Chapter 20
Alternatives

20.1 Introduction

This chapter describes the alternatives considered for the Proposed Project and evaluates their environmental impacts as compared to the Proposed Project. The purpose of the alternatives analysis in an environmental impact report (EIR) is to describe a range of reasonable, potentially feasible alternatives to the project that can feasibly attain most of the identified project objectives, but reduce or avoid one or more of the project's significant impacts. This chapter provides a detailed description of the California Environmental Quality Act (CEQA) regulatory requirements for alternatives analysis, describes the alternatives development process for the Proposed Project, and evaluates the impacts of the selected alternatives. This chapter relies on information provided in NextEra Energy Transmission West, LLC's (NEET West's) Proponent's Environmental Assessment (PEA).

20.1.1 Regulatory Requirements

CEQA requires that an EIR evaluate a reasonable range of potentially feasible alternatives to the proposed project, including the No Project Alternative. The No Project Alternative allows decision-makers to compare the impacts of approving the action against the impacts of not approving the action. While there is no clear rule for determining a reasonable range of alternatives, CEQA provides guidance that can be used to define the range of alternatives for consideration in the environmental document.

The alternatives described in an EIR must feasibly accomplish most of the basic project objectives, should reduce or eliminate one or more of the significant impacts of the proposed project (although the alternative could have greater impacts overall), and must be potentially feasible (State CEQA Guidelines Section 15126.6(a)). In determining whether alternatives are potentially feasible, Lead Agencies are guided by the definition of feasibility found in State CEQA Guidelines Section 15364: "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors." In accordance with State CEQA Guidelines Section 15126.6(f), the Lead Agency should consider site suitability, economic viability, availability of infrastructure, general plan consistency, other regulatory limitations, and jurisdictional boundaries in determining the feasibility of alternatives to be evaluated in an EIR. An EIR must briefly describe the rationale for selection and rejection of alternatives and the information that the Lead Agency relied on in making the selection. It also should identify any alternatives that were considered by the Lead Agency but were rejected as infeasible during the scoping process and briefly explain the reason for their exclusion (State CEQA Guidelines Section 15126.6[c]).

In addition, alternatives with effects that cannot be reasonably ascertained and for which implementation is remote and speculative are screened from full analysis (State CEQA Guidelines Section 15126.6[f][3]).

An EIR's analysis of alternatives is required to identify the environmentally superior alternative among all those considered (State CEQA Guidelines Sections 15126.6[a] and [e][2]). If the No Project Alternative is identified as the environmentally superior alternative, then the EIR must also identify an environmentally superior alternative amongst the other alternatives.

These guidelines were used in developing and evaluating the alternatives as described below.

20.2 Alternatives Development Process

The Proposed Project's purpose and objectives, as well as its potentially significant environmental impacts were considered in developing alternatives. Alternatives were developed to achieve most of the basic objectives of the Proposed Project while reducing one or more of its significant adverse environmental impacts. Alternatives also were developed based on potential feasibility.

20.2.1 Project Purpose and Objectives

As described in Chapter 2, *Project Description,* the purpose of the Proposed Project is to provide reactive power support to the existing Suncrest Substation to allow for improved operation following system disturbances and importation of renewable generation from the Imperial Valley to demand centers in San Diego and Los Angeles. This was identified as a policy-driven need in the California Independent System Operator's (CAISO's) 2013-2014 Transmission Plan. Specifically, the objectives of the Proposed Project are as follows:

1. Provide reactive support to Suncrest Substation;
2. Improve and maintain transmission grid reliability; and
3. Facilitate delivery of renewable energy generation from the Imperial Valley area to population centers to the west and support achievement of California's Renewables Portfolio Standard.

20.2.2 Significant Environmental Impacts of the Proposed Project

A number of impacts have been identified as significant but would be mitigated to a level of less-than-significant through implementation of mitigation measures. These impacts are listed in Table ES-1 in the Executive Summary of this draft EIR (DEIR). No impacts were identified as significant and unavoidable.

20.2.3 Alternatives Screening and Development

Numerous alternatives were identified during development of the Proposed Project. These alternatives were screened based on the following factors:

- Does the alternative meet most of the project objectives?
- Is the alternative feasible?

- Does the alternative avoid or substantially lessen any of the environmental impacts of the Proposed Project?
- Is the alternative speculative?

Based on this initial screening, alternatives were either dismissed from further consideration or carried forward for detailed analysis. Table 20-1 shows all of the alternatives considered and the results of the screening process.

