight reduction in both temporary and permanent impacts as well as need for mitigation	Slightly greater level of construction in sensitive areas increasing temporary impacts	Slight reduction in temporary impacts, but a slight increase in permanent impacts and required mitigation
Cultural Resources	Preferred because of low likelihood of encountering unknown resources	Highest likelihood of affecting unknown buried cultural resources due to greater ground disturbance and requiring construction to Willow Glen Drive, which may qualify as a historical resource and is in an area of higher archaeological sensitivity	More likely to encounter cultural resources sites with construction of new 138 kV/69 kV pole sites and access roads	More likely to encounter cultural resources sites with construction of both new 230 kV and 138 kV/69 kV poles

Table E-1. Proposed Project vs. Jamacha Valley Alternatives

Issue Area	Proposed Project	Jamacha Valley 138 kV/69 kV Underground Alternative	Jamacha Valley Overhead A Alternative	Jamacha Valley Overhead B Alternative
Geology, Soils, and Paleontology	Constructing several new towers in bedrock along sloping terrain would impact soil and slope stability	Preferred because alternative would be in paved roadways along gentle topography	Greater soil erosion due to increased ground disturbance from construction of new 138 kV/69 kV pole sites and access roads	Greater soil erosion due to increased ground disturbance necessary to remove the towers and construct two alignments of poles
Hydrology and Water Quality	Soil erosion and increased sedimentation due to new access roads that would need to be built	Preferred because construction would occur within paved roadways and would avoid construction of access roads to new towers	Greater impacts from soil erosion and increased sedimentation due to construction of new 138 kV/69 kV pole sites and access roads	Greater disturbance due to additional tower construction and removal
Land Use	Preferred because of reduced construction disturbance and duration	Longer construction duration due to slower pace of underground work	Similar to the Proposed Project, but would have a slightly longer construction duration	Slightly longer construction duration due to additional tower construction and removal
Noise and Vibration	Preferred because of reduced construction disturbance and duration	Longest duration of construction and disturbance due to underground work by a greater number of residences	Impacts would be similar to the Proposed Project, but would have a slightly longer construction duration	Slightly longer construction duration due to additional tower construction and removal
Public Health and Safety	Preferred because of small potential for encountering contaminated areas	More likely to encounter contaminated areas during underground construction within roadways	Slightly greater amount of soil disturbance than Proposed Project and increased potential for encountering contaminated areas	Greater amount of soil disturbance and increased potential for encountering contaminated areas
Public Services and Utilities	Preferred because of slightly less likelihood of disrupting public services and utilities	Most likely to disrupt services during excavation for the underground portion of the route	Slightly greater likelihood than Proposed Project of disrupting utilities during construction	Slightly greater likelihood of disrupting utilities during installation of new poles.
Socioeconomics	No preference	No preference	No preference	No preference
Transportation and Traffic	Preferred because construction disturbance of traffic would be the least	Most disturbance to traffic due to construction of underground lines in roadways	Impacts would be similar to the Proposed Project, but would have a slightly longer construction duration	Impacts would be similar to the Proposed Project, but would have a longer construction duration
Visual Resources	Retaining existing lattice towers would have greater permanent visual impacts than replacement with steel mono-poles	Preferred because the 138 kV/69 kV line would be underground, substantially eliminating visual impacts in Jamacha Valley associated with the Proposed Project and from the Cottonwood community near Hillsdale and Vista Rodeo Roads	Comparable to the Proposed Project, but reduced visual impacts would occur where the 138 kV/69 kV line and structures would be positioned further away from residences and parks	Substantially reduced visual impacts because of eliminating existing lattice towers

E.2.2 Transmission Line Route Alternatives: City of Santee

The Proposed Project would be located entirely within SDG&E's existing ROW in the City of Santee. Alternatives were developed in response to concerns of the residents in the City of Santee living near or adjacent to the Miguel-Mission ROW regarding the potential for permanent visual impacts and EMF emissions associated with the Proposed Project. The different route modifications available within this segment are: City of Santee 138 kV/69 kV Underground Alternative and City of Santee 230 kV Overhead Northern ROW Boundary Alternative.

