

**BEFORE THE PUBLIC UTILITIES COMMISSION OF THE
STATE OF CALIFORNIA**

In the Matter of the Application of SOUTHERN
CALIFORNIA EDISON COMPANY (U 338-E)
for a Certificate of Public Convenience and
Necessity for the Alberhill System Project.

A.09-09-022

**SECOND AMENDED APPLICATION OF SOUTHERN CALIFORNIA EDISON
COMPANY (U 338-E) FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND
NECESSITY FOR THE ALBERHILL SYSTEM PROJECT**

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Dated: **May 11, 2020**

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I.

INTRODUCTION

Pursuant to California Public Utilities Commission (“Commission” or “CPUC”) Rule of Practice and Procedure 1.12¹ and Administrative Law Judge (“ALJ”) Hallie Yacknin’s April 10, 2020 *E-mail Ruling Directing Amendment or Showing Cause*, Southern California Edison Company (“SCE”) hereby submits this amended application (“Second Amended Application”) for a Certificate of Public Convenience and Necessity (“CPCN”) for the Alberhill System Project (“ASP”).

¹ Rule 1.12(a) states that amendments to applications should typically be filed prior to the issuance of a scoping memo. Although an *Assigned Commissioner’s Scoping Memo and Ruling* (“Scoping Memo”) was issued on July 12, 2017, ALJ Yacknin’s April 10, 2020 e-mail ruling provided SCE leave to amend its application subsequent to the issuance of the Scoping Memo.

II.

BACKGROUND

On September 20, 2009, SCE filed an Application for a Permit to Construct (“Application”) and a Proponent’s Environmental Assessment (“PEA”) for the ASP. On March 12, 2010, SCE filed an amendment to the Application titled *Amendment To The Application of Southern Of Southern California Edison Company (U 338-E) For A Certificate of Public Convenience and Necessity: Alberhill System Project* (“Amended Application”). SCE filed amended sections of the PEA on April 11, 2011 (“First Amendment to PEA”). The CPUC issued a Final Environmental Impact Report (“FEIR”) in April 2017.

On August 31, 2018, the CPUC issued Decision (D.) 18-08-026 (“the Decision”), which considered, in part, whether to approve the CPCN for the ASP. The Decision neither issued nor denied the CPCN for the ASP. Rather, ordering paragraph (“OP”) 4 of the Decision directed SCE to “supplement the ASP record with additional analyses of alternatives which may satisfy the needs of the Valley South System.” In response, SCE performed additional analyses to supplement the administrative record with quantitative and qualitative metrics to evaluate the ability of the ASP and each alternative under consideration to meet the needs of the Valley South System.

SCE provided these additional analyses to the service list and to Energy Division (“ED”) as Data Request Responses in May 2019, December 2019 and January 2020. SCE also held webinars with the public and ED to review the analyses and to answer questions regarding SCE’s findings. The additional analyses evaluate the ability of a wide range of project alternatives to effectively meet the project objectives and satisfy system planning criteria. SCE also evaluated all alternatives using a cost/benefit analysis based on forward-looking system performance metrics and a range of monetized and non-monetized risks.

On April 10, 2020, ALJ Yacknin issued an email ruling directing SCE to file: (1) a compliance filing (of) its additional analyses of alternatives which may satisfy the needs of the Valley South System to supplement the record Application (A.) 09-09-022, pursuant to D.18-08-026; and (2) an amendment to its application consistent with its additional analyses of alternatives which may satisfy

the needs of the Valley South System, including a corresponding amended PEA reflecting the additional analyses as appropriate.

In accordance with ALJ Yacknin’s email ruling, SCE submits this Second Amended Application and amendments to PEA (“Second Amendment to PEA”) which incorporate the additional alternative analyses. The Second Amendment to PEA includes revisions and additions to the Executive Summary, Chapters 1, 4 and 5 of the PEA, and Chapter 2 as amended by the First Amendment to PEA.

III.

SUMMARY OF REQUEST

As part of its supplemental analyses, SCE evaluated a number of alternatives to the ASP to determine whether those alternatives would meet the ASP project objectives. SCE determined that three alternatives to ASP could substantially satisfy the project objectives and thus are carried forward for analysis in the Second Amendment to PEA.² A copy of the Second Amendment to PEA is attached hereto as Appendix E. None of the three alternatives are deemed to be superior to the ASP, either from an environmental perspective, or in terms of meeting the ASP project objectives. Accordingly, the ASP remains SCE’s Proposed Project.

SCE’s forecasted peak electrical demand indicates a need to reduce loading on the transformers that provide service to the Valley South 115 kV System and a need to create system tie-lines to other systems to improve the reliability and resiliency of the Valley South 115 kV System. The Second Amendment to PEA analyzes the ability of alternatives to ASP to meet these needs. The analyses conclude that the ASP is the environmentally preferred project alternative. Construction of the ASP will ensure that safe and reliable electric service is available to meet customer electrical demand without overloading the existing electric facilities. The ASP will satisfy the capacity and reliability needs of the Valley South System and will increase system resiliency by constructing tie-lines to neighboring systems.

² As described in the Second Amendment to PEA, the three alternatives SCE carried forward for analysis are 1) the San Diego Gas & Electric System Alternative (SDG&E Alternative); 2) the SCE/Orange County System Alternative; and 3) the Mira Loma System Alternative.

CEQA establishes the type of environmental documentation required when changes to a project occur after an EIR is certified. Specifically, Section 15164 of the CEQA Guidelines states that it is appropriate for the lead agency to prepare an addendum to a previously certified EIR when the changes or additions to the EIR are not significant enough to require a Supplemental EIR. Changes or additions are only significant if they (1) change the Proposed Project to result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects; (2) lead to substantial changes to the circumstances surrounding the Proposed Project such that there would be new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or (3) result in new information that shows that: the Proposed Project would result in new significant environmental effects, a substantial increase in the severity of previously identified significant effects, or an alternative would substantially reduce one or more significant effects on the environment, and project proponents decline to adopt the alternative. Under CEQA, an agency may not require a further EIR, unless it finds, based on substantial evidence in light of the whole record that one of these conditions exist.

As demonstrated in this Second Amended Application and the accompanying Second Amendment to PEA, there are no changes to the Proposed Project and consequently no new significant impacts or increase in the severity of impacts under CEQA. The changes and additions made in the Second Amendment to PEA describe additional alternatives that SCE considered to meet project objectives and do not change the environmental impacts associated with the ASP. As a result, the changes proposed are not considered significant under Section 15162(a) of the CEQA guidelines and the CPUC may incorporate the changes in the Second Amendment to PEA to reflect the additional alternatives analyses performed by preparing an addendum to the previously certified FEIR.

This Second Amended Application includes the following new or amended appendices as needed to incorporate the additional alternatives analysis or to provide updated information (such as the balance sheet and statement of income):

- Appendix A: Balance Sheet and Statement of Income as of March 31, 2020 (amended)
- Appendix B: Corporate Information and Articles of Incorporation (amended)

- Appendix C: Potential Permits Required for the ASP Project (amended)
- Appendix D: Second Amendment to Proponent’s Environmental Assessment, Executive Summary, Chapters 1, 4, and 5 of the PEA and Chapter 2 as amended by the First Amendment to PEA (redline copy).
- Appendix E: Second Amendment to Proponent’s Environmental Assessment, Executive Summary, Chapters 1, 2, and 5 and revisions to Chapter 4 (clean copy).

Amendments to the Executive Summary, Chapters 1, 4, and 5 of the PEA and Chapter 2 as amended by the First Amendment to PEA are noted in APPENDIX D, with underlined text for text that is added and with strikethrough for text that is deleted. Unless otherwise noted, all remaining portions of the PEA as amended by the First Amendment to PEA remain unchanged and are incorporated by reference herein. A clean copy of the Second Amendment to PEA is included as APPENDIX E.

IV.

DESCRIPTION OF ADDITIONAL ALTERNATIVES ANALYSES

The alternatives included in SCE’s supplemental analysis are designed to address the stated project objectives; in particular, the ability to satisfy the electrical needs of the Valley South System for the 10-year planning horizon. As part of its supplemental analysis, SCE performed a planning study that was used to assess the ability of the alternatives to meet the capacity and reliability needs of the region. This approach allowed SCE to perform a proper cost-benefit analysis across both near-term and long-term horizons. SCE used these analyses to evaluate how the alternatives meet the project need as compared with the ASP.

The planning study conclusions support the need for a project and, more specifically, support selecting a comprehensive solution that both addresses the transformer capacity shortfall forecast for 2022 and provides adequate system tie-lines to another system in order to improve reliability and resiliency. The ASP is SCE’s recommended solution to address the project objectives. The ASP addresses the current and future capacity, reliability, and resiliency needs of the Valley South System, and meets all project objectives. Further, the ASP is a long-term, cost-effective solution that meets the needs of the Valley South System and can be implemented in a reasonable time. Lastly, the ASP is a

robust solution that limits risk exposure from unforeseen scenarios during implementation and while in operation.

In the process of preparing the alternatives analysis included in the Second Amendment to PEA, SCE regularly engaged with the ED and the public on the scope of the analysis and the alternatives considered. SCE’s engagement included two public workshops in November 2018, public webinars in May of 2019 and February 2020 respectively, outreach to local communities, bi-weekly meetings with the ED and response to formal data requests.

V.

PROCEEDING CATEGORY, NEED FOR HEARINGS, AND SCHEDULE

In compliance with Rule 2.1(c) of the Commission’s Rules of Practice and Procedure (California Code of Regulations Title 20), SCE is required to state in this application “the proposed category for the proceeding, the need for hearing, the issues to be considered, and a proposed schedule.” SCE proposes to categorize this Second Amended Application as a ratesetting proceeding. This proceeding involves the Commission’s issuance of a CPCN authorizing SCE to construct the Proposed Project.

SCE suggests the following proposed schedule for this Amended Application:

Date	Event
May 11, 2020	Amended Application Filed
August 2020	Prepare Addendum to Final EIR ³
September 2020	Proposed Decision Issued
November 2020	Final Decision Issued

³ CEQA Guidelines Section 16164(c) states that “an Addendum need not be circulated for public review” and subsequently no public comment period is required in connection with an Addendum.

VI.

**LOCATION OF ITEMS REQUIRED BY PUBLIC UTILITIES CODE SECTION 1003,
COMMISSION RULES, AND GENERAL ORDER 131-D**

The California Public Utilities Code, the Commission’s Rules of Practice and Procedure, and the Commission’s General Orders require various items of information to be submitted with a CPCN Application. The table below lists the items, the authority which dictates the submittal, and references where the information is located in SCE’s filing. SCE submitted some of the required items in its Application and PEA, and others in the Amended Application and First Amendment to PEA.

<u>CPCN APPLICATION FILING REQUIREMENTS</u>			
Requirement	Authority	Testimony or Appendix	PEA
A detailed description of the proposed project	G.O. 131-D, IX.A.1.a; Rule 3.1(a); Public Utilities Code 1003(a)		Chapter 3 (First Amendment to PEA)
A project map	G.O. 131-D, IX.A.1.b; Rule 3.1(c)		Chapters 1 and 4 (PEA); Chapters, 2 and 3 (First Amendment to PEA)
A purpose and need statement	G.O. 131-D, IX.A.1.c; Rule 3.1(c)		Chapter 1 (Second Amendment to PEA)
Project Implementation Plan	Public Utilities Code 1003(b)	Appendix A - Project Plan (attached to the Amended Application)	
Design, Construction Management and Cost Control Plan	Public Utilities Code 1003(e)	Appendix A - Project Plan (attached to the Amended Application)	
A detailed statement of the estimated cost	G.O. 131-D, IX.A.1.d; Rule 3.1(f); Public Utilities Code 1003(c)	Cost Testimony ⁴	
Route selection including comparison with alternative routes	G.O. 131-D, IX.A.1.e		Chapter 2 (Second Amendment to PEA)

⁴ The cost testimony of SCE’s witness Gordan Tomaske (submitted on July 7, 2017) indicated that the maximum construction cost estimate for the ASP at the time was \$464 million in 2017 constant dollars. Since then, the costs have increased to \$545 million due to escalation and continuing licensing costs associated with the ASP.

A project schedule showing the program of right-of-way acquisition and construction	G.O. 131-D, IX.A.1.f	Appendix A - Project Plan (attached to the Amended Application)	
Governmental agency consultations	G.O. 131-D, IX.A.1.g		Appendix J (Attached to PEA)
PEA	G.O. 131-D, IX.A.1.h	Attached to the Application and Appendix E – Second Amended PEA (attached to the Second Amended Application)	
EMF Field Study	G.O. 131-D, Section X.A	Appendix F to the Application	
Notice of Application	G.O. 131-D, XI.A	Appendix D to the Application	
Articles of Incorporation	CPUC Information and Criteria List Appendix B, 2.2; Rule 2.2, Public Utilities Code 1004	Appendix B to the Second Amended Application	
Financial Statement; Statements and/or exhibits showing financial ability of applicant to render service; Annual Report and/or Proxy Statement	CPUC Information and Criteria List Appendix B, 2.3; Rule 3.1(g) and (l); Rule 2.3	Appendix A to the Second Amended Application	
Names/addresses of all utilities, corporations, persons or entities with which the proposed project is likely to compete	Rule 3.1(b)	Appendix C to the Amended Application	
Names of cities and counties within which service will be rendered	Rule 3.1(b)	Appendix B to the Application	
List identifying the permits required	Rule 3.1(d)	Appendix C to the Second Amended Application	
Annual Revenue Requirement ⁵	Rule 3.1(h); Public Utilities Code 1003(d)		

VII.

REQUEST FOR TIMELY RELIEF

SCE requests the Commission to issue a decision within the time limits prescribed by Government Code Section 65920 *et seq.* (the Permit Streamlining Act) as provided for in G.O. 131-D, Section IX.A.2.

⁵ Because most of the facilities that comprise the Project are electric transmission facilities, the reasonableness of costs and the associated ratemaking for the portions of the Project that are FERC-jurisdictional are within the exclusive jurisdiction of FERC. Any rate changes associated with the CPUC jurisdictional portion of the Project will be addressed in SCE's future General Rate Case.

VIII.

CONCLUSION

Upon completion of its review of this Second Amended Application, SCE requests that the Commission prepare an addendum to the previously certified FEIR and issue a CPCN for the Alberhill System Project as set forth in this Second Amended Application and Second Amendment to PEA in accordance with the schedule set forth herein.

Respectfully submitted,

TAMMY JONES

/s/ Tammy Jones

By: Tammy Jones

Attorney for
SOUTHERN CALIFORNIA EDISON COMPANY
2244 Walnut Grove Avenue
Post Office Box 800
Rosemead, California 91770
Telephone: (626) 302-6634
E-mail: Tammy.Jones@sce.com

Dated: May 11, 2020

VERIFICATION

I am an officer of the applicant corporation herein, and am authorized to make this verification on its behalf. I am informed and believe that the matters stated in the foregoing document are true.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 7th day of May 2020, at Rosemead, California.