As shown in Table 20-1, the EIR analysis considered the No Project Alternative, as required by CEQA, as well as several technology alternatives, hypothetical system alternatives, siting alternatives, and one transmission line alternative. Due either to their inability to meet most of the project objectives, be feasibly implemented, or avoid or substantially less one or more of the Proposed Project's environmental impacts, of if they were deemed speculative, a number of these initial alternatives were dismissed from further consideration.

Alternatives Dismissed from Further Consideration

Technology Alternatives

The California Independent System Operator's (CAISO's) 2013-2014 Transmission Plan (CAISO 2014) identified a need for a +300/-100 megavar dynamic reactive power device at the Suncrest Substation's 230-kilovot (-kV) bus. The reactive power device would provide continuous or quasi-continuous reactive power response following system disturbances and assist in the deliverability of renewable generation from the Imperial Valley zone. The Transmission Plan did not specify the type of device, but the CAISO's Functional Specifications for the Suncrest 230-kV 300 Mvar Dynamic Reactive Power Support Project requested that project applicants submit a bid for one of the following types of devices:

- Static VAR Compensator (SVC)
- Static Synchronous Compensator (STATCOM)
- Synchronous Condenser

SVCs and STATCOMs are devices within the Flexible AC Transmission Systems (FACTS) family. They use power electronics to control power flow and improve transient stability on power grids. A synchronous condenser is essentially a spinning, electromagnetic, synchronous motor, but its shaft spins freely, rather than being connected to a machine. A voltage regulator controls the electrical field to either generate or absorb reactive power in response to system conditions.

In preparing its bid package for the CAISO, NEET West considered several commercially-available transmission technologies that would meet the CAISO's description and functional specifications. In addition to the Proposed Project, which is a SVC, NEET West considered three other technology combinations, as follows:

- Hybrid SVC with Mechanically-Switched Capacitors
- Hybrid STATCOM with Mechanically-Switched Capacitor
- Synchronous Condensers

Table 20-1. Alternatives Screening Summary

Type of Alternative	Alternative	Does it meet most of the basic project objectives?	Is it feasible?	Does it avoid or substantially lessen any environmental impacts of the Proposed Project?	Is it speculative?	Carry forward for detailed analysis?
No Project Alternative	No Project Alternative	No	Yes	Yes	No	Yes
Technology Alternatives	Hybrid SVC with Mechanically-switched Capacitors	Yes	Yes	No	No	No
	Hybrid STATCOM with Mechanically-switched Capacitor	Yes	Yes	No	No	No
	Synchronous Condensers	Yes	Yes	No	No	No
System Alternatives	Traditional Generator Reactive Power Support	Yes	Yes	No	No	No
	CAISO Initiative for Reactive Power Support from Asynchronous Generators	Yes	Yes	Yes	Yes	No
	Energy Conservation/Energy Efficiency	No	Yes	Yes	Yes	No
	Demand Response/Load Management	No	No	Yes	Yes	No

Type of Alternative	Alternative	Does it meet most of the basic project objectives?	Is it feasible?	Does it avoid or substantially lessen any environmental impacts of the Proposed Project?	Is it speculative?	Carry forward for detailed analysis?
Siting Alternatives	Northeast Site Alternative	Yes	Yes	Yes	No	Yes
	West Site Alternative	Yes	No	Yes	No	No
	Suncrest Substation Alternative	Yes	Yes	Yes	No	Yes
Transmission Line Alternative	Overhead Transmission Line Alternative	Yes	Yes	Yes	No	Yes

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All three of these technology combinations would require a similar construction footprint as a proposed SVC, but they would be more expensive. None of these three technology alternatives would avoid or reduce any environmental impacts of the Proposed Project. All of these options would involve similar ground disturbance and similar impacts to the physical environment. Therefore, these alternatives were not carried forward for detailed analysis in the EIR.

System Alternatives

Traditional Generator Reactive Power Support

One hypothetical system alternative to the Proposed Project is development of traditional generating facilities in the area of the existing Suncrest Substation. Traditional fossil-fuel, hydroelectric, geothermal, solar-thermal, and nuclear power generating units create reactive power along with real power. These are synchronous generators, meaning that they have a mechanical rotor that rotates in synchronization with the system frequency. It is estimated that a 500 to 600 MW combined-cycle gas-fired power plant may provide approximately +240 Mvar, or close to the +300 Mvar required of the Proposed Project. Therefore, a new synchronous generator could theoretically meet the CAISO's identified need for reactive power at the Suncrest Substation 230-kV bus.