Proposed Project vs. City of Santee Alternatives

The **City of Santee 138 kV/69 kV Underground Alternative** (see Section C and Section 4.2.2.1 of Appendix 2) was developed in response to the concerns of the residents in the City of Santee to reduce the visual and EMF impacts of the Proposed Project. The circuits would be installed underground for approximately 0.6 miles outside of SDG&E's ROW along a water storage tank access road and 0.75 miles along the length of Princess Joann Road. Under this alternative, three proposed 138 kV wood and steel poles associated with the Proposed Project would be eliminated. In addition, this alternative would eliminate two existing 138 kV wood poles north of Magnolia Avenue. The City of Santee 138 kV/69 kV Underground Alternative would reduce or avoid impacts to visual resources, as well as impacts to biological resources and known cultural resources, while increasing other construction-related impacts because of the slower pace of underground work. It would also reduce magnetic field levels for residences located immediately adjacent to the southern edge of the existing ROW.

The **City of Santee 230 kV Overhead Northern ROW Boundary Alternative** (see Section C and Section 4.2.2.4 of Appendix 2) was developed based on input from residents of the City of Santee that the circuits should be moved to the northern side of the existing ROW. The circuits would be located approximately 25 to 35 feet north of the existing northern ROW boundary on steel mono-poles. The City of Santee 230 kV Overhead Northern ROW Boundary Alternative would substantially reduce visual impacts to the residences located immediately adjacent to the ROW, while causing slightly greater impacts related to disturbance of biological and cultural resources and soil erosion. It would also substantially reduce EMF levels for residences located immediately adjacent to the southern edge of the Existing ROW.

Comparison of City of Santee Alternatives. The City of Santee 138 kV/69 kV Underground Alternative is preferred overall because it would substantially eliminate long-term and permanent impacts to visual resources. Because construction would occur in an existing roadway, short-term construction-related impacts to biological resources would also be minimized with the City of Santee 138 kV/69 kV Underground Alternative. Other construction-related impacts to earth resources (i.e., geology, soils, paleontology, hydrology, and water quality), and public nuisance-type impacts (i.e., air quality, noise, vibration, and traffic), would be minimized with either the Proposed Project or the City of Santee 230 kV Overhead Northern ROW Boundary Alternative. The City of Santee 230 kV Overhead Northern ROW Boundary Alternative, when compared solely to the Proposed Project, would provide reduced permanent impacts to visual resources with slightly greater short-term construction impacts. The nuisance-type effects would adversely impact residences and transportation facilities, but the impacts would be short-term and mitigated to less than significant levels.

Table E-2 compares each of the City of Santee Alternatives with the Proposed Project for each environmental issue area.