/s/ Erik Takayesu _____

Erik Takayesu
Vice President, Transmission, Substations and Operations
SOUTHERN CALIFORNIA EDISON COMPANY
2 Innovation Way
Pomona, California 92821

Appendix A

Balance Sheet and Statement of Income as of March 31, 2020 (Amended)

SOUTHERN CALIFORNIA EDISON COMPANY

(h) A balance sheet as of the latest available date, together with an income statement covering the period from close of last year for which an annual report has been filed with the Commission to the date of the balance sheet attached to the application.

STATEMENT OF INCOME
THREE MONTHS ENDED MARCH 31, 2020

(In millions)

OPERATING REVENUE	<u>\$ 2,780</u>
OPERATING EXPENSES:	
Purchase power and fuel	928
Operation and maintenance	859
Wildfire Insurance Fund expense	84
Depreciation and amortization	483
Property and other taxes	110
Total operating expenses	<u>2,464</u>
OPERATING INCOME	316
Interest expense	(194)
Other income	52
INCOME BEFORE TAXES	<u>174</u>
Income tax benefit	<u>(75)</u>
NET INCOME	249
Less: Preferred and preference stock dividend requirements	<u>30</u>
NET INCOME AVAILABLE FOR COMMON STOCK	<u><u>\$ 219</u></u>

SOUTHERN CALIFORNIA EDISON COMPANY

BALANCE SHEET
MARCH 31, 2020
ASSETS
(in millions)

UTILITY PLANT:

Utility plant, at original cost	\$ 50,520
Less- accumulated provision for depreciation and amortization	10,147
	<u>40,373</u>
Construction work in progress	4,228
Nuclear fuel, at amortized cost	132
	<u>44,733</u>

OTHER PROPERTY AND INVESTMENTS:

Nonutility property - less accumulated depreciation of \$81	82
Nuclear decommissioning trusts	4,267
Other investments	55
	<u>4,404</u>

CURRENT ASSETS:

Cash and cash equivalents	451
Receivables, less allowances of \$60 for uncollectible accounts	785
Accrued unbilled revenue	409
Inventory	363
Income tax receivables	158
Prepaid expenses	158
Derivative assets	51
Regulatory assets	1,225
Wildfire insurance fund contributions	323
Other current assets	114
	<u>4,037</u>

DEFERRED CHARGES:

Regulatory assets	6,294
Wildfire insurance fund contributions	2,687
Operating lease right-of-use assets	679
Long-term insurance receivables due from affiliate	803
Other long-term assets	1,434
	<u>11,897</u>

SOUTHERN CALIFORNIA EDISON COMPANY

BALANCE SHEET
MARCH 31, 2020
CAPITALIZATION AND LIABILITIES
(in millions)

CAPITALIZATION:

Common stock	\$	2,168
Additional paid-in capital		4,207
Accumulated other comprehensive loss		(37)
Retained earnings		9,463
Common shareholder's equity		<u>15,801</u>
Preferred and preference stock		2,245
Long-term debt		15,991
Total capitalization		<u>34,037</u>

CURRENT LIABILITIES:

Short-term debt		475
Current portion of long-term debt		901
Accounts payable		1,454
Customer deposits		298
Regulatory liabilities		764
Current portion of operating lease liabilities		73
Other current liabilities		1,193
		<u>5,158</u>

DEFERRED CREDITS:

Deferred income taxes and credits		6,559
Pensions and benefits		228
Asset retirement obligations		3,027
Regulatory liabilities		8,113
Operating lease liabilities		606
Wildfire-related claims		4,568
Other deferred credits and other long-term liabilities		2,775
		<u>25,876</u>

Appendix B

Corporate Information and Articles of Incorporation (Amended)

CORPORATE INFORMATION AND
ARTICLES OF INCORPORATION

SCE is a corporation organized and existing under the laws of the State of California, and is primarily engaged in the business of generating, purchasing, transmitting, distributing and selling electric energy for light, heat and power in portions of central and southern California as a public utility subject to the jurisdiction of the California Public Utilities Commission. SCE's properties, which are located primarily within the State of California, consist mainly of hydroelectric and thermal electric generating plants, together with transmission and distribution lines and other property necessary in connection with its business.

SCE's principal place of business is 2244 Walnut Grove Avenue, Rosemead, California, and its post office address and telephone number are:

Southern California Edison Company
Post Office Box 800
Rosemead, California 91770
Telephone: (626) 302-1212

Communications in regard to this Application are to be addressed to the attention of Tammy Jones, Senior Attorney at the above address or telephone number (626) 302-6634.

A copy of SCE's Certificate of Restated Articles of Incorporation, effective on March 2, 2006, and presently in effect, certified by the California Secretary of State, was filed with the Commission on March 14, 2006, in connection with Application No. 06-03-020, and is incorporated herein by this reference pursuant to Rule 2.2 of the Commission's Rules of Practice and Procedure.

A copy of SCE's Certificate of Determination of Preferences of the Series D Preference Stock filed with the California Secretary of State on

State, was filed with the Commission on April 1, 2011, in connection with Application No. 11-04-001, and is incorporated herein by this reference.

A copy of SCE's Certificate of Determination of Preferences of the Series E Preference Stock filed with the California Secretary of State on January 12, 2012, and a copy of SCE's Certificate of Increase of Authorized Shares of the Series E Preference Stock filed with the California Secretary of State on January 31, 2012, and presently in effect, certified by the California Secretary of State, were filed with the Commission on March 5, 2012, in connection with Application No. 12-03-004, and are incorporated herein by this reference.

A copy of SCE's Certificate of Determination of Preferences of the Series F Preference Stock filed with the California Secretary of State on May 5, 2012, and presently in effect, certified by the California Secretary of State, was filed with the Commission on June 29, 2012, in connection with Application No. 12-06-017, and is incorporated herein by this reference.

A copy of SCE's Certificate of Determination of Preferences of the Series G Preference Stock filed with the California Secretary of State on January 24, 2013, and presently in effect, certified by the California Secretary of State, was filed with the Commission on January 31, 2013, in connection with Application No. 13-01-016, and is incorporated herein by this reference.

A copy of SCE's Certificate of Determination of Preferences of the Series H Preference Stock filed with the California Secretary of State on February 28, 2014, and presently in effect, certified by the California Secretary of State, was filed with the Commission on March 24, 2014, in connection with Application No. 14-03-013, and is incorporated herein by this reference.

A copy of SCE's Certificate of Determination of Preferences of the Series J Preference Stock filed with the California Secretary of State on August 19, 2015, and presently in effect, certified by the California Secretary of State, was filed with the Commission on October 2, 2015, in connection with Application No. 15-10-001, and is incorporated herein by this reference.

A copy of SCE's Certificate of Determination of Preferences of the Series K Preference Stock filed with the California Secretary of State on March 2, 2016, and presently in effect, certified by the California Secretary of State, was filed with the Commission on April 1, 2016, in connection with Application No. 16-04-001, and is incorporated herein by this reference.

A copy of SCE's Certificate of Determination of Preferences of the Series L Preference Stock filed with the California Secretary of State on June 20, 2017, and presently in effect, certified by the California Secretary of State, was filed with the Commission on June 30, 2017, in connection with Application No. 17-06-030, and is incorporated herein by this reference.

Certain classes and series of SCE's capital stock are listed on a "national securities exchange" as defined in the Securities Exchange Act of 1934 and copies of SCE's latest Annual Report to Shareholders and its latest proxy statement sent to its stockholders has been filed with the Commission with a letter of transmittal dated March 13, 2020, pursuant to General Order Nos. 65-A and 104-A of the Commission.

Appendix C

Potential Permits Required for the ASP Project (Amended)

Potential Permit Requirements for the Alberhill System Project

Agency	Agency Jurisdiction	Description of Permit
FEDERAL		
U.S. Fish and Wildlife Service	Federal Listed, Threatened, and Endangered Species	<ul style="list-style-type: none"> • Consultation for Section 10 of the Federal Endangered Species Act
U.S. Army Corps of Engineers	Waters of the U.S.	<ul style="list-style-type: none"> • Section 404 Nationwide Permit
CALIFORNIA - STATE		
California Public Utilities Commission	Transmission, Substation, Generation Projects 50 kV and Above	<ul style="list-style-type: none"> • Certificate of Public Convenience and Necessity
California Department of Fish and Wildlife	Manage Fish, Wildlife, Plant Resources and Habitat	<ul style="list-style-type: none"> • Section 2081 Incidental Take Permit of California Endangered Species Act
	Bed and bank of drainages	<ul style="list-style-type: none"> • Section 1600 Lake or Streambed Alteration Agreement
California Department of Transportation, District 8	California Streets and Highways Code 660-711.21 CCR 1411.1-1411.6	<ul style="list-style-type: none"> • Overload Permit • Road/Highway Encroachment/Crossing Permit (As Required)
State Historic Preservation Office	Any Activities that could Adversely Affect Archaeological or Paleontological Resources	<ul style="list-style-type: none"> • Consultation for Section 106 of the National Historic Preservation Act
	Any Archaeological or Paleontological Work on Federal Lands	<ul style="list-style-type: none"> • Cultural Resources Use Permit, Field Use Authorization, or an ARPA Permit (If Required)
State Water Resources Control Board	Stormwater Discharge During Construction	<ul style="list-style-type: none"> • General Permit for Discharges of Storm Water Associated with Construction Activity Construction General Permit Order 2009-0009-DWQ

CALIFORNIA – LOCAL AND REGIONAL		
Riverside County	County Roads and Highways, Flood Control/Drainage Channels, Building Permits	<ul style="list-style-type: none"> • Road/Highway Encroachment/Crossing Permit (As Required) • Flood Control/Drainage Channel Encroachment/Crossing Permit (As Required) • Grading Permit (As Required) • Building Permit (As Required)
Santa Ana Regional Water Quality Control Board, Region 8	Waters of the State	<ul style="list-style-type: none"> • Section 401 Water Quality Certification
South Coast Air Quality Management District	Fugitive Dust Emissions	<ul style="list-style-type: none"> • Rule 403 Permit – Control of Fugitive Dust
Riverside County Habitat Conservation Agency	RCHCA Lands	<ul style="list-style-type: none"> • License/Easement to Cross RCHCA Lands
Western Riverside County Regional Conservation Authority	MSHCP	<ul style="list-style-type: none"> • Participating Special Entity (If Required)
Riverside County Habitat Conservation Agency	SKR Habitat Conservation Plan	<ul style="list-style-type: none"> • Incidental Take Authorization for SKR
Cities	City Roads and Highways, Flood Control/Drainage Channels, Lands	<ul style="list-style-type: none"> • Road/Highway Encroachment/Crossing Permit • Flood Control Channel Encroachment/Crossing Permit • Temporary Use/Occupancy Permit – Material and Storage Yards
OTHER UTILITIES		
Sempra	Activities in Area of Pipeline Right-of-Way (ROW)	<ul style="list-style-type: none"> • Pipeline Encroachment/Crossing Permit (As Required)
Railroad	Activities in Area of Railroad ROW	<ul style="list-style-type: none"> • Encroachment/Crossing Permit (As Required)

Appendix D

Amendments to Executive Summary

**Chapters 1, 4 and 5 of the PEA and Chapter 2 as Amended by the First
Amendment to PEA (Redline Copy)**

EXECUTIVE SUMMARY

This [second amendment to the Proponent's Environmental Assessment \(PEA\) \(Second Amendment to PEA\)](#) evaluates the potential environmental impacts of Southern California Edison's ~~Company's~~ (SCE's) Alberhill System Project (Proposed Project or ASP).¹ [In Decision \(D.\) 18-08-026 for the ASP proceeding issued August 31, 2018, the California Public Utilities Commission \(CPUC\) took no action on the ASP and directed SCE to supplement the existing record with additional analyses. These additional analyses include a Planning Study² and other documentation that supports the project need, describes the applicable planning criteria and reliability standards, and provides a technical and economic analysis of additional alternatives SCE considered in order to enhance system reliability and provide additional system capacity. The purpose of this Second Amendment to PEA is to include those additional alternatives developed in the Planning Study in the PEA analysis. Based on this analysis, the ASP continues to be the Proposed Project.](#)

The purpose of ~~this project~~ [the Proposed Project](#) is to serve current and projected demand for electricity, and maintain electric system reliability in portions of southwestern Riverside County including the cities of Lake Elsinore, Canyon Lake, Perris, Menifee, Murrieta, Murrieta Hot Springs, Temecula, and Wildomar, as well as the surrounding unincorporated portions of Riverside County (Electrical Needs Area).

In addition to serving the forecasted demand for the Electrical Needs Area, the Proposed Project would relieve the Valley South 115 kilovolt (kV) System by transferring electrical demand from this system to the new Alberhill system. The Proposed Project would also improve electrical reliability and operational flexibility in southwestern Riverside County. The Proposed Project would include the following major components:

- Construction of a new 1,120 megavolt ampere (MVA) 500/115 kV substation to increase electrical service capacity to the area presently served by the Valley South 115 kV System
- Construction of two new 500 kV transmission line segments to connect the new substation to SCE's existing Serrano-Valley 500 kV transmission line
- Construction of a new 115 kV subtransmission line (approximately three miles in length) and modifications to four existing 115 kV subtransmission lines to transfer five existing 115/12 kV substations (Ivyglen, Fogarty ~~(expected to be constructed 2011)~~, Elsinore, Skylark, and Newcomb Substations) presently served by the Valley South 115 kV System to the new Alberhill 500/115 kV Substation

¹ [After the site selection for the Alberhill Substation concluded, SCE commenced the routing analysis for 500 kV transmission line segment options to access the existing Serrano-Valley 500 kV transmission line to source the new substation. During this process, seven alternative routes were developed. Two additional segments were added in March 2011.](#)

² [See Item C- "Planning Study" as attached to SCE's Motion to Supplement the Record dated May 11, 2020](#)

EXECUTIVE SUMMARY

- Installation of telecommunications improvements to connect the new facilities to SCE's telecommunications network

This PEA includes the information required by the [California Public Utilities Commission's \(CPUC\) Proponent's Environmental Assessment \(PEA\) Guidelines](#) (State of California Public Utilities Commission Information and Criteria List, Appendix B, Section V), as well as the CPUC's requirements for a [Certificate of Public Convenience and Necessity \(CPCN\) Permit to Construct \(PTC\)](#) pursuant to General Order 131-D (D.94-06-014, Appendix A, as modified by D.95-08-038). The CPUC requires applicants to provide this information for review in compliance with the mandates of the California Environmental Quality Act (CEQA). This PEA is designed to meet the above-mentioned CPUC requirements.

Following a discussion of the purpose and need for the project (Chapter 1), the alternatives (Chapter 2), and the project description (Chapter 3), this PEA evaluates the potential environmental impacts of the Proposed Project and the [Alternativealternatives](#) (Chapter 4). Potential impacts are assessed for all environmental factors contained in the most recent CEQA Environmental Checklist Form³ (Appendix A). With the implementation of Applicant Proposed Measures [listed in Table ES.1, Applicant Proposed Measures](#), the PEA [concludesconcluded](#) that the Proposed Project would have a significant effect to air quality.