A new fossil-fuel generating plant in California would likely be a natural gas-fired combined-cycle or peaker unit. Such facilities would require a natural gas supply. A new hydroelectric power plant would likely involve raising an existing dam and installing one or more new turbines. Geothermal power resources are not in the vicinity of the Suncrest Substation and would require a lengthy transmission line. Solar thermal devices using a mechanical motor generator could provide reactive power capability, but would not have the same flexibility as a gas-fired unit has for ramping up and down to absorb or inject reactive power. The construction requirements for a nuclear power plant would be extensive.

System alternatives involving traditional generator reactive power support would not substantially avoid or lessen any of the environmental impacts of the Proposed Project. Instead, these alternatives would result in greater impacts as compared to the Proposed Project. It is also questionable whether any of these traditional generators could be feasibly planned, permitted, and constructed within an acceptable time frame for CAISO. For these reasons, this subset of system alternatives was dismissed from further consideration in the EIR.

CAISO Initiative for Reactive Power Support from Asynchronous Generators

Another alternative identified in the alternatives development and screening process was reliance on CAISO's initiative for reactive power support from asynchronous generators. In contrast to traditional generating facilities, most renewable electricity generating resources, such as solar, wind, and energy storage, do not use mechanical rotors rotating in synchronicity with the system. These "asynchronous" resources do not inherently have reactive power capability (or, in the case of wind, do not have the same reactive power capability as a synchronous resource). By adding inverters, capacitors, or using other methods, however, asynchronous resources may provide reactive power to the grid.

CAISO's Board of Governors recently (August 31, 2016) approved a new policy for reactive power requirements and financial compensation for asynchronous resources (CAISO 2016).

This policy, currently under review by the Federal Energy Regulatory Commission (FERC), would require that new or repowered asynchronous resources provide reactive power and voltage regulation. In its PEA submitted to the California Public Utilities Commission (CPUC), NEET West theorized that if the new CAISO requirements were to go into effect and several large solar or wind facilities were to be required to provide reactive power capability, it could reduce the amount of reactive power needed at the Suncrest Substation. Therefore, instead of building the SVC, the transmission grid could potentially receive reactive power support from new renewable generating facilities built in compliance with CAISO's initiative.

Several problems were identified with this alternative. First, at the time of writing of this DEIR, FERC is reviewing the proposed policy and it is unknown if or when it will be approved. Second, it is unknown if and what size renewable generating facilities may be constructed in the future in close enough proximity to the existing Suncrest Substation to address the reactive power deficit identified by CAISO. Reliance on reactive power provided by new or repowered renewable generating facilities may avoid the environmental impacts of the Proposed Project (by avoiding the need to construct the proposed SVC and transmission line), but it is unknown what impacts the new generating facilities may have. Altogether, it was determined that this alternative may not be feasible, its effects cannot be reasonably ascertained, and its implementation is considered remote and speculative at this time (State CEQA Guidelines Section 15126.6[f][3]).

Energy Conservation/Energy Efficiency

Energy conservation and energy efficiency are ways to reduce load and avoid the need for providing real power. These approaches, however, would not address the identified need for reactive power at the Suncrest Substation 230-kV bus. As described in Chapter 2, *Project Description,* reactive power is the component of electricity that functions to maintain adequate voltages for system reliability. Real power, by contrast, is the element of electricity that performs useful work and is measured in watts. Therefore, while this alternative would reduce the amount of real power or generation needed to meet demands in the San Diego area, it would not reduce the amount of reactive power needed at the existing Suncrest Substation and would not meet the project objectives. This alternative also was considered speculative in that it was not known how or where the energy conservation/energy efficiency measures would be implemented. As such, this alternative was dismissed from further consideration.

Demand Response/Load Management

Similar to energy conservation/energy efficiency, demand response/load management are techniques for reducing loads, specifically peak loads. Demand response is a change in the power consumption of an electric utility customer to better match the demand for power with the supply. For example, utilities may provide incentives or signals to their customers encouraging them to use electricity during off-peak hours, such as through off-peak metering, when power is cheaper at certain times of the day. As described above, reactive power is distinct from real power and does not perform any useful work or meet load demands. Rather, reactive power serves to maintain voltage levels for transmission system reliability. Demand response/load management would not meet project Objective 1 or 3 of the Proposed Project. Reactive power support would not be provided at Suncrest Substation (Objective 1), and the delivery of renewable energy would not be facilitated (Objective 3). This alternative was also considered speculative in that it was not known how or where it would be implemented. Therefore, this alternative was dismissed from further consideration.

West Site Alternative

The West Site Alternative is not feasible because it would be located on the Lightner Mitigation site and is scheduled to be transferred to the U.S. Forest Service for conservation in perpetuity. This alternative could not be accomplished within a reasonable period of time taking in account environmental and legal factors and regulatory limitations and jurisdictional boundaries. Therefore, this siting alternative was screened out from further consideration.