Table E-2. Proposed Project vs. City of Santee Alternatives

Issue Area	Proposed Project	City of Santee 138 kV/69 kV Underground Alternative	City of Santee 230 kV Overhead Northern ROW Boundary Alternative
Air Quality	Similar, but slightly increased exposure of residences and reduced construction disturbance	Longer duration of construction and disturbance due to underground work near a greater number of residences	Preferred because similar to the Proposed Project, except pole installation would occur further from homes
Biological Resources	More construction in sensitive areas increasing temporary impacts	Preferred because of slight reduction in both temporary and permanent impacts as well as reduced need for mitigation	Slightly greater level of construction in sensitive areas than Proposed Project, increasing temporary impacts
Cultural Resources	Preferred because of low likelihood of encountering unknown resources	Increases the likelihood of affecting unknown buried cultural resources by increasing the amount of ground-disturbance	More likely to encounter cultural resources sites with construction of additional pole sites
Geology, Soils, and Paleontology	Preferred because tower construction would cause soil disturbance but to a lesser extent	Approximately 800 feet of trenching west of Princess Joann Road would greatly disturb erodible soil	Slightly greater likelihood of soil disturbance than Proposed Project and greater damage to paleontological resources due to construction of additional pole sites
Hydrology and Water Quality	Preferred because one fewer watercourse would be crossed, but construction-related water quality impacts would be greater from the need to construct short access roads in existing ROW	One additional watercourse would be crossed resulting in greater potential for groundwater impacts, but construction-related water quality impacts would be less due to avoiding of the need to construct access roads in existing ROW	Slightly greater impacts related to soil erosion and increased sedimentation due to construction of additional pole sites
Land Use	Proposed Project would be constructed in existing corridor adjacent to residential land uses	Requires more construction work in residential area and longer construction duration	Preferred because similar to the Proposed Project, except pole installation would occur further from homes
Noise and Vibration	Proposed Project would be constructed in existing corridor adjacent to residential land uses	Longer duration of construction and underground work by a greater number of residences	Preferred because similar to the Proposed Project, except pole installation would occur further from homes
Public Health and Safety	Slightly greater likelihood of encountering contaminated areas along the access road adjacent to the Miguel-Mission ROW, just east of Magnolia Avenue	Most likely to disrupt services during excavation for the underground portion of the route, and greater potential for encountering contaminated areas	Preferred , because of slightly less likelihood of encountering contaminated areas
Public Services and Utilities	Slightly greater likelihood of disrupting utilities along the southern boundary of the Miguel-Mission ROW, especially east of Magnolia Avenue	More likely to disrupt services during excavation for the underground portion of the route	Preferred because of slightly less likelihood of disrupting utilities.
Socio-economics	No preference	No preference	No preference
Transportation and Traffic	Preferred because construction disturbance of traffic would be the least	Most disturbance to traffic due to construction of underground lines in roadways	Impacts would be similar to the Proposed Project, but would have a slightly longer construction duration
Visual Resources	Greater permanent visual impacts because of location of new poles near residences at southern edge of ROW	Preferred because the 138 kV/69 kV line would be underground, substantially eliminating impacts in the City of Santee corridor	Comparable to the Proposed Project, but reduced visual impacts would occur for the residences immediately adjacent to the ROW

E.2.3 Definition of Environmentally Superior Alternative

Table E-3 defines the environmentally superior alternatives for the entire project route. In the areas not affected by the two identified alternatives, the Proposed Project, with mitigation recommended in this EIR, is environmentally superior. The conclusion for each segment is summarized below.

Table E-3. Environmentally Superior Alternative

Segment	Preferred Route
Jamacha Valley Alternatives	Jamacha Valley 138 kV/69 kV Underground Alternative
City of Santee Alternatives	City of Santee 138 kV/69 kV Underground Alternative

Conclusion for Jamacha Valley Alternatives

The Jamacha Valley 138 kV/69 kV Underground Alternative is preferred overall because it would substantially eliminate long-term and permanent impacts to visual resources. Because construction would occur in an existing roadway, short-term construction-related impacts to earth resources (i.e., biological resources, geology, soils, paleontology, hydrology, and water quality) would also be minimized with the Jamacha Valley 138 kV/69 kV Underground Alternative.

The Jamacha Valley Overhead A and B Alternatives are also preferred over the Proposed Project because they would reduce long-term and permanent impacts to visual resources. The Jamacha Valley Overhead B Alternative would be superior to the Jamacha Valley Overhead A Alternative because it would substantially reduce the long-term and permanent impacts to visual resources without substantially increasing construction-related impacts beyond those that would occur with the Proposed Project. Construction-related impacts for the Jamacha Valley Overhead A and B Alternatives would generally be comparable or slightly greater than the Proposed Project, but as with the Proposed Project, the construction impacts would be short-term and mitigated to less than significant levels.

For the substantial elimination of permanent impacts to visual resources, the Jamacha Valley 138 kV/69 kV Underground Alternative is the environmentally superior alternative within Jamacha Valley.

The comparative analysis provided above placed heavy weighting on long-term and permanent impacts associated with visual resources. If issues beyond CEQA are considered (i.e., EMF issues associated with the Proposed Project and alternatives in Jamacha Valley), the conclusion may result in a different alternative being preferred, such as Jamacha Valley Overhead A Alternative, which does not introduce EMF emissions to new areas along Willow Glen Drive in Jamacha Valley.