Table ES. — Applicant Proposed Measures

Applicant Proposed Measure	Description
APM AQ 01	Construction workers would carpool when possible
APM AQ 02	All off road construction diesel engines which have a rating of 50 hp or more, shall meet, at a minimum, the Tier 2 California Emission Standards for Off-Road Compression Ignition Engines as specified in California Code of Regulations, Title 13, Section 2423(b)(1) unless such engine is not available for a particular item of equipment. In the event a Tier 2 engine is not available for any off road engine larger than 100 hp, that engine shall be equipped with a Tier 1 engine. In the event a Tier 1 engine is not available for any off road engine larger than 100 hp, that engine shall be equipped with a catalyzed diesel particulate filter (soot filter), unless certified by engine manufacturers that the use of such devices is not practical for specific engine types
APM AQ 03	SCE will develop an Air Quality Plan prior the start of construction that would include details of project specific activities to be implemented during construction of the Proposed Project to ensure compliance with all applicable laws, rules and regulations relating to air quality, and to comply with APM AQ 01 and APM AQ 02 set forth above

³ [In order to stay consistent with the existing Alberhill System Project PEA, SCE's environmental analysis was based on the 2009 version of the CEQA Environmental Checklist Form.](#)

Applicant Proposed Measure	Description
Biological Resource APMs	<p>At this time, no sensitive biological resources are anticipated to be affected by construction of the Proposed Project.</p> <p>However, SCE may propose APMs following receipt of results of focused surveys and wetland delineation that would be obtained as part of the Proposed Project and in consultation with appropriate agencies.</p>
Paleontological Resource APMs	<p>At this time, no sensitive paleontological resources are anticipated to be affected by construction of the Proposed Project.</p> <p>However, SCE may propose APMs following receipt of results of the paleontological resource survey conducted as the Proposed Project approaches final design.</p>

The Final Environmental Impact Report (FEIR), dated April 2017, concluded there were Significant impacts to Aesthetics, Air Quality, and Noise and Vibration.⁴ The FEIR also concluded there were Less than Significant impacts to Agriculture and Forestry Resources; Biological Resources; Cultural Resources; Geology, Soils, and Minerals; Greenhouse Gases; Hazards and Hazardous Materials; Hydrology and Water Quality; Land Use and Planning; Population and Housing; Public Services and Utilities; Recreation; and Transportation. The FEIR supersedes the SCE PEA and based on the FEIR findings, SCE will comply with the APMs and Mitigation Measures included in the FEIR. Table E.1, Comparison of PEA and FEIR Impacts summarizes the differences between the impact assessments in the PEA and FEIR.

A comparison of alternatives is described in Chapter 5. No cumulative impacts or growth-inducing impacts (Chapter 6) were identified for the proposed project.

The names and titles of persons assisting in the preparation of this document are listed in Appendix B.

⁴ The FEIR also determined there would be significant cumulative impacts to Aesthetics, Air Quality, and Biological Resources. It also determined there would be a potential for significant cumulative impacts to Cultural Resources if multiple projects were to impact the same known resource.

Table E.1 Comparison of PEA and FEIR Impacts

<u>Section</u>	<u>Proposed Project (PEA)</u>	<u>Proposed Project (FEIR)</u>
<u>Aesthetics</u>	<u>Less than significant</u>	<u>Significant</u>
<u>Agricultural Resources</u>	<u>Less than significant</u>	<u>Less than significant</u>
<u>Air Quality</u>	<u>Significant</u>	<u>Significant</u>
<u>Biological Resources</u>	<u>Less than significant</u>	<u>Less than significant with mitigation</u>
<u>Cultural Resources</u>	<u>Less than significant</u>	<u>Less than significant with mitigation</u>
<u>Geology and Soils</u>	<u>Less than significant</u>	<u>Less than significant</u>
<u>Hazards and Hazardous Materials</u>	<u>Less than significant</u>	<u>Less than significant with mitigation</u>
<u>Hydrology and Water Quality</u>	<u>Less than significant</u>	<u>Less than significant with mitigation</u>
<u>Land Use and Planning</u>	<u>No Impact</u>	<u>Less than significant with mitigation</u>
<u>Mineral Resources</u>	<u>Less than significant</u>	<u>Less than significant</u>
<u>Noise</u>	<u>Less than significant</u>	<u>Significant</u>
<u>Population and Housing</u>	<u>No Impact</u>	<u>Less than significant</u>
<u>Public Services</u>	<u>Less than significant</u>	<u>Less than significant with mitigation</u>
<u>Recreation</u>	<u>No Impact</u>	<u>Less than significant</u>
<u>Transportation and Traffic</u>	<u>Less than significant</u>	<u>Less than significant with mitigation</u>
<u>Utilities and Service Systems</u>	<u>Less than significant</u>	<u>Less than significant</u>

1.0 PURPOSE AND NEED

Southern California Edison's (SCE's) Valley South System currently serves over 187,000 metered customers, representing approximately 560,000 individuals, nearly 6,000 of which are critical care customers. As discussed further below, 2018 adjusted peak demand, which includes weather adjustments to reflect a 1-in-5 year heat storm, is currently at 99.9 percent of the Valley South System's ultimate system design capacity (1,120 megavolt amperes [MVA]). Forecasted load growth shows that peak demand is expected to exceed the rated transformer capacity of the system by the year 2022.

The Valley South System has a unique combination of characteristics as compared to SCE's other subtransmission systems that result in reliability and resiliency challenges and contribute to the likelihood of occurrence and/or impact of events that lead to loss of service to customers.¹ The reliability issues in the Valley South System are associated with a combination of characteristics related to its limited capacity margin, configuration, and size. In its current configuration, The Valley South System is the only SCE subtransmission system that does not have any system tie-lines to other systems. This results in an isolated system with negative impacts to reliability and resiliency due to the inability to transfer load during typically planned-for system contingency events and unplanned outages, including high-impact, low-probability events. The lack of capacity and absence of system tie-lines requires a solution to maintain the integrity of the electric system, and to prevent and mitigate customer service outages.

Southern California Edison Company (SCE) proposes to construct the Alberhill System Project (Proposed Project or ASP) to serve current and projected demand for electricity, and maintain electric system reliability in portions of southwestern Riverside County including the cities of Lake Elsinore, Canyon Lake, Perris, Menifee, Murrieta, Murrieta Hot Springs, Temecula, and Wildomar, as well as the surrounding unincorporated portions of Riverside County (Electrical Needs Area).

In addition to serving the forecasted demand for the Electrical Needs Area, the Proposed Project would relieve the Valley South 115 kilovolt (kV) System by transferring electrical demand from this system to the new Alberhill ~~system~~System. The Proposed Project would also improve electrical reliability and operational flexibility in southwestern Riverside County.

The Proposed Project would include the following major components:

- Construction of a new 1,120 ~~megavolt ampere (MVA)~~ 500/115 kV substation to increase electrical service capacity to the area presently served by the Valley South 115 kV System
- Construction of two new 500 kV transmission line segments to connect the new substation to SCE's existing Serrano-Valley 500 kV transmission line

¹ See Item B - "Identification of all subtransmission planning areas in the SCE system with similar reliability issues" as attached to SCE's Compliance filing dated May 8, 2020

1.0 PURPOSE AND NEED

- Construction of a new 115 kV subtransmission line (approximately three miles in length) and modifications to four existing 115 kV subtransmission lines to transfer five existing 115/12 kV substations (Ivyglen, Fogarty ~~(expected to be constructed 2011)~~, Elsinore, Skylark, and Newcomb Substations) presently served by the Valley South 115 kV System to the new Alberhill 500/115 kV Substation
- Installation of telecommunications improvements to connect the new facilities to SCE's telecommunications network

1.1 PROJECT PURPOSE

Under the rules, guidelines and regulations of the Federal Energy Regulatory Commission (FERC), North American Electric Reliability Council (NERC), Western ~~Energy~~ Electricity Coordinating Council ~~(WECC)~~, and California Public Utilities Commission (CPUC), electrical transmission, subtransmission, and distribution systems must have sufficient capacity to maintain safe, reliable, and adequate service to customers. The safety and reliability of the systems must be maintained under normal conditions when all facilities are in service, as well as under abnormal conditions during equipment or line failures, maintenance outages, or outages that cannot be predicted or controlled, which are caused by weather, earthquakes, traffic accidents or any other unforeseeable events.

1.2 PROJECT NEED





SCE's Valley Substation, located in Romoland, California, is the sole source serving customer electrical demand in the San Jacinto Region of southwestern Riverside County, an area encompassing roughly 1,260 square miles and serving approximately ~~325,000~~ 350,000 metered customers. Valley Substation transforms voltage from 500 kV to 115 kV with four 560 MVA transformers. In 2004, the Valley 115 kV System was split into two separate and distinct 115 kV systems, the Valley North 115 kV System and the Valley South 115 kV System. Each of these systems is served by two 560 MVA transformers.

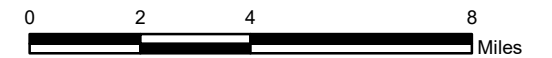
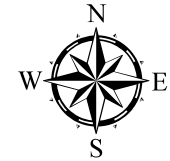
These two 115 kV systems are served from the same 500 kV sources, however, they are not connected at the 115 kV level. The Valley North 115 kV System consists of ~~1011~~ distribution substations and the Valley South 115 kV System is served by ~~1114~~ distribution substations.

Operating limits (the amount of electrical load that can be served by equipment) have been established to ensure that SCE maintains the required capacity and system operational flexibility to safely and reliably meet the projected peak electrical demands during periods of extreme heat, under both normal and abnormal conditions. The amount of electrical load that can be served by the Valley South 115 kV System is limited to the maximum amount of electrical power that the two Valley South 115 kV System transformers can serve before exceeding operating limits.

The Electrical Needs Area for the Proposed Project is bounded by the Cleveland National Forest on the west, San Diego Gas & Electric Company's service territory to the south, the San Bernardino National Forest to the east. The northern boundary of the Electrical Needs Area is generally formed by an approximate line beginning at Lake Mathews and extending eastward through Hemet along State Route 74 to the San Bernardino National Forest. This portion of

**Figure 1.1
Electrical Needs Area**

- Electrical Needs Area**
-  Electric Needs Area
 -  Substation Target Area
 -  SCE Service Territory Boundary (SCE, 2006)
 -  County Boundaries (TBM, 2008)

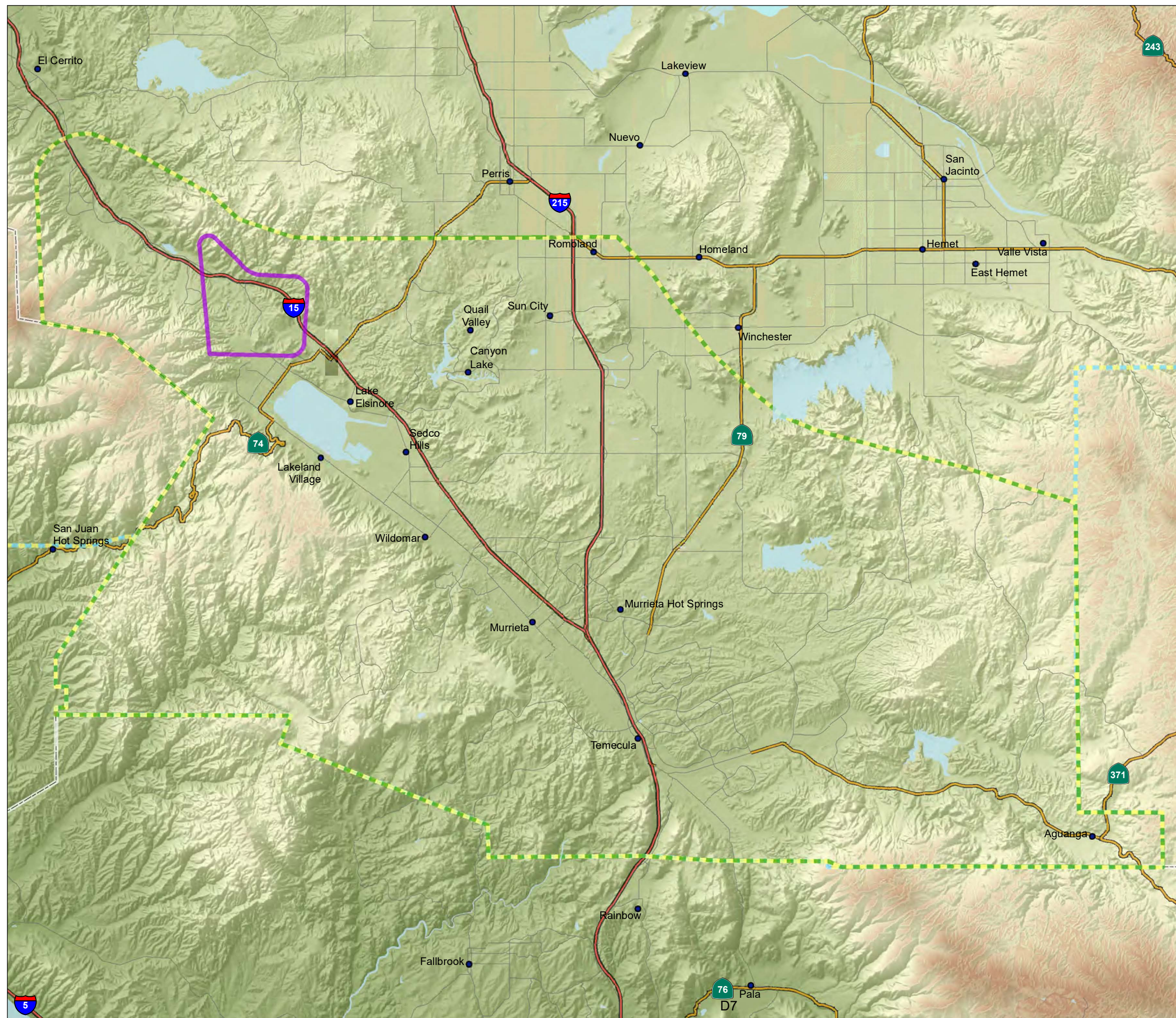


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Major Transmission Projects - Alberhill Sub Project



southwestern Riverside County includes the cities of Lake Elsinore, Canyon Lake, Perris, Menifee, Murrieta, Murrieta Hot Springs, Temecula, and Wildomar, and is shown on Figure 1.1, Electrical Needs Area.

1.2.1 Substation Capacity and Electrical Demand

For substations connected directly to a 500 kV transmission system, a 10-year forecast is developed annually that identifies the projected peak electrical demands under normal conditions as well as the projected peak electrical demands for 1-in-5 year heat storms (time periods during which the effective temperature exceeds the 10-year average peak effective temperature by four degrees Fahrenheit).

Peak electrical demand forecasts are typically based on residential, commercial and industrial developments that are planned or under construction, as well as historical growth trends of the area. The Electrical Needs Area has ~~experienced considerable~~continued to experience growth in electrical demand and has demonstrated an average annualized growth rate of ~~8.4~~approximately 2.1 percent ~~since 2004~~from 2009 to 2018; approximately 1 percent in recent years.