Alternatives Carried Forward for Analysis

The remaining alternatives shown in Table 20-1 and not dismissed due to infeasibility, lack of environmental impact reduction, or other reasons were carried forward for analysis. In addition to the No Project Alternative, which was analyzed as required by CEQA, these include the following alternatives:

- Northeast Site Alternative
- Suncrest Substation Alternative
- Overhead Transmission Line Alternative

These alternatives were determined to: (1) meet most of the project objectives; (2) be feasible; (3) avoid or reduce one or more of the Proposed Project's significant impacts, and (4) not be too speculative or ill-defined. These alternatives are evaluated in the following section, "Alternatives Analysis."

20.2.4 California Public Utilities Code Section 1002.3

California Public Utilities Code Section 1002.3 requires that CPUC consider cost-effective alternatives to transmission facilities when evaluating project applications for a Certificate of Public Convenience and Necessity. The following alternatives would be cost-effective alternatives that meet Section 1002.3 requirements: Energy Conservation/Energy Efficiency, Demand Response/Load Management, and the CAISO Initiative for Reactive Power Support from Asynchronous Generators. In addition, the Suncrest Substation Alternative would be a cost-effective alternative that does not require construction of the proposed mile-long 230-kV underground transmission line.

As described in Section 20.2.3, the Suncrest Substation Alternative was carried forward for full analysis in this DEIR. The Energy Conservation/Energy Efficiency, Demand Response/Load Management, and CAISO Initiative for Reactive Power Support from Asynchronous Generators alternatives were screened out from further analysis.

20.3 Alternatives Analysis

20.3.1 No Project Alternative

Characteristics of this Alternative

Under the No Project Alternative, NEET West would not construct the SVC and underground transmission line and the Proposed Project would not be built. The No Project Alternative

would not provide any reactive power at the Suncrest Substation's 230-kV bus and would not meet any of the project objectives.

Impact Analysis

The No Project Alternative would avoid all of the environmental impacts associated with construction and/or operation of the Proposed Project. These include dust and air pollutant emissions, noise and traffic effects during construction, impacts that may occur by disrupting previously undiscovered cultural resources, and impacts on existing views and aesthetic effects during operation.