Conclusion for City of Santee Alternatives

The City of Santee 138 kV/69 kV Underground Alternative is preferred overall because it would substantially eliminate long-term and permanent impacts to visual resources. Because construction would occur in an existing roadway, short-term construction-related impacts to biological resources would also be minimized with the City of Santee 138 kV/69 kV Underground Alternative.

The City of Santee 230 kV Overhead Northern ROW Boundary Alternative is also preferred over the Proposed Project because it would reduce long-term and permanent impacts to visual resources without substantially increasing construction-related impacts beyond those that would occur with the Proposed Project. Construction-related impacts for the City of Santee 230 kV Overhead Northern ROW Boundary Alternative would generally be comparable or slightly greater than the Proposed Project, but as with the Proposed Project, the construction impacts would be short-term and mitigated to less than significant levels.

For the substantial elimination of permanent impacts to visual resources, the City of Santee 138 kV/69 kV Underground Alternative is the environmentally superior alternative in the City of Santee corridor.

The comparative analysis provided above placed heavy weighting on long-term and permanent impacts associated with visual resources. If issues beyond CEQA are considered (i.e., EMF issues associated with the Proposed Project and alternatives in the City of Santee), the conclusion may result in a different alternative being preferred, such as City of Santee 230 kV Overhead Northern ROW Boundary Alternative, which would have lower EMF emissions at the residences along the southern ROW boundary and residences along Princess Joann Road.

Summary of Environmentally Superior Alternative

The Environmentally Superior Alternative is the Proposed Project with mitigation, in conjunction with Jamacha Valley 138 kV/69 kV Underground Alternative with mitigation within Jamacha Valley, and the City of Santee 138 kV/69 kV Underground Alternative with mitigation in the City of Santee.

E.3 No Project Alternative vs. the Environmentally Superior Alternative

Summary of No Project Alternative and Its Impacts. The No Project Alternative is described in Section C.6, and includes the following components:

1. **Additional Regional Generation:** No change to the existing generation construction schedules has been considered. There is a possibility that, without the project, a portion of the planned generation would either be cancelled or delayed. There is also a possibility that new generation capacity could be necessary in San Diego County or elsewhere to compensate for existing transmission system limitations and anticipated loads. It would be speculative to predict the type and location or schedule of development for new power plants needed to overcome the transmission system constraints remaining under the No Project Alternative.
2. **Congestion Issues:** The CAISO would be forced to implement short-term congestion measures until such time as it initiates its anticipated long-term Locational Marginal Pricing procedures. In both cases many of the economic benefits that would have been derived from the new generation would be lost. Under the No Project Alternative, SDG&E would continue to incur the congestion charges.

Summary of the Environmentally Superior Alternative and Its Impacts. The Environmentally Superior Alternative as defined in Section E.2.3 would be a combination of the Proposed Project, the Jamacha Valley 138 kV/69 kV Underground Alternative, and the City of Santee 138 kV/69 kV Underground Alternative. This route would be in the existing SDG&E ROW and within roadways in Jamacha Valley and the City of Santee. This route would minimize the long-term and permanent operational impacts to visual resources. Short-term impacts would include construction disturbances (e.g., air quality, biological resources, cultural resources, noise, and traffic). Impacts of the Environmentally Superior Alternative are defined in each issue area's impact analysis for the Proposed Project, Jamacha Valley 138 kV/69 kV Underground Alternative, and City of Santee 138 kV/69 kV Underground Alternative.

Conclusion: Comparison of Environmentally Superior Alternative with No Project Alternative. The Environmentally Superior Alternative would be located within the SDG&E ROW and underground in two areas with minimal long-term impacts on residences or other sensitive land uses. In comparison, long-term impacts to many environmental issue areas could occur under the No Project Alternative. Development of new power plants under the No Project Alternative would likely result in some level of long-term regional impacts to air quality, biological resources, water quality, noise, public health, and visual resources. Overall, the Environmentally Superior Alternative is preferred over the No Project Alternative.