Historical adjusted values are developed by adjusting actual recorded values to account for temperature and other factors to produce representative load values used for planning purposes. SCE first normalizes the historical data to a common temperature base. In order to determine the forecast for system-level studies, SCE also adjusts the historical data using a temperature representative of a 1-in-5 year heat storm. This is consistent with the CAISO practice of using 1-in-5 year weather adjusted load for subtransmission system studies.² The historical adjusted peak electrical demand for the years 2009 to 2018 and the forecasted peak electrical demand for the years 2019 to 2028 are shown in Table 1.1, Valley South 115 kV System Capacity and Peak Demand, and on Figure 1.2, Valley South 115 kV System Capacity and Peak Demand. The 2007 the historical adjusted value was 944 MVA. To date, this value was the highest peak electrical demand of the Valley South 115-kV System. In 2008, the historical adjusted value was 817 MVA. This represented a reduction from 2007 to 2008 of 13.5 percent. The magnitude and anomalous nature of this 13.5 percent reduction prompted SCE to further evaluate the validity of this number. SCE evaluated the following data for Riverside County:

- ~~■ Population growth since 2000 has grown approximately four percent annually~~
- ~~■ Population growth rate in 2007 was 2.4 percent~~
- ~~■ Population growth rate in 2008 was 1.4 percent~~
- ~~■ Foreclosure rate is currently 1 in 17 homes or approximately 5.9 percent~~
- ~~■ In 2008, SCE installed 4,719 meters and removed 1,061 meters, resulting in a net installation of 3,658 meters~~
- ~~■ From January 2009 through July 2009, SCE installed 1,802 meters and removed 365 meters, resulting in a net installation of 1,437 meters~~

~~The above data supports that electrical demand growth is still occurring, but at a slower rate. Although the population growth rates for 2007 and 2008 demonstrate a decline in the rate of increase from that of the average from 2000 through 2008, the population is still increasing.~~

² See Item A - "Load Forecast" as attached to SCE's Compliance filing dated May 8, 2020

1.0 PURPOSE AND NEED

~~Additionally, analysis of the installation and removals of meters demonstrates a continued net increase in meters. The data does not substantiate that the reduction in electrical demand is a result of the removal of electrical facilities. As such, SCE concluded that the amount of electrical demand that was documented in 2007, using the typical adjustments, should remain the benchmark.~~

~~For the reasons discussed above, the 2008 peak electrical demand was adjusted from 817 MVA to 971 MVA. This 971 MVA value includes an adjustment to the 2008 historical adjusted value to equal that of the 2007 benchmark plus 50 percent of the published 2008 forecasted load growth. This approach was taken to ensure that SCE adequately planned for the required electrical facilities to meet the electrical demand. A similar process will be applied during review of the 2009 recorded peak electrical demand as part of the annual planning process for 2010-2019. The best information available through analysis of population trends, SCE net meter installations, and other data as necessary will be incorporated.~~

~~The historical adjusted peak electrical demand for the years 2004 to 2008 and the forecasted peak electrical demand for the years 2009 to 2018 are shown in Table 1.1, Valley South 115 kV System Capacity and Peak Demand, and on Figure 1.2, Valley South 115 kV System Capacity and Peak Demand.³~~

~~As shown in Table 1.1, Valley South 115 kV System Capacity and Peak Demand, and on Figure 1.2, Valley South 115 kV System Capacity and Peak Demand, SCE forecasts that the 1-in-5 year heat storm projected peak electrical demand will increase to ~~1,145~~1,125 MVA by ~~2011~~2022, exceeding the available transformer capacity of the Valley South 115 kV System. SCE's forecasted peak electrical demand indicates that there is a need to reduce loading on the transformers that provide service to the Valley South 115 kV System. ~~As part of the annual planning process for the 10-year forecast for the years 2009-2018, SCE adjusted the forecasted peak electrical demand by reducing the rate of load growth to account for current economic conditions. Even with these revised projections, a project to reduce the loading of the Valley South 115 kV System transformers is needed by 2011.~~~~

~~Though SCE triggers a new capacity project (such as the ASP) when peak demand is projected to exceed the total normal-condition rating of the transformers (in this case 1,120 MVA), SCE notes that when loading levels exceed the short-term emergency loading limit (896 MVA) of a single 560 MVA transformer should there be an unplanned outage of the second transformer, there is load at risk of losing electrical service and the potential of equipment damage if loading is permitted to exceed 896 MVA. Generally, this can be addressed with an automatic load-shedding scheme and then with load restoration through the use of system tie-lines. However, in the case of the Valley South System, this is not possible as it does not have any system tie-lines.~~

~~As a result of SCE installing a fifth 500/115 kV transformer at Valley Substation in 2011. This fifth transformer will be a spare installed to comply with SCE's Transmission Planning Criteria and Guidelines. These criteria and guidelines state that all 500/115 kV substations shall have an~~

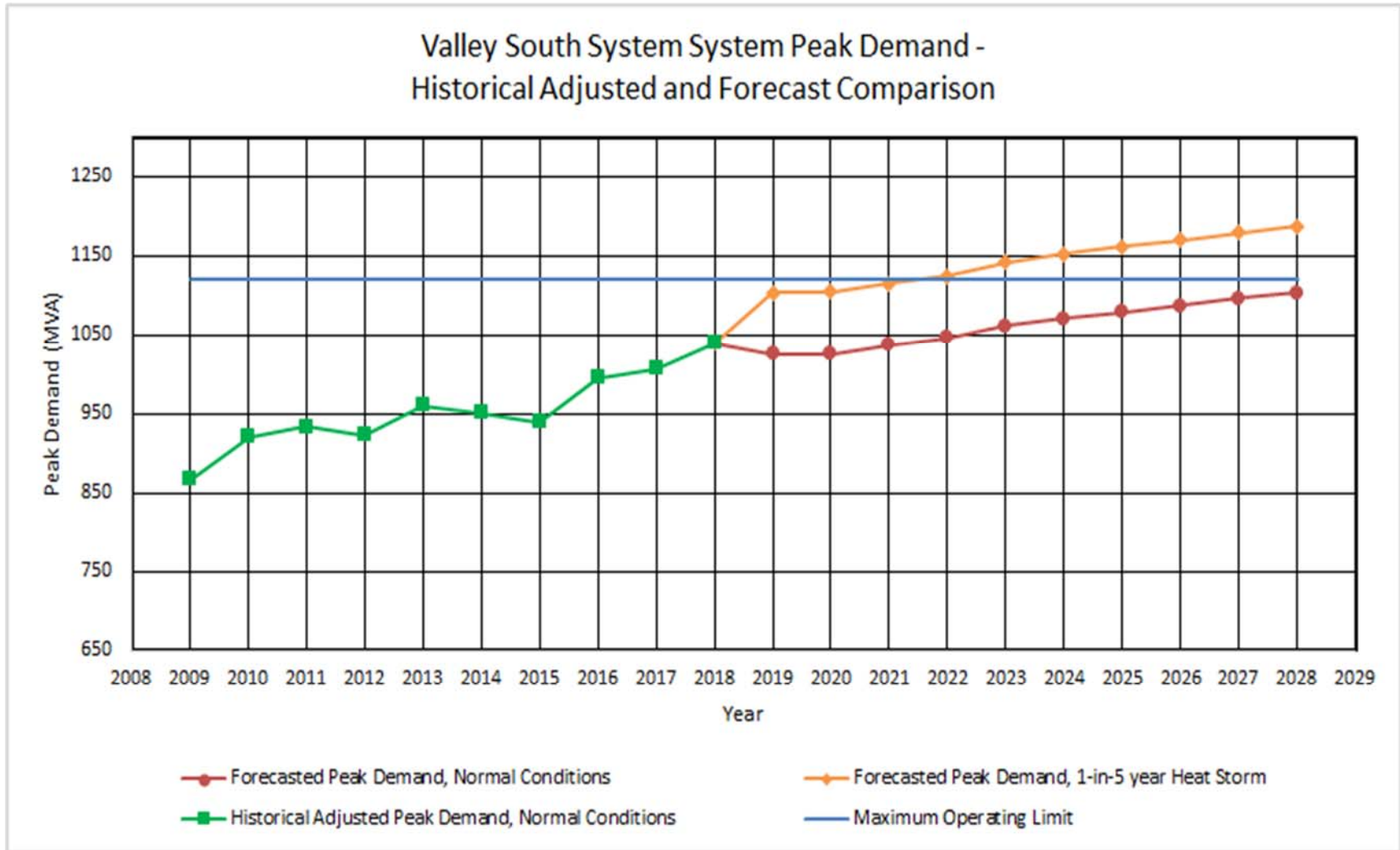
³ This information was also provided to the California Independent System Operator (CAISO) in July 2009. A summary report of the Alberhill System Project as presented to the CAISO is included as Appendix C.

Table 1.1 Valley South 115 kV System Capacity and Peak Demand

Historical Adjusted	<u>2009</u> <u>2004</u>	<u>2010</u> <u>2005</u>	<u>2011</u> <u>2006</u>	<u>2012</u> <u>2007</u>	<u>2013</u> <u>2008</u>
Maximum Operating Limit (MVA)	1,119	1,119	1,119	1,119	1,119
<u>Adjusted Peak Demand, Normal</u> <u>Conditions</u> (MVA)	<u>867</u> <u>703</u>	<u>921</u> <u>777</u>	<u>934</u> <u>907</u>	<u>923</u> <u>944</u>	<u>960</u> <u>971</u>
Historical Adjusted	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>
<u>Maximum Operating Limit</u> (MVA)	1,119	1,119	1,119	1,119	1,119
<u>Adjusted Peak Demand, Normal</u> <u>Conditions</u> (MVA)	<u>951</u>	<u>940</u>	<u>995</u>	<u>1,006</u>	<u>1,039</u>
Forecasted	<u>2019</u> <u>2009</u>	<u>2020</u> <u>2010</u>	<u>2021</u> <u>2011</u>	<u>2022</u> <u>2012</u>	<u>2023</u> <u>2013</u>
Planned Maximum Operating Limit (MVA)	1,119	1,119	1,119	1,119	1,119
Forecasted Peak Demand Normal Conditions (MVA)	<u>1,025</u> <u>993</u>	<u>1,026</u> <u>1032</u>	<u>1,037</u> <u>1077</u>	<u>1,046</u> <u>1118</u>	<u>1,061</u> <u>1164</u>
Forecasted Peak Demand 1-in-5 Year Heat Storm (MVA)	<u>1,103</u> <u>1057</u>	<u>1,104</u> <u>1098</u>	<u>1,116</u> <u>1145</u>	<u>1,125</u> <u>1190</u>	<u>1,142</u> <u>1239</u>
Forecasted	<u>2024</u> <u>2014</u>	<u>2025</u> <u>2015</u>	<u>2026</u> <u>2016</u>	<u>2027</u> <u>2017</u>	<u>2028</u> <u>2018</u>
Planned Maximum Operating Limit (MVA)	1,119	1,119	1,119	1,119	1,119
Forecasted Peak Demand Normal Conditions (MVA)	<u>1,071</u> <u>1208</u>	<u>1,079</u> <u>1249</u>	<u>1,087</u> <u>1290</u>	<u>1,096</u> <u>1328</u>	<u>1,104</u> <u>1361</u>
Forecasted Peak Demand 1-in-5 Year Heat Storm (MVA)	<u>1,153</u> <u>1285</u>	<u>1,161</u> <u>1330</u>	<u>1,170</u> <u>1373</u>	<u>1,179</u> <u>1413</u>	<u>1,187</u> <u>1448</u>

Note: 2019 data is expected to be available by June 2020

Figure 1.2 Valley South 115 kV System Capacity and Peak Demand



on-site three-phase spare transformer available for use in the event of a transformer failure, as well as having applied for a Certificate of Public Convenience and Necessity (CPCN) to construct a proper long-term solution (ASP) and could not implement a load-shedding scheme, SCE elected to develop a mitigation plan. This mitigation plan was expected to address the few years during which it was projected that a relatively small number of instances (with short durations) would occur where load would be less than the 1,120 MVA but greater than 896 MVA. If electrical demand was projected to exceed the short-term emergency rating of a single transformer (896 MVA) exceeds operating limits of the existing equipment of the Valley South 115 kV System prior to the operating date of 2014, the spare transformer would be temporarily put into service as a contingency- measure to ensure overloads would not occur. This short-term mitigation plan was and still is not intended to be a long-term solution.⁴

1.2.2 Operational Flexibility

As a result of geographic boundaries and SCE service territory boundaries, the Valley South 115 kV System has no tiesystem tie-lines to any other system at the 115 kV level. As such, SCE's ability to transfer load between systems is nonexistent. The inability to transfer load from the Valley South 115 kV System to another system limits the operational flexibility of the system which increases the potential for electrical service interruptions to prevent potential transformer or subtransmission line overloads. Having no system tiesystem tie-lines also limits the ability to operate the system during construction of new facilities and routine maintenance activities.

1.3 BASIC OBJECTIVES

The California Environmental Quality Act (CEQA) and CEQA Guidelines (Section 15126.6(a)) require consideration of a reasonable range of alternatives to a proposed project, or the location of the project, which would feasibly attain most of the basic objectives of the project, but would avoid or substantially lessen any of the significant effects of the project. SCE has identified the following basic objectives⁵ to meet the Proposed Project's purpose and need as described in this chapter:

- Serve current and long-term projected electrical demand requirements in the Electrical Needs Area
- Increase system operational flexibility and maintain system reliability by creating system ties that establish the ability to transfer substations from the current Valley South 115 kV System

⁴ See Item H "Identify capital investments or operational changes effectuated to address reliability issues in the absence of construction of Alberhill Substation and associated costs for such actions" as attached to SCE's Compliance filing dated May 8, 2020.

⁵ In this Second Amendment to PEA, SCE retained the Project Objectives from the original PEA (dated September 30, 2009) instead of the modified Project Objectives in the Final Environmental Impact Report (FEIR). This is because the FEIR Objectives would have constrained alternatives to those that include a 500 kV substation and such a constraint would be counter to the purpose of the supplemental analysis that SCE was directed to perform in Decision (D.) 18-08-026 for the ASP proceeding.

1.0 PURPOSE AND NEED

- Transfer a sufficient amount of electrical demand from the Valley South 115 kV System to maintain a positive reserve capacity on the Valley South 115 kV System through the 10-year planning horizon
- Provide safe and reliable electrical service consistent with SCE's Transmission Planning Criteria and Guidelines
- Increase electrical system reliability by constructing a project in a location suitable to serve the Electrical Needs Area
- Meet project need while minimizing environmental impacts
- Meet project need in a cost-effective manner

SCE considered these basic objectives in developing a reasonable range of alternatives.

1.3.1.4 ELECTRICAL SYSTEM EVALUATION

SCE utilizes a multi-step planning process to ensure that necessary system facilities are developed in time to meet projected electrical demand. This planning process begins with the development of a peak electrical demand forecast for each substation. Peak electrical demand forecasts are developed using historical data and trends in population data, urbanization data, and meteorological data.

1.3.1.4.1 Electrical System Evaluation Methodology

Electrical systems have defined operating limits. Technical engineering studies are conducted to determine whether the forecasted peak electrical demand can be accommodated on the existing transmission, subtransmission, and distribution systems. When projections indicate that these limits will be exceeded within a specific planning horizon (typically 10 years), a project is proposed to keep the electrical system within specified operating limits.