20.3.2 Northeast Site Alternative

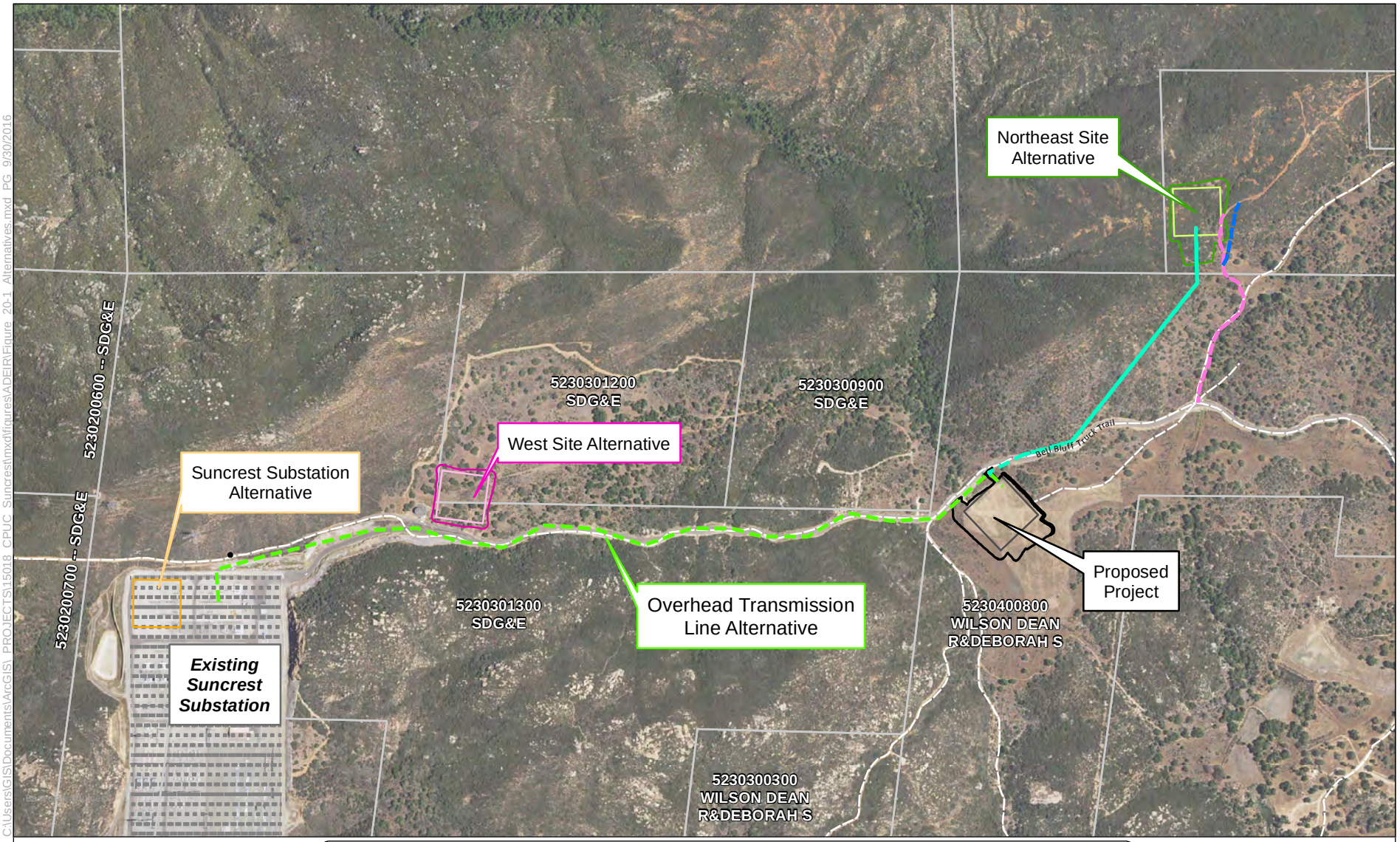
Characteristics of this Alternative

Under the Northeast Site Alternative, the SVC would be located approximately 0.3 mile north of Bell Bluff Truck Trail, as shown on Figure 20-1. This site is relatively undeveloped and is accessed via an existing dirt road. Use of this site for the SVC would require a slightly longer (1.4-mile) transmission line to connect to the existing Suncrest Substation. Figure 20-1 shows the transmission line alignment under the Northeast Site Alternative.

Impact Analysis

Relative to the Proposed Project, the Northeast Site Alternative would reduce some biological resources impacts. As shown in Figure 20-2, the Northeast Site Alternative is located predominantly in chamise chapparal. No part of the site is mapped as California Buckwheat Scrub habitat. In this respect, the Northeast Site Alternative would reduce potential impacts on Hermes copper butterfly habitat. As described in Chapter 7, *Biological Resources,* Hermes copper butterfly is a candidate for listing as Federally Endangered which depends on its host plant, spiny redberry (*Rhamnus crocea*) as a larval food source, and nectars mainly on California buckwheat. Given that buckwheat would not be a dominant plant in the Northeast Site Alternative location, suitable habitat for Hermes copper butterfly is unlikely to be present.

In other ways, the Northeast Site Alternative would increase environmental impacts compared to the Proposed Project. As noted above, the Northeast Site Alternative would require a longer (1.4-mile) transmission line component to connect the SVC to the existing Suncrest Substation, some of which would go through relatively undisturbed habitat. Additional trenching for installation of the longer underground transmission line would result in additional air and greenhouse gas emissions, and greater potential for disturbance of biological resources (including wetlands) or buried cultural resources.



N

0 500 1,000
Feet

Prepared by:

Horizon WATER and ENVIRONMENT

Source: SCWA 2015a

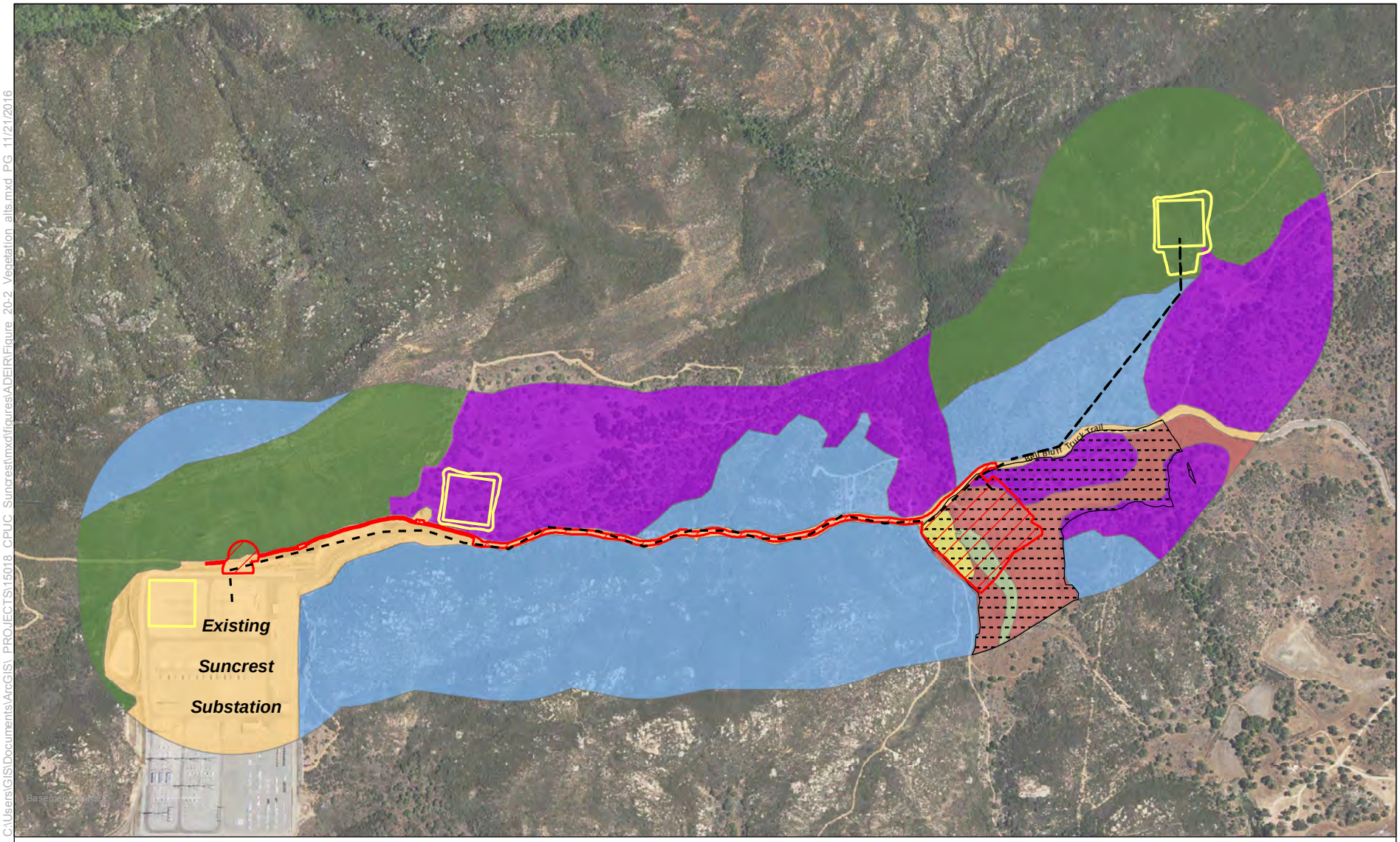
- Existing Roads
- SVC Access Road
- Unnamed Road Rerouted
- Alternative Overhead Transmission Line
- Approximate Overhead and Underground Transmission Route
- Proposed Project Area
- Proposed Project Footprint

Alternative SVC Areas

- Northeast Site Area
- Northeast Site Footprint
- Suncrest Substation Area
- West Site Area
- West Site Footprint

Figure 20-1
Alternative Site Locations

Suncrest Dynamic Reactive Power Support Project


Existing
Suncrest
Substation
Trail
Bluff Trail
Trail
N
0
500
1,000
Feet
Prepared by:
Horizon
WATER and ENVIRONMENT
Vegetation Communities
Bigberry Manzanita – Chamise Chaparral
California Buckwheat Scrub
Chamise Chaparral
Engelmann Oak-Coast Live Oak/Poison Oak/Grass Association
Non-native Grassland
Ruderal
Urban/Developed
Source: SCWA 2015a
Project Area (limit of disturbance)
Subject to repeated disturbance
Alternative Transmission Lines
Alternative SVC Areas
Figure 20-2
Vegetation Types
Alternatives
Suncrest Dynamic Reactive
Power Support Project

20.3.3 Suncrest Substation Alternative

Characteristics of this Alternative

Under the Suncrest Substation Alternative, the SVC would be installed within the existing Suncrest Substation and, therefore, no transmission line would be required. San Diego Gas & Electric (SDG&E) has indicated that there is room within the existing substation to construct the SVC without expanding the substation footprint.[1,2] Under this alternative, NEET West would construct, own, and operate the SVC.

Impact Analysis

The Suncrest Substation Alternative would avoid virtually all of the potential environmental impacts of the Proposed Project. Under the Suncrest Substation Alternative, there would be no land disturbance, trenching, or installation of new structures outside of the existing substation. As such, there would be no potential for impacts to aesthetics, biological resources, cultural resources, geology and soils, or hydrology and water quality. The Suncrest Substation Alternative would require use of some construction equipment and therefore would generate some air emissions, greenhouse gas emissions, and noise; however, these would all be substantially less than under the Proposed Project. Earth-moving construction equipment would not be required under the Suncrest Substation Alternative.