During this process, SCE evaluates existing facilities within the Electrical Needs Area. SCE first evaluates whether the existing electrical infrastructure could be modified to meet the project need. If not, SCE evaluates what new infrastructure would be required and where it would be located in order to meet the project need. Evaluating SCE's system ability to address identified needs consists of the four-step process described below.

Step 1. Technical engineering analyses are performed to determine whether the forecasted peak electrical demand could be accommodated by modifying the existing electrical infrastructure.

Step 2. If the forecasted electrical demand cannot be accommodated by modifying the existing electrical infrastructure, then a series of system scenarios are developed.

Step 3. Each system scenario is evaluated in accordance with the following criteria:

- The extent to which the system scenario would substantially meet the project need; and

- The feasibility of the system scenario, including system capacity limits, ability to upgrade the system on existing utility sites, and economic considerations

Step 4. If a system scenario is determined not to be feasible, it is eliminated from further consideration.

1.3.21.4.2 Evaluation of System Scenarios

The original PEA dated September 30, 2009, evaluated a total of four system scenarios: the ASP (System Scenario 1); installation of an additional transformer serving the Valley South System (System Scenario 2); transfer of electrical demand from the Valley South System to the Valley North System (System Scenario 3); and a no project alternative (System Scenario 4).

In Decision (D.) 18-08-026 for the ASP proceeding, the California Public Utilities Commission (CPUC) took no action on the ASP and directed SCE to supplement the existing record with additional analyses. These additional analyses include a Planning Study⁶ that supports the project need, describes the applicable planning criteria and reliability standards, and provides a cost/benefit analysis of additional alternatives for enhancing reliability and providing additional capacity. This Second Amendment to PEA retains all of the original system scenarios, and now includes additional system scenarios developed in the Planning Study and associated Cost/Benefit analysis.⁷ For System Scenario 3, the transfer of electrical demand from Valley South to Valley North, the PEA discussion has been modified from that in the original PEA to reflect the additional analysis that was performed in the Planning Study.

Section 1.4.2.3 through Section 1.4.2.9 below describe these new system alternatives and provide a summary conclusion on each new alternative's viability of meeting the ASP Project Objectives and each alternative's performance, cost effectiveness, and implementation risk as determined in the Planning Study.

1.3.2.11.4.2.1 System Scenario 1: Alberhill System Project

This section evaluates System Scenario 1, the construction of the new Alberhill 500/115 kV Substation with an initial capacity of 1,120 MVA and the formation of the Alberhill System. The substation would be located within the Electrical Needs Area, west of the existing Valley Substation and in proximity to an existing 500 kV line right-of-way (ROW). Construction of two 500 kV transmission line segments, approximately one mile in length each, would be required to loop the existing Serrano-Valley 500 kV transmission line into the new substation. Major project components are listed below.

- Construction of the new 1,120 MVA Alberhill 500/115 kV Substation
- Construction of two new 500 kV transmission line segments to connect the Alberhill Substation to SCE's existing Serrano-Valley 500 kV transmission line
- Construction of a new 115 kV subtransmission line and modifications to existing 115 kV subtransmission lines to facilitate the transfer of five existing 115/12 kV substations

⁶ See Item C - "Planning Study" as attached to SCE's Compliance filing dated May 8, 2020

⁷ See Item G - "Cost-Benefit" Analysis as attached to SCE's Compliance filing dated May 8, 2020

1.0 PURPOSE AND NEED

which are presently served by the Valley South 115 kV System to the new Alberhill 115 kV System

- Installation of necessary of telecommunication improvements

System Scenario 1 would provide the following electrical benefits:

- Addition of 1,120 MVA of transformer capacity to the Electrical Needs Area resulting from the construction of the Alberhill 500/115 kV Substation
- Reduction in transformer loading with the transfer of approximately ~~420~~380 MVA from the Valley South 115 kV System to the Alberhill 115 kV System through the initial transfer of five existing 115/12 kV substations
- Increased system operational flexibility due to the formation of the Alberhill System and the creation of 115 kV system ties between the Valley South 115 kV System and the Alberhill 115 kV System
- Potential for the future transfer of additional 115 kV substations to the Alberhill 115 kV System when the equipment within the Valley South 115 kV System approaches operating limits

~~1.3.2.2~~1.4.2.2 System Scenario 2: Install an Additional Transformer at Valley South 115 kV System

This section evaluates the feasibility of installing an additional 560 MVA 500/115 kV transformer to increase the load serving capacity of the Valley South 115 kV System.

~~Following the planned 2011 project to install a fifth 500/115 kV transformer as a spare, the proposed~~ The addition of a new transformer at Valley Substation would ~~then~~ increase the total number of 500/115 kV transformers from five to six. If an additional transformer were installed, SCE would operate five load-serving transformers, two serving the Valley North System and three serving the Valley South System. The sixth transformer would serve as a system spare transformer as required to comply with SCE's Transmission Planning Criteria and Guidelines. This alternative is not technically feasible because there is insufficient space at Valley Substation to accommodate six 500/115 kV transformers (five load-serving plus one spare) and the property of Valley Substation cannot be expanded due to roads, railroads, and development surrounding the substation. Additionally, this scenario raises concerns regarding potentially violating electrical design criteria (short-circuit duty) associated with three transformers operating in parallel. Finally, it does not satisfy the Project Objectives because it does not create system tie-lines for the Valley South System.

~~1.3.2.3~~1.4.2.3 System Scenario 3: Transfer Electrical Demand from the Valley South 115 kV System to the Valley North 115 kV System

~~This section evaluates the transfer of existing 115 kV substations from the Valley South 115 kV System to the Valley North 115 kV System. The number of substations that could be transferred is limited to two, based on the available transformer capacity of the Valley North 115 kV System, ensuring that the operating limits are not exceeded following the transfer. This scenario~~

would require establishing 115 kV connections between the two systems and would provide only short-term relief to the transformer loading of the Valley South 115 kV System. Major project components are listed below.

- Construction of a new 115 kV subtransmission line between Valley Substation and the Skylark leg of the Valley-Newcomb-Skylark 115 kV subtransmission line. This would consist of the construction of 3.5 miles of new 115 kV subtransmission line and the rebuilding 6.5 miles of existing 115 kV subtransmission lines by replacing single-circuit structures with double-circuit structures
- Transfer of Newcomb and Sun City 115/12 kV Substations from the Valley South 115 kV System to the Valley North 115 kV System

System Scenario 3 would provide the following electrical benefits:

- Reduction in loading on the Valley South 115 kV System transformers that would keep the electrical demand below the operating limits for approximately four years

The Valley South to Valley North Alternative proposes to transfer load away from SCE's existing Valley South 115 kV System to SCE's existing Valley North 115 kV System via construction of new 115 kV subtransmission lines. This alternative would include 115 kV line scope to transfer SCE's Sun City and Newcomb 115/12 kV distribution substations to the Valley North System. Subtransmission line modifications in the Valley South System would also create two system-ties between the Valley South and Valley North Systems. The system tie-lines would allow for the transfer of load from the Valley North System back to the Valley South System (either, or both, Sun City and Newcomb Substations). This alternative creates system tie-lines; however, the Planning Study analysis showed that the tie-lines do not benefit Valley South because no additional load could be transferred from the Valley South System to the Valley North System (in the event of an unplanned outage to 115 kV lines or to one Valley South System transformer). This is because the next substation in line to be transferred is too heavily loaded and its transfer would adversely impact the ability to serve the customers further downstream because of the change in the system configuration. The tie-lines would benefit the Valley North System as load could be transferred back to the Valley South System should there be an outage of a Valley North System transformer, but the Valley North System already has sufficient tie-line capacity and is not the intended beneficiary of the project. This alternative would afford a modest improvement over existing conditions in events which would impact resiliency (specifically a high impact, low probability event affecting both Valley South System transformers).

The Planning Study and supporting analyses conclude that, while this alternative satisfies the system capacity needs of the Valley South System through 2043, it provides very limited reliability and resiliency benefits because the system tie-lines that would be established when load is transferred from the Valley South System to the Valley North System provide very

limited ability to transfer additional load to the Valley North System in the event of abnormal operating conditions in the Valley South System.⁸

The Planning Study and Cost/Benefit Analysis also considered the addition of Distributed Energy Resources (DER), represented for modelling purposes as distributed Battery Energy Storage Systems (BESS), to meet the capacity needs for a longer time period (through 2048). However, the addition of BESS does not substantially improve the effectiveness of System Alternative 3 in meeting the project reliability objective.

1.4.2.4 System Scenario 4: Transfer Electrical Demand from the Valley South 115 kV System to the Valley North 115 kV System, and from the Valley North 115 kV System to the Vista 115 kV System

The Valley South to Valley North to Vista Alternative proposes to transfer load away from SCE's existing Valley South 115 kV System to the Valley North 115 kV System, and away from the Valley North 115 kV System to the Vista 115 kV System via construction of new 115 kV subtransmission lines. This alternative would include 115 kV line scope to transfer SCE's Sun City and Newcomb 115/12 kV distribution substations from the Valley South System to the Valley North System, and the Moreno 115/12 kV distribution substation from the Valley North System to the Vista System. Subtransmission line construction and modifications in the Valley South System would create two system tie-lines between the Valley South System and the Valley North System. The system tie-lines would allow for the transfer of load from the Valley North System back to the Valley South System (either, or both Sun City and Newcomb Substations). Subtransmission line construction and modifications in the Valley North System would maintain system tie-lines between the Valley North and Vista Systems. These system tie-lines would allow for the transfer of load from the Vista System back to the Valley North System (Moreno Substation) as well as the potential of transferring additional load from the Valley North System to the Vista System (Mayberry Substation) as needed.

The Planning Study⁹ and supporting analyses conclude that, while this alternative satisfies the system capacity needs of the Valley South System through 2043, it provides very limited reliability and resiliency benefits because the system tie lines that would be established when load is transferred from the Valley South System to the Valley North System provide limited ability to transfer additional load to the Valley North System in the event of an abnormal operating condition in the Valley South System. Additionally, the associated scope to implement the additional transfers from the Valley North System to the Vista System does not substantially improve the effectiveness of System Alternative 4 in meeting the Project Objectives and is not cost effective.

⁸ See Sections 6.4 and 8.1.2 in the Planning Study for additional discussion and data related to short- term, long-term and monetized benefits for each alternative.

⁹ See Sections 6.4 and 8.1.2 in the Planning Study for additional discussion and data related to short- term, long-term and monetized benefits for each alternative.

1.4.2.5 System Scenario 5: Transfer Electrical Demand from the Valley South 115 kV System to a newly constructed 115 kV system adjacent to San Diego Gas & Electric

The San Diego Gas and Electric (SDG&E) Alternative proposes to transfer load away from SCE's existing Valley South 115 kV System to a new 230/115 kV system created at the southern boundary of the SCE service territory and adjacent to SDG&E's service territory. The new system would be providing power from the existing SDG&E 230 kV system via construction of a new 230/115 kV substation and looping in the existing SDG&E Escondido-Talega 230 kV transmission line. This alternative would include 115 kV subtransmission line scope to transfer SCE's Pauba and Pechanga 115/12 kV distribution substations to the newly formed 230/115 kV system. Subtransmission line construction and modifications in the Valley South System would also create two 115 kV system-tie lines between the Valley South System and the newly formed 230/115 kV SDG&E-sourced system. The system-tie lines would allow for the transfer of load from the new system back to the Valley South System (either, or both, of Pauba and Pechanga Substations) as well as additional load transfer from the Valley South System to the new system (Triton Substation and under certain high-impact, low probability events some of the load at Moraga Substation) as needed.

The Planning Study concluded that this alternative meets the Project Objectives of the ASP. It satisfies the system capacity needs through 2040 and creates system tie-lines allowing some transfer of load out of the Valley South System to the newly created SDG&E 220/115 kV system, thus providing reliability/resiliency benefits. However, this system alternative performs worse in capacity system benefits (the ASP meets capacity needs through at least 2048), and is substantially worse in reliability/resiliency system benefits.¹⁰ Additionally, the project would have additional challenges to implement due to required coordination with SDG&E, significant construction of 220 kV transmission line facilities¹¹ through rugged terrain and conservation land, as well as a need to acquire land rights from the Pechanga Tribe.

To extend the capacity benefits of the system alternative to 2048 and provide a capacity solution approximately equivalent to the ASP, augmenting the SDG&E System Alternative was considered to further reduce load in the Valley South System. Specifically, a new 115 kV connected substation with incremental battery energy storage system (BESS) additions would be constructed near the existing Auld or Pechanga Substation with a loop-in of a 115 kV line to interconnect it to the grid. This would add substantial additional costs and does not result in substantially improved capacity and/or reliability/resilience benefits on an absolute basis or compared to the ASP. The BESS additions would occur outside of SCE's typical project planning horizon. Thus, while the need to augment capacity through future scope and associated investment is an important consideration in the cost/benefit evaluation in the Planning Study, these prospective BESS additions are not considered in this PEA.

¹⁰ See Sections 6.4 and 8.1.2 in the Planning Study for additional discussion and data related to short-term and monetized benefits for each alternative.

¹¹ SDG&E's transmission system in the vicinity of this system alternative operates at 230 kV. In this area, SCE operates its transmission system at 220 kV. To avoid confusion, all transmission lines associated with this system alternative have been categorized as 220 kV.

1.4.2.6 System Scenario 6: Transfer Electrical Demand from the Valley South 115 kV System to a new 220/115 kV Orange County System

The SCE Orange County Alternative proposes to transfer load away from SCE's existing Valley South 115 kV System to a new 115 kV system via construction of a new 220/115 kV substation and looping in the existing SONGS-Viejo 220 kV line. This alternative would include 115 kV subtransmission line scope to transfer SCE's existing Stadler and Tenaja 115/12 kV distribution substations from the Valley South System to the newly formed 220/115 kV system. The existing 115 kV subtransmission lines serving Stadler and Tenaja Substations would become two system-ties between the new 220/115 kV system and the Valley South System. The system-tie lines would allow for the transfer of load from the new system back to the Valley South System (either or both Stadler and Tenaja Substations) as well as additional load transfer from the Valley South System to the new system (Skylark Substation and under certain high-impact, low probability events, Moraga Substation) as needed.

The Planning Study concluded that this alternative meets the Project Objectives of the ASP but performs substantially worse than the ASP from the perspective of reliability/resiliency benefits¹² and is more expensive.¹³ Further it will be challenging to implement due to the required construction of extensive transmission line facilities through rugged, mountainous terrain, as well as Department of Defense (DoD), United States Forest Service, and conservation land.¹⁴

1.4.2.7 System Scenario 7: Transfer Electrical Demand from the Valley South 115 kV System to a new 500/115 kV Menifee System

The Menifee Alternative proposes to transfer load away from SCE's existing Valley South 115 kV System to a new 500/115 kV system via construction of a new 500/115 kV substation and looping in the Serrano-Valley 500 kV transmission line. This alternative includes 115 kV subtransmission line scope to transfer SCE's Sun City and Newcomb 115/12 kV distribution substations to the newly formed 500/115 kV system. Subtransmission line construction and modifications in the Valley South System would also create two system-ties between the Valley South System and the newly formed 500/115 kV Menifee System. The system-tie lines would allow for the transfer of load from the new system back to the Valley South System (either or both Sun City and Newcomb Substations) as well as some additional load transfer (under certain extreme conditions) from the Valley South System to the new system.

The Planning Study and supporting analyses conclude that, while satisfying the system capacity needs through 2043, this alternative provides very limited reliability/resiliency benefits.¹⁵ The system tie lines that would be established when load is transferred from the Valley South System to the new Menifee System provide limited ability to transfer additional load in the event of abnormal operating conditions in the Valley South System. In addition, due to the close proximity of the new 500/115 kV Menifee Substation to the Valley Substation, there is no

¹² See Sections 6.4 and 8.1.2 in the Planning Study for additional discussion and data related to short-term, long-term and monetized benefits for each alternative.

¹³ Cost estimates for each alternative are compared in Section 8.1.1 and are detailed in Appendix C of the Planning Study.

¹⁴ Siting and routing of each alternative is described in Appendix C of the Planning Study.

¹⁵ See Sections 6.4 and 8.1.2 in the Planning Study for additional discussion and data related to short-term, long-term, and monetized benefits for each alternative.

appreciable reliability/resiliency benefit that would otherwise be gained by a solution where the source substation was located in a geographically diverse location; therefore, limiting the impact of certain catastrophic events on both substations should they be located very near to each other.

1.4.2.8 System Scenario 8: Transfer Electrical Demand from the Valley South 115 kV System to a new 115 kV Mira Loma System

The Mira Loma Alternative proposes to transfer load away from SCE's existing Valley South 115 kV System to a new 115 kV system located in the City of Ontario just west of SCE's existing Mira Loma Substation via construction of a new 220/115 kV substation and looping in SCE's existing Mira Loma-Chino 220 kV transmission line. This alternative would also include 115 kV subtransmission line scope to facilitate the transfer of SCE's Ivyglen and Fogarty 115/12 kV distribution substations from the Valley South System to the new 220/115 kV system. The existing 115 kV subtransmission lines serving Ivyglen and Fogarty Substations would become two system-ties between the newly formed 220/115 kV Mira Loma System and the Valley South System.

The Planning Study concluded that this alternative meets the Project Objectives of the ASP, but provides limited benefits over both short-term and longer-term study horizons because it would only meet capacity needs through 2031 and would have only marginally effective system tie-lines due to the resulting system topology.¹⁶ This is because while the created system-tie lines would allow for the transfer of all the load from the new 220/115 kV Mira Loma System back to the Valley South System (either or both Fogarty and Ivyglen Substations) should there be an unplanned outage in the new system, the ability to transfer additional load from the Valley South System to the new 220/115 kV Mira Loma System (during a similar type event) is limited to only Elsinore Substation and under certain high-impact, low probability events a portion of Skylark Substation. This results in the Mira Loma Alternative underperforming as compared to the ASP with respect to reliability/resiliency benefits during unplanned contingencies and more extreme high-impact, low probability events. Further it would be challenging to implement due to comparatively extensive (more than 20 miles) subtransmission construction through developed communities in Riverside County.¹⁷

To extend the capacity benefits of this system alternative past the year 2031, SCE evaluated additional solutions to incrementally augment the new Mira Loma System through the addition of a centralized BESS in the Valley South System. A new 115 kV connected substation with incremental BESS additions would be constructed near Auld Substation with a loop-in of the existing Auld-Moraga #1 115 kV subtransmission line. This satisfies the capacity needs through 2048 but adds substantial costs and does not substantially improve system reliability/resilience benefits and overall performance. The BESS additions would be outside SCE's typical project planning horizon. Thus, while the need to augment capacity through future scope and associated investment is an important consideration in the cost/benefit evaluation in the Planning Study, these prospective BESS additions are not considered in this PEA.

¹⁶ See Sections 6.4 and 8.1.2 in the Planning Study for additional discussion and data related to short-term, long-term, and monetized benefits for each alternative.

¹⁷ Siting and routing of each alternative is described in Appendix C of the Planning Study.

1.4.2.9 System Scenario 9: Construct a Centralized Battery Energy Storage System in the Valley South 115 kV System

The Centralized Battery Energy Storage System (BESS) alternative proposes to reduce peak demand in the Valley South 115 kV System via construction of two new 115/12 kV substations with BESSs near Pechanga and Auld Substations, which would loop-in to the Pauba-Pechanga and Auld-Moraga #1 115 kV subtransmission lines, respectively.

The Planning Study concludes that although this system alternative can meet capacity needs through 2048 via incremental BESS additions, it does not meet the Project Objective of providing system tie-lines to improve the reliability/resilience of the Valley South System.

1.3.2.41.4.2.10 System Scenario 10: No Project Alternative

Under the No Project Alternative, no action would be taken. The No Project Alternative would involve no construction and no modification of the existing system. There would be no electrical benefit to the No Project Alternative.

1.3.31.4.3 System Alternatives Evaluation Results

Construction of the Alberhill System Project ASP (System Scenario 1) would initially provide 1,120 MVA of additional capacity within the Electrical Needs Area and provide the ability to reliably serve long-term electrical demand from the Valley South 115 kV System through the transfer of five existing 115/12 kV substations from the Valley South 115 kV System to the proposed Alberhill 115 kV System. The transfers of these substations would reduce the loading of the Valley South 115 kV System by ~~a projected 420~~approximately 380 MVA ~~in 2014~~, bringing the loading of the Valley South 115 kV System transformers to well within operating limits.

The Alberhill System Project ASP would increase system reliability and operational flexibility in the Electrical Needs Area by providing 115 kV subtransmission ~~ties~~system tie-lines to the Valley South 115 kV System (which currently has none). These ~~ties~~system tie-lines would allow SCE to transfer electrical service of substations between the two systems under both normal and abnormal conditions. The formation of Alberhill System in the Electrical Needs Area would also allow for the transfer of additional 115/12 kV substations from the Valley South 115 kV System to the Alberhill System if that becomes necessary in the future with relatively modest additional 115 kV line construction.

~~System Scenario 2, the installation of an additional load-serving transformer in the Valley South 115 kV System, is not a feasible scenario because there is not sufficient space at Valley Substation to accommodate six 500/115 kV transformers (five load-serving plus one spare) and the property of Valley Substation cannot be expanded due to roads, railroads, and development surrounding the substation. This scenario is not a feasible scenario for addressing capacity shortfalls of the Valley South 115 kV System.~~

~~In addition, although System Scenario 3 would provide the capacity needed for SCE to safely and reliably serve electrical demand within the Valley South 115 kV System, it would only serve customer demand until 2015, at which point a new system project would again be required. Additionally, by 2013, approximately two years after the initial transfer of electrical demand~~

~~from the Valley South 115 kV System to the Valley North 115 kV System, a new project would be required to add capacity to the Valley North System. System Scenario 3 does not meet the long-term needs of the Electrical Need Area and is eliminated from further consideration.~~

~~The No Project Alternative System Scenario 10 (the No Project Alternative) is not a viable scenario since it would prevent SCE from providing safe and reliable electrical service to its customers in the Electrical Needs Area. It would lead to frequent and prolonged electrical service interruptions and is therefore eliminated from further consideration.~~

~~System Scenarios 2, 3, 4, 7 and 9 are not viable scenarios because they are shown in the Planning Study to be ineffective in satisfying the Project Objective to increase system operational flexibility and maintain system reliability by creating system ties that establish the ability to transfer substations from the current Valley South 115 kV System.~~

As a result, SCE is proposing construction of System Scenario 1, the [Alberhill System Project ASP](#), to add transformer capacity to the Electrical Needs Area and to increase operational flexibility within the area presently served by the Valley South 115 kV System. [System Scenarios 5, 6 and 8 are considered as additional Project Alternatives in Chapter 4 \(Environmental Impact Assessment\) because they satisfy the Project Objectives but were demonstrated in the Planning Study to be inferior to Scenario 1 from the overall perspective of benefits, cost effectiveness, and risk.](#)¹⁸

1.4 — BASIC OBJECTIVES

~~The California Environmental Quality Act (CEQA) and CEQA Guidelines (Section 15126.6(a)) require consideration of a reasonable range of alternatives to a proposed project, or the location of the project, which would feasibly attain most of the basic objectives of the project, but would avoid or substantially lessen any of the significant effects of the project. SCE has identified the following basic objectives to meet the Proposed Project's purpose and need as described in this chapter:~~

- ~~▪ Serve current and long-term projected electrical demand requirements in the Electrical Needs Area~~
- ~~▪ Increase system operational flexibility and maintain system reliability by creating system ties that establish the ability to transfer substations from the current Valley South 115 kV System~~
- ~~▪ Transfer a sufficient amount of electrical demand from the Valley South 115 kV System to maintain a positive reserve capacity on the Valley South 115 kV System through the 10-year planning horizon~~
- ~~▪ Provide safe and reliable electrical service consistent with SCE's Transmission Planning Criteria and Guidelines~~

¹⁸ See Section 8 of the Planning Study and Item I - "Detailed Justification of the Recommended Solution" attached to SCE's Compliance filing dated May 8, 2020

1.0 PURPOSE AND NEED

- ~~Increase electrical system reliability by constructing a project in a location suitable to serve the Electrical Needs Area~~
- ~~Meet project need while minimizing environmental impacts~~
- ~~Meet project need in a cost-effective manner~~

~~SCE considered these basic objectives in developing a reasonable range of alternatives. Chapter 2, Project Alternatives, describes the process of developing alternatives and the selection of alternatives for analysis in this Proponent's Environmental Assessment (PEA).~~

2.0 PROJECT ALTERNATIVES

The following sections describe the development of alternatives for the selection of the Alberhill Substation site, 500 kV transmission line segments to serve the Alberhill Substation, the required 115 kV subtransmission line modifications, and alternatives for a new 115 kV subtransmission line. [Additionally, descriptions of the three new system alternatives that were identified in Chapter 1, Purpose and Need are provided.](#)

2.1 500/115 KV SUBSTATION SITE ALTERNATIVES

Site selection for the Alberhill Substation began with the development of a Substation Target Area that delineated an area within which the Alberhill Substation would have the maximum electrical benefit for the Electrical Needs Area, and meet both the Purpose and Need for the project and be consistent with the Basic Objectives of the project. The Substation Target Area was developed using the following basic requirements:

- The substation site should be in proximity to the Serrano-Valley 500 kV transmission line to facilitate connection of the new substation to SCE's existing 500 kV transmission system
- The substation site should be in proximity to existing 115 kV subtransmission lines to facilitate the transfer of existing 115/12 kV substations from the Valley South 115 kV System to the new Alberhill System
- The substation site should be in proximity to planned development along the I-15 corridor to facilitate service of additional 115 kV substations, should they become required in the future

Substation sites would require a minimum parcel size of 40 acres. After a review of available land of 40 acres or more, three potential substation sites were identified. These sites are shown on Figure 2.1, Substation Site Alternatives, and are described below. In addition, SCE also evaluated the Nevada Hydro Company's LEAPS Lake Switchyard site, as described in Section 2.1.1, LEAPS Lake Switchyard Site, below.

2.1.1 LEAPS Lake Switchyard Site

Previous applications from the Nevada Hydro Company to the CPUC for a Certificate of Public Convenience and Necessity (CPCN) to construct the Lake Elsinore Advanced Pump Storage (LEAPS) project have included a proposed switchyard on property between the I-15 freeway and Temescal Canyon Road adjacent to Lee Lake. SCE evaluated the LEAPS Lake Switchyard Site, and determined the site would be unsuitable for a 500/115 kV substation. The site is susceptible to liquefaction, and there is evidence of past faulting on and adjacent to the site. The site is less than 40 acres and is in a shape that [cannot](#) accommodate the substation equipment. In addition, the 500 kV lines would have to be constructed over Lee Lake, presenting engineering and maintenance issues and potential environmental impacts. As a result, SCE did not pursue this site as a viable substation site alternative.

2.0 PROJECT ALTERNATIVES

2.1.2 Alternative Site A

Alternative Site A is approximately 124 acres, on the north side of the intersection of Temescal Canyon Road and Concordia Ranch Road. It has been previously disturbed and is presently used as a horse farm. Although much of the northern part of the property has steep topography, a sufficient portion of the southern portion of the property is flat. This parcel has been designated light industrial in the Riverside County General Plan. This site is a viable site for the Alberhill Substation.

2.1.3 Alternative Site B

Alternative Site B is located on a west-facing slope of the Gavilan Hills. This site consists of two 80 acre parcels, totaling 160 acres. These parcels are not located adjacent to an existing paved road and would require cutting into the slope midway up the mountain along with extensive grading to accommodate the substation. This grading would be more than required for Alternative Site A. As a result, SCE did not pursue this site as a viable substation site alternative.

2.1.4 Alternative Site C

Alternative Site C consists of 45 acres located adjacent to and east of Alternative Site A. Although the size of the site is above the 40 acres needed for the substation, the site would require that the substation incorporate gas-insulated switchgear on both the high side and low side of the transformer banks in order to conserve space, increasing the cost of constructing and operating the substation. Extensive blasting/fracturing would be required for site preparation. Extensive waste material would be required to be removed from the site. As a result, SCE did not pursue this site as a practical substation site alternative.

2.1.5 Alberhill Substation Site Selection

The only viable and practical substation site identified during the siting process was Alternative Site A. As a result, SCE selected this site to construct the Alberhill Substation, ~~and is in the process of purchasing the site~~. The entire substation property would total 124 acres. Due to the mountainous nature of the property, approximately 34 acres would be devoted to the substation and its surrounding improvements such as landscaping and access roads. With the exception of a portion of the site dedicated to the 500 kV transmission lines leading to the substation, the remaining property would not be disturbed.

2.2 ALBERHILL SYSTEM PROJECT 500 KV TRANSMISSION LINES SEGMENTS

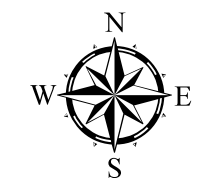
After the site selection for the Alberhill Substation concluded, SCE commenced development of 500 kV transmission line segment options to access the existing Serrano-Valley 500 kV transmission line to source the new substation. During this process, seven alternative routes were developed. These segments are shown on Figure 2.2(a), 500 kV Transmission Line Segment Alternatives. Two additional segments were added in March 2011. All of these segments are described below.

All the segments originate at the Alberhill Substation and extend into a mountainous area through Critical Habitat for the California gnatcatcher (federally threatened), as well as conservation land (or land designated for conservation) to the existing Serrano-Valley 500 kV transmission line. These features are also shown on Figure 2.2a, 500 kV Transmission Line

**Figure 2.1
Substation Site Alternatives**



- Substation Site Alternatives
- Subtransmission Lines**
- Existing 115-161 kV (SCE, 2009)
- Major Transmission Lines**
- Existing 500 kV (SCE, 2009)



0 0.14 Miles



Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted at this scale. Always consult with the proper legal documents or agencies regarding such features.
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Contact Corporate Security (27910) for handling/storage requirements, if any questions.



Figure 2.2a
500 kV Transmission Line
Segment Alternatives

500kV Transmission Alternatives

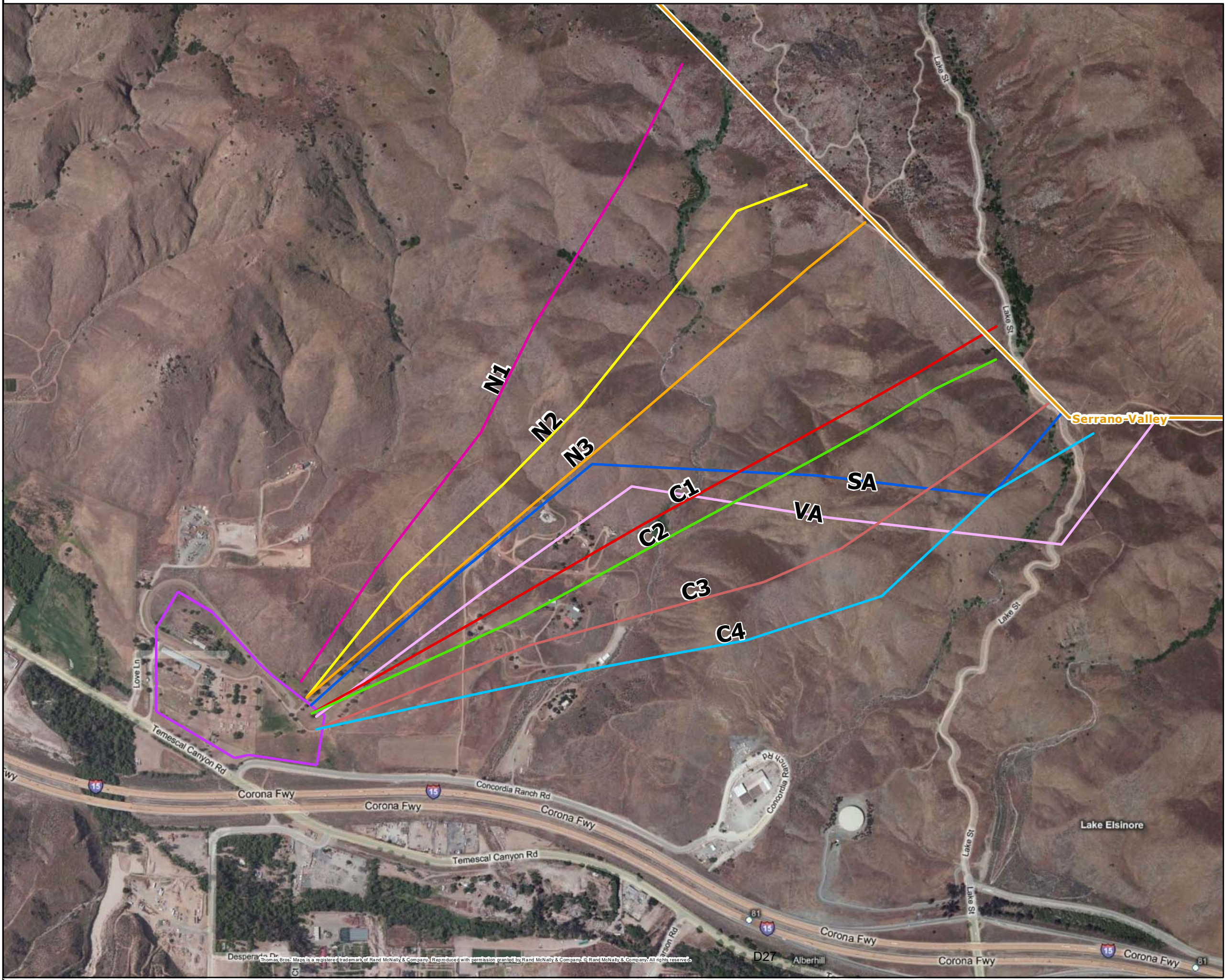
- Segment C1
- Segment C2
- Segment C3
- Segment C4
- Segment N1
- Segment N2
- Segment N3
- Segment SA
- Segment VA
- Existing 500 kV (SCE, 2006)
- Proposed Alberhill Substation



0 0.2 Miles



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Alternative Segments. There are two types of conservation land in the area that is crossed by one or more of the segments:

- Stephens' Kangaroo Rat (SKR) Habitat Conservation Plan (HCP) Core Reserve: This land has been established as part of the SKR HCP for the conservation, preservation, restoration and enhancement of the SKR and its habitat.
- Designated conservation land for the Western Riverside County Multiple Species Habitat Conservation Plan (WRMSHCP): This land is presently owned by Riverside County and is designated to have ownership transferred to the Regional Conservation Authority for conservation under the WRMSHCP.

Each segments' distinctive features are described below.

- Segment N1: This segment crosses an area with the steepest topographic features, and some tower sites may not be accessible by road and would require helicopter construction. This segment crosses land designated as SKR HCP Core Reserve.
- Segment N2: This segment would have a greater number of dead-end structures, adding to the cost, and some tower sites may not be accessible by road and would require helicopter construction. This segment crosses land designated as SKR HCP Core Reserve.
- Segment N3: One of the straightest segments, minimizing the need for extensive engineering and minimizing use of large-sized towers. This segment crosses land designated as SKR HCP Core Reserve.
- Segment C1: One of the straightest segments, minimizing the need for extensive engineering and minimizing use of large-sized towers. This segment crosses land designated as SKR HCP Core Reserve.
- Segment C2: There is a residence in very close proximity to the segment, and the construction effort would require entry onto land managed by the Bureau of Land Management. This segment crosses land designated as SKR HCP Core Reserve.
- Segment C3: The construction effort would require entry onto land managed by the Bureau of Land Management. This segment crosses land designated as SKR HCP Core Reserve.
- Segment C4: The longest segment of the N and C segments, and would have a comparatively greater number of large-sized towers and access roads. This segment crosses land designated as SKR HCP Core Reserve.
- Segment SA: Approximately one-half mile longer than the N and C segments, this segment would avoid the SKR HCP Core Reserve.

2.0 PROJECT ALTERNATIVES

- Segment VA: Approximately one-half mile longer than the N and C segments, this segment would avoid the SKR HCP Core Reserve and span the designated conservation land for the WRMSHCP.

2.2.1 Alberhill System Project 500 kV Transmission Line Segment Selection

SCE selected Segments N3 and C1 as the 500 kV transmission line segments to connect the Alberhill Substation to the existing Serrano-Valley 500 kV transmission line. These two segments are anticipated to have the fewest construction issues, and would require the fewest number of large-sized towers.

Segment SA and Segment VA are now being proposed as potential 500 kV segments. Both SA and VA would avoid the SKR HCP Core Reserve.

2.3 ALBERHILL SYSTEM PROJECT 115 KV SUBTRANSMISSION LINES

SCE evaluated the ability of the existing subtransmission lines to support the transfer of the Ivyglen, Fogarty, Elsinore, Skylark, and Newcomb Substations to the new Alberhill 115 kV system. As a result of this evaluation, portions of four existing 115 kV subtransmission lines were identified as requiring additions or extensions in order to reliably serve existing substations from the new Alberhill Substation. This change in configuration is shown on Figure 2.3a, Alberhill System Configuration. The existing lines that require additional circuits are described in detail in Chapter 3, Project Description.

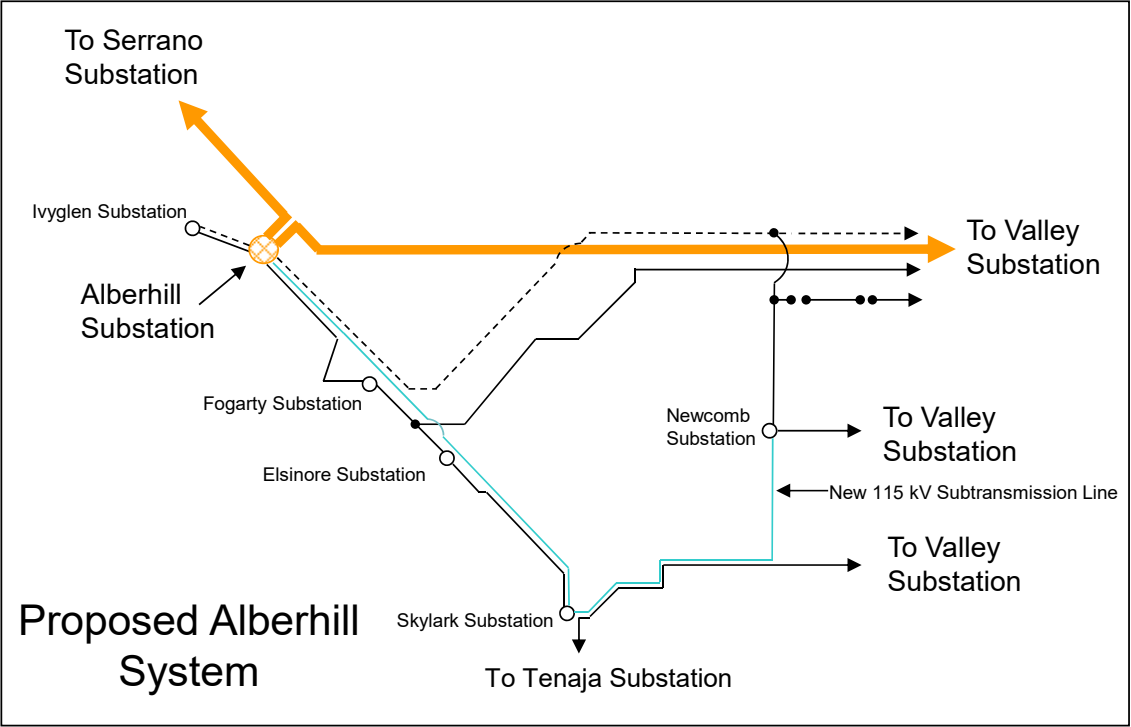
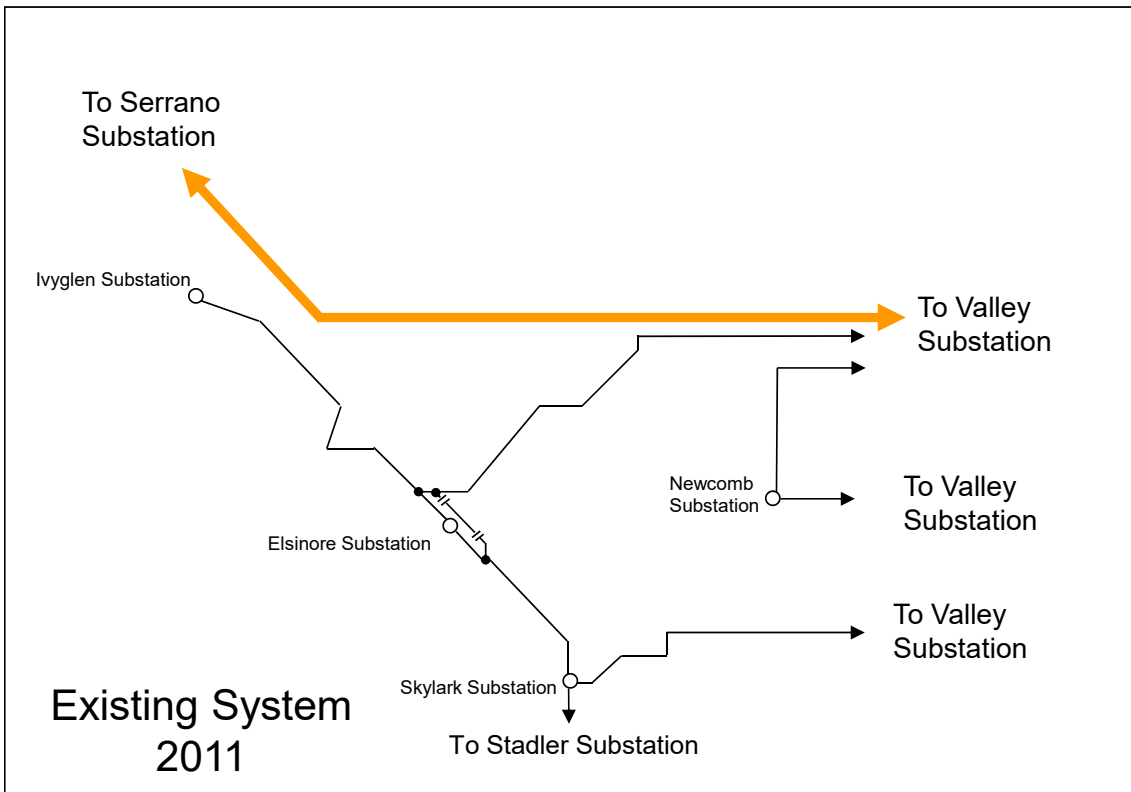
As shown on Figure 2.3a, Alberhill System Configuration, there is no existing connection between Newcomb Substation and Skylark Substation. Both Newcomb Substation and Skylark Substation are presently connected to Valley Substation from two separate subtransmission lines, each originating at Valley Substation. Because both Newcomb Substation and Skylark Substation would be served from the new Alberhill System, a connection is necessary between Newcomb and Skylark Substations to maintain the minimum number of source lines for each substation. Two potential new 115 kV subtransmission routes were identified to accomplish this connection and are described below.

2.3.1 New 115 kV Subtransmission Line Segment Alternatives Considered for Alberhill System Project

2.3.1.1 New 115 kV Subtransmission Line Segment Alternative 1

New 115 kV Subtransmission Line Segment Alternative 1 originates at the intersection of Newport Road and Murrieta Road in the City of Menifee. The route travels south along an existing SCE distribution line route on the west side of Murrieta Road to the intersection of Murrieta Road and Bundy Canyon Road where it would connect to the Valley-Skylark 115 kV subtransmission line ROW. The entire segment alternative would follow SCE's existing distribution lines.

In total, New 115 kV Subtransmission Line Segment Alternative 1 is approximately 3 miles long, and crosses land that is presently undeveloped, rural residential, or is used as an exterior buffer for new housing developments.



LEGEND

- 500 kV Transmission Line
- Existing 115 kV Subtransmission Line
- - - Valley-Ivyglen 115 kV Subtransmission Line (construct 2010)
- 115 kV Subtransmission Circuit Installed for Alberhill System Project
- 115 kV Subtransmission Line Separation



Figure 2.3a
Alberhill System Configuration

2.3.1.2 New 115 kV Subtransmission Segment Alternative 2

New 115 kV Subtransmission Line Segment Alternative 2 originates at the intersection of Newport and Murrieta Roads in the City of Menifee. The route travels south along an existing distribution line on the west side of Murrieta Road for approximately 1 mile to the intersection of Murrieta Road and Holland Road, and then turns west on Holland Road for approximately 0.5 miles to the intersection of Holland Road and Byers Road. The route would travel south and west on Byers Road for approximately 2 miles and then follow Waldon Road for approximately 0.5 miles to the intersection of Waldon Road and Bundy Canyon Drive and the Valley-Skylark 115 kV subtransmission line ROW. The entire segment alternative would follow SCE's existing distribution lines.

In total, New 115 kV Subtransmission Line Segment Alternative 2 is approximately 4 miles long, and crosses land that is presently undeveloped or is used for rural residential purposes.

2.3.2 New 115 kV Subtransmission Line Segment Alternative Recommendation

Both New 115 kV Subtransmission Segment Alternatives 1 and 2 have the ability to serve the Alberhill Substation Project. However, New 115 kV Subtransmission Line Segment Alternative 1 would be built along paved roads, facilitating access for construction and maintenance. New 115 kV Subtransmission Line Segment Alternative 1 is also shorter in length, slightly reducing the amount of new construction required for the project.

New 115 kV Subtransmission Segment Alternative 2 would require construction on unpaved roads in hilly terrain along a route that is slightly longer in length. This would require more earthwork and dust control during construction.

For these reasons, New 115 kV Line Segment Alternative 1 was selected as the preferred route.

2.4 NEW SYSTEM ALTERNATIVES

[The subsections that follow provide a brief description of the San Diego Gas & Electric Company \(SDG&E\), SCE Orange County, and Mira Loma system alternatives.¹](#)

2.4.1 SDG&E

[The SDG&E system alternative would include the following components:](#)

- [Construct a new 220/115 kV substation \(approximately 15-acre footprint\)](#)
- [Construct a new 220 kV double-circuit transmission line between SDG&E's existing Escondido-Talega 220 kV² transmission line and SCE's new 220/115 kV substation \(approximately 7.2 miles\)](#)

¹ Additional detail can be found in the Planning Study attached to SCE's Motion to Supplement the Record filed on [May 8, 2020](#).

² [SDG&E's transmission system in the vicinity of this system alternative operates at 230 kV. In this area, SCE operates its transmission system at 220 kV. To avoid confusion, all transmission lines associated with this system alternative have been categorized as 220 kV.](#)

2.0 PROJECT ALTERNATIVES

- Construct a new 115 kV double-circuit subtransmission line between SCE's new 220/115 kV substation and SCE's existing 115 kV Pechanga Substation (approximately 2.0 miles)
- Demolish SCE's existing 115 kV switchrack at SCE's existing 115 kV Pechanga Substation and reconstruct it on an adjacent parcel (approximately 3.2-acre footprint)
- Double-circuit SCE's existing Pauba-Pechanga 115 kV subtransmission line (approximately 7.5 miles)
- Double-circuit a segment of SCE's existing Auld-Moraga #2 115 kV subtransmission line (approximately 0.3 mile)

This system alternative would require the construction of approximately 9.2 miles of new 220 kV transmission and 115 kV subtransmission lines and the modification of approximately 7.8 miles of existing 115 kV subtransmission line. This system alternative totals approximately 17 miles. A detailed description of each of these components is provided in the subsections that follow.

2.4.1.1 New 220/115 kV Substation

The Proposed Project would involve the construction of a new, approximately 15-acre, 220/115 kV substation on a privately owned, approximately 56.4-acre, vacant parcel. The parcel is located north of Highway 79, between the intersections with Los Caballos Road and Pauba Road in Riverside County. The parcel is trapezoidal in shape and is bounded by residences and equestrian facilities to the north, east, and west; and Highway 79 and vacant land to the south. SCE may establish vehicular access to the site from Los Corralitos Road or Highway 79.

2.4.1.2 New 220 kV Double-Circuit Transmission Line

A new 220 kV double-circuit transmission line would be constructed, connecting the new 220/115 kV substation to SDG&E's existing Escondido-Talega 220 kV transmission line. This new 220 kV transmission line would begin at SDG&E's existing Escondido-Talega 220 kV transmission line approximately 0.6 miles northeast of the intersection of Rainbow Heights Road and Anderson Road in the community of Rainbow in San Diego County. The line would leave the interconnection with SDG&E's existing Escondido-Talega 220 kV transmission line on new structures extending to the northeast for approximately 0.8 mile. At this point, the new line would enter Riverside County and the Pechanga Reservation for approximately 4.0 miles. The line would continue in a generally northeast direction for approximately 1.0 mile before exiting the Pechanga Reservation³ and continuing until intersecting Highway 79. At the intersection with Highway 79, the line would extend northwest and parallel to Highway 79 for approximately 1.0 mile until reaching the new 220/115 kV substation. This segment of the system alternative would be approximately 7.2 miles in length.

³ Approximately 0.5 mile of this segment of the line would be located outside of the Pechanga Reservation.

2.4.1.3 New 115 kV Double-Circuit Subtransmission Line

A new 115 kV double-circuit subtransmission line would be constructed, connecting the new 220/115 kV substation to SCE's existing 115 kV Pechanga Substation. The line would depart the new 220/115 kV substation to the northwest on new structures for approximately 1.5 miles while traveling parallel to Highway 79. Near the intersection of Highway 79 and Anza Road, the line would transition to an underground configuration and continue along Highway 79 for approximately 0.5 mile until reaching SCE's existing 115 kV Pechanga Substation. This segment of the system alternative would be approximately 2.0 miles in length.

2.4.1.4 Demolish and Reconstruct an Existing 115 kV Switchrack

SCE currently operates the existing 115 kV Pechanga Substation that is located on an approximately 3.2-acre, SCE-owned parcel approximately 0.2 miles northeast of the intersection of Highway 79 and Horizon View Street. This site is bounded by vacant land to the east and west and residential uses to the north and south. SCE would demolish this existing 115 kV switchrack and reconstruct it on an approximately 16.9-acre, privately owned site that is directly east of the existing substation. The new 115 kV switchrack would occupy approximately 3.2 acres within the parcel.

2.4.1.5 Double-Circuit Existing 115 kV Subtransmission Lines

Pauba-Pechanga

SCE currently operates an existing 115 kV single-circuit subtransmission line between SCE's existing 115 kV Pauba and Pechanga Substations in Riverside County. This existing line would be converted to a double-circuit configuration, adding a new 115 kV circuit between SCE's existing 115 kV Pauba and Pechanga Substations. The existing line departs SCE's existing 115 kV Pechanga Substation and extends east along Highway 79 until reaching Anza Road. At the intersection of Highway 79 and Anza Road, the line extends northeast along Anza Road until reaching De Portola Road. At this intersection, the line extends generally northeast along De Portola Road until intersecting Monte De Oro Road, then the line extends west along Monte De Oro Road until reaching Rancho California Road. At this point, the line extends south along Rancho California Road and terminates at SCE's existing 115 kV Pauba Substation. This segment of the system alternative is approximately 7.5 miles in length.

Auld-Moraga #2

SCE currently operates an existing 115 kV single-circuit subtransmission line between SCE's existing 115 kV Auld Substation in the City of Murrieta and SCE's existing 115 kV Moraga Substation in the City of Temecula. An approximately 0.3-mile segment of this line within the City of Temecula would be converted from a single-circuit to double-circuit configuration. This segment would begin near the intersection of Rancho California Road and Calle Aragon. The existing line then extends south before turning west and intersecting Margarita Road, approximately 0.2 miles northwest of Rancho Vista Road.

2.0 PROJECT ALTERNATIVES

2.4.2 SCE Orange County

The SCE Orange County system alternative would include the following components:

- Construct a new 220/115 kV substation (approximately 15-acre footprint)
- Construct a new 220 kV double-circuit transmission line between SCE's existing San Onofre-Viejo 220 kV transmission line and SCE's new 220/115 kV substation (approximately 22.6 miles)
- Construct a new 115 kV single-circuit subtransmission line between SCE's new 220/115 kV substation and SCE's existing 115 kV Tenaja Substation (approximately 5.0 miles)
- Construct a new 115 kV single-circuit subtransmission line between SCE's new 220/115 kV substation and SCE's existing 115 kV Stadler Substation (approximately 2.6 miles)

In total, this system alternative would require the construction of approximately 30.2 miles of new 220 kV transmission and 115 kV subtransmission lines. A detailed description of each of these components is provided in the subsections that follow.

2.4.2.1 New 220/115 kV Substation

The SCE Orange County system alternative would involve the construction of a new, approximately 15-acre, 220/115 kV substation on a privately owned, approximately 67.3-acre, vacant parcel. The parcel is located southeast of Tenaja Road in the City of Murrieta. The parcel is generally trapezoidal in shape and surrounded by hilly, undeveloped land to the south and generally flat, undeveloped land to the north. SCE may establish vehicular access to this site from Tenaja Road, which is currently an unpaved road.

2.4.2.2 New 220 kV Double-Circuit Transmission Line

A new 220 kV double-circuit transmission line would be constructed, connecting the new 220/115 kV substation to SCE's existing San Onofre-Viejo 220 kV transmission line. This new 220 kV transmission line would begin at the existing San Onofre-Viejo 220 kV transmission line approximately 0.2 mile southwest of the intersection of East Avenida Pico and Camino la Pedriza in the City of San Clemente in Orange County. The line would leave the interconnection with the San Onofre-Viejo 220 kV transmission line on new structures to the east for approximately 3.2 miles. At this point, the new line would enter San Diego County, generally paralleling Talega Road and SDG&E's existing Escondido-Talega 220 kV transmission line for approximately 3.1 miles,⁴ reaching the intersection of Talega Road and Indian Potrero Truck Trail. The line would then extend southeast, briefly crossing Cleveland National Forest (CNF), then extending east generally parallel to SDG&E's existing Escondido-Talega 220 kV transmission line for approximately 2.2 miles. The line would continue east, crossing CNF for approximately 5.5 miles, then turn to the northeast for approximately 1.9 miles before entering Riverside County. At this point, the line would extend generally northeast until reaching the new

⁴ Approximately 0.4 mile of this portion of the line would cross back into Orange County.

220/115 kV substation site. Approximately 4.7 miles of this portion of the route would cross the Santa Rosa Plateau Ecological Preserve. This segment of the system alternative would total approximately 22.6 miles.

2.4.2.3 New 115 kV Single-Circuit Subtransmission Lines

New Substation to Tenaja Substation

A new 115 kV single-circuit subtransmission line would be constructed, connecting the new 220/115 kV substation to SCE's existing 115 kV Tenaja Substation. The line would begin at the proposed new substation site in the City of Murrieta and extend generally north on new structures until intersecting Tenaja Road. At this point, the line would extend northeast along Tenaja Road, Vineyard Parkway, and Lemon Street until intersecting SCE's existing Stadler-Tenaja 115 kV subtransmission line at Adams Avenue. At this point, the new 115 kV subtransmission line and Stadler-Tenaja 115 kV subtransmission line would be co-located on a single set of structures until reaching SCE's existing 115 kV Tenaja Substation. The existing line travels generally northwest along Adams Avenue, southwest on Nutmeg Street, and then continues in a northwest direction along Washington Avenue. At the end of Washington Avenue, the route enters the City of Wildomar and continues northwest along Palomar Street until reaching Clinton Keith Road. At the intersection with Clinton Keith Road, the route travels south until terminating at SCE's existing 115 kV Tenaja Substation. This segment of the system alternative would be approximately 5.0 miles in length.

New Substation to Stadler Substation

A new 115 kV single-circuit subtransmission line would be constructed, connecting the new 220/115 kV substation site to SCE's existing 115 kV Stadler Substation. The line would begin at the proposed new substation site in the City of Murrieta and extend northeast for approximately 0.1 mile on new structures. At this point, the line would extend southeast, crossing the Santa Rosa Plateau Ecological Preserve for approximately 0.6 mile. The line would extend northeast, leaving the Santa Rosa Plateau Ecological Preserve, and parallel Ivy Street until the intersection with Jefferson Avenue. At this intersection, the new 115 kV subtransmission line would be co-located on a single set of structures with SCE's existing Stadler-Tenaja 115 kV subtransmission line for approximately 0.2 mile along Los Alamos Road until terminating at SCE's existing 115 kV Stadler Substation. This segment of the system alternative would be approximately 2.6 miles in length.

2.4.3 Mira Loma

The Mira Loma system alternative would include the following components:

- Construct a new 220/115 kV substation (approximately 15-acre footprint)
- Construct a new 220 kV double-circuit transmission line segment to loop SCE's existing Chino-Mira Loma 220 kV transmission line into SCE's new 220/115 kV substation (approximately 130 feet)
- Construct a new 115 kV double-circuit subtransmission line between SCE's new 220/115 kV substation and SCE's existing 115 kV Ivyglen Substation (approximately 21.6 miles)

2.0 PROJECT ALTERNATIVES

- Construct a new 115 kV single-circuit subtransmission line segment to tap SCE's future Valley-Ivyglen 115 kV subtransmission line to SCE's existing 115 kV Fogarty Substation (approximately 0.6 mile)

This system alternative would require the construction of approximately 22.2 miles of new 220 kV transmission and 115 kV subtransmission lines. A detailed description of each of these components is provided in the subsections that follow.

2.4.3.1 New 220/115 kV Substation

The Mira Loma system alternative would involve the construction of a new, approximately 15-acre, 220/115 kV substation on a privately owned, approximately 27-acre, vacant parcel. The parcel is located north of Ontario Ranch Road, east of Haven Avenue, and west of Hamner Avenue in the City of Ontario. The parcel is rectangular in shape and is bounded by vacant land to the north, SCE's existing 220 kV Mira Loma Substation and vacant land to the east, vacant land to the south, and vacant land and industrial uses to the west. The vacant parcel has a residential land use designation, and an existing SCE transmission corridor crosses the southeast portion of the site. Vehicular access would likely be established from Ontario Ranch Road.

2.4.3.2 New 220 kV Double-Circuit Transmission Line

A new 220 kV double-circuit transmission line segment would be constructed between the existing Chino-Mira Loma 220 kV transmission line and SCE's new 220/115 kV substation. This approximately 130-foot segment would begin within SCE's existing transmission corridor and approximately 2,000 feet east of Haven Avenue, and would extend south until reaching SCE's new 220/115 kV substation site.

2.4.3.3 New 115 kV Double-Circuit Subtransmission Line

A new 115 kV double-circuit subtransmission line would be constructed, connecting SCE's new 220/115 kV substation and SCE's existing 115 kV Ivyglen Substation. This line would exit the new 220/115 kV substation site from the southerly portion of the property and travel east in an underground configuration along Ontario Ranch Road for approximately 0.2 mile. The line would pass under SCE's existing transmission line corridor and then transition to an overhead configuration, continuing on new structures along Ontario Ranch Road for approximately 0.5 mile until intersecting Hamner Road. The line would then extend south along Hamner Road and parallel to SCE's existing Mira Loma-Corona 66 kV subtransmission line for approximately 6.8 miles. Within this approximately 6.8-mile portion of the route, the line would exit the City of Ontario and enter the City of Eastvale at the intersection with Bellegrave Avenue. Within the City of Eastvale, the line would continue along Hamner Avenue, cross the Santa Ana River, and enter the City of Norco. Within the City of Norco, the line would continue south along Hamner Avenue until intersecting 1st Street. At this point, the line would extend west along 1st Street for approximately 0.5 mile until West Parkridge Avenue. At this intersection, the line would enter the City of Corona and continue generally south along North Lincoln Avenue for approximately 3.2 miles, paralleling the Chase-Corona-Databank 66 kV subtransmission line between Railroad Street and West Ontario Avenue. At the intersection with West Ontario Avenue, the line would extend east and continue to parallel SCE's existing Chase-Corona-Databank 66 kV subtransmission line for approximately 