20.3.4 Overhead Transmission Line Alternative

Characteristics of this Alternative

Under the Overhead Transmission Line Alternative, the SVC would be at the same location as the Proposed Project, but the transmission line would be overhead instead of underground. The overhead transmission line connecting the SVC to the existing Suncrest Substation would be approximately 1 mile in length and would generally parallel Bell Bluff Truck Trail, as shown on Figure 20-1. A 70- to 100-foot-wide transmission line right-of-way would be required to account for the land needed for operations and maintenance, as well as transmission line clearance requirements under CPUC General Order 95. This alternative would include installation of approximately 17 tubular steel pole transmission structures between the SVC and existing Suncrest Substation. The types of transmission line structures would vary depending on location, and may include tangent, running angle, and dead-end structures, but pole heights would range between 80 and 140 feet above the ground.

[1] SDG&E submitted a data response to CPUC Energy Division staff on April 15, 2016, that stated the footprint required to install the SVC device within Suncrest Substation would be 1.72 acres. Additional space would be needed for the 230-kV breaker area, access road, and working clearances, resulting in a total area requirement of 2.4 acres. SDG&E's response was to a CPUC data request to estimate the project footprint for the device and all associated new facilities that would achieve the same objectives achieved by NEET West's proposed facility but would be installed within Suncrest Substation.

[2] In its February 8, 2016, comment on the Notice of Preparation of this DEIR, SDG&E requested that an alternative be evaluated that locates a dynamic reactive device within Suncrest Substation and stated that such an alternative would be feasible. SDG&E submitted a project sponsor bid to CAISO to locate an SDG&E-owned dynamic reactive device within the Suncrest Substation based on SDG&E's determination that doing so was feasible.

Impact Analysis

Compared to the Proposed Project, the Overhead Transmission Line Alternative would reduce impacts associated with trenching within Bell Bluff Truck Trail. These include emissions from hauling of spoils, and traffic impacts from temporary closures of the roadway. The Overhead Transmission Line Alternative would have greater aesthetic impacts than the Proposed Project because the steel pole transmission structures would be visible from Bell Bluff Truck Trail, as well as several nearby residences, and would contrast with the surrounding landscape. By locating the poles outside the roadbed, the Overhead Transmission Line Alternative would have greater biological and cultural resources impacts compared to the Proposed Project. Other environmental impacts of the Overhead Transmission Line Alternative would be similar to the Proposed Project.

20.3.5 Summary of Alternatives Analysis and Comparison with the Proposed Project

Table 20-2 contains a summary of the alternatives analysis. The Proposed Project and alternatives are ranked in terms of having the least overall impacts to the physical environment. The No Project Alternative was assigned a rank of 1 because it would not result in any impacts to the physical environment. The Suncrest Substation Alternative was assigned a rank of 2, and the Proposed Project received a rank of 3.

20.4 Environmentally Superior Alternative

An EIR must identify the environmentally superior alternative. Of the alternatives evaluated in this DEIR, the No Project Alternative is the environmentally superior alternative because it would avoid all construction- and operation-related impacts of the Proposed Project. However, in cases when the No Project Alternative is the environmentally superior alternative, an EIR must also identify an environmentally superior alternative from among the other alternatives (State CEQA Guidelines Section 15126.6[e][2]). Accordingly, in addition to the No Project Alternative, the Suncrest Substation Alternative is considered to be the environmentally superior alternative.

As described above, the Suncrest Substation Alternative would avoid virtually all of the environmental impacts of the Proposed Project. Because this alternative would be located within an existing substation, substantial construction impacts to biological or cultural resources would not occur. Likewise, the Suncrest Substation Alternative would have no substantial impact on aesthetics or hydrology and water quality, and would avoid the need for a transmission line. The Suncrest Substation Alternative would still generate some construction-related emissions from transport of equipment and materials to the site and use of construction equipment to install the SVC, but these emissions would be substantially less than under the Proposed Project or any of the other alternatives.

Table 20-2. Summary of Alternatives and Comparison to the Proposed Project

Alternative	Characteristics	Relationship to Project Objectives	Impacts Compared to the Proposed Project	Rank
Proposed Project	▪ NEET West would construct an SVC facility at the former Wilson Construction Yard and an approximately one-mile-long transmission line connecting the SVC to the existing Suncrest Substation	▪ Would meet all of the project objectives	▪ Would generate air and GHG emissions, noise, and limited traffic associated with Project construction ▪ Would impact biological resources due to site clearing and ground disturbance, including possible impacts to Hermes copper butterfly ▪ Could disrupt previously undiscovered, buried cultural resources from ground disturbance ▪ Would adversely affect existing visual quality of the Project site ▪ Would adversely affect existing drainage patterns at the site and increase potential for water quality impacts due to addition of impervious surface area to the site	3
No Project Alternative	▪ NEET West would not construct the SVC or transmission line	▪ Would not meet any of the project objectives	▪ Would avoid all environmental impacts associated with the Proposed Project	1

Alternative	Characteristics	Relationship to Project Objectives	Impacts Compared to the Proposed Project	Rank
Northeast Site Alternative	▪ NEET West would construct the SVC at an alternative site northeast of the Proposed Project site ▪ Alternative would require a longer (1.4-mile) transmission line compared to the Proposed Project, a portion of which would pass through relatively undisturbed habitat	▪ Would meet all of the project objectives	▪ Would increase air emissions, greenhouse gas emissions, energy consumption, and potential impacts to biological and cultural resources due to longer transmission line ▪ Would reduce potential for impacts to Hermes copper butterfly, as butterfly individuals and habitat would be less likely to occur on this site ▪ Would have similar aesthetic impacts, though the facility may be less visible from Bell Bluff Truck Trail and certain sensitive receptors, while possibly more visible from other locations ▪ Would have similar hydrology/water quality impacts associated with addition of impervious surface to the area ▪ Would impact ephemeral drainages within site footprint	5

Alternative	Characteristics	Relationship to Project Objectives	Impacts Compared to the Proposed Project	Rank
Suncrest Substation Alternative	▪ NEET West would construct the SVC within the existing Suncrest Substation ▪ No transmission line or expansion of existing substation footprint would be required	▪ Would meet all of the project objectives	▪ Would avoid virtually all of the environmental impacts associated with the Proposed Project ▪ No potential for impacts to aesthetics, biological and cultural resources, geology and soils, and hydrology and water quality ▪ Would emit some air emissions, greenhouse gas emissions, and generate noise, but these would all be substantially less than the Proposed Project	2
Overhead Transmission Line Alternative	▪ SVC would be constructed in same location as Proposed Project, but transmission line connecting SVC to existing Suncrest Substation would be above-ground rather than below-ground ▪ Would include installation of 17 tubular steel poles primarily along Bell Bluff Truck Trail	▪ Would meet all of the project objectives	▪ Assumed to generate similar or less air and greenhouse gas emissions, noise, and traffic from construction of steel poles compared to underground transmission line ▪ Would have the potential for additional impacts to unknown buried archaeological resources ▪ Would increase aesthetic/visual impacts, as steel pole transmission structures would be visible from roadway and nearby residences and would contrast with surrounding landscape ▪ Would increase biological resources impacts from installing poles outside roadway	4

1

The Suncrest Substation Alternative would produce reactive power at the same level as the Proposed Project and would meet all of the project alternatives. The Proposed Project is not environmentally superior to the Suncrest Substation Alternative because it would have a number of environmental impacts that could be avoided by the Suncrest Substation Alternative. These impacts include biological and potential cultural resources impacts from ground-disturbing activities for construction of the SVC and underground transmission line; aesthetic impacts from the SVC and associated facilities; and stormwater/water quality impacts from development of a new impervious surface. As the SVC would be placed within the existing Suncrest Substation under the Suncrest Substation Alternative, there would be no potential for any of these impacts under this alternative.

The other alternatives were not selected as the environmentally superior alternative for the following reasons:

- **Northeast Site Alternative.** The Northeast Site Alternative was not selected as the environmentally superior alternative because it would have a number of impacts that could be avoided by the Suncrest Substation Alternative. While it would reduce impacts to Hermes copper butterfly compared to the Proposed Project, it would have greater overall biological resources impacts by disturbing a previously undisturbed site. Like the Proposed Project, it would involve constructing the SVC at a distance from the existing Suncrest Substation and connecting it to the existing substation via a transmission line, all of which would be avoided by the Suncrest Substation Alternative.

- **Overhead Transmission Line Alternative.** The Overhead Transmission Line Alternative was not selected as the environmentally superior alternative because it would have a number of impacts which could be avoided entirely by the Suncrest Substation Alternative. As described above, by placing the SVC on the existing Suncrest Substation, the Suncrest Substation Alternative would avoid the need for a transmission line altogether. As such, the Suncrest Substation Alternative would avoid the aesthetic impacts, possible biological resources impacts, and construction-related emissions associated with constructing an overhead transmission line.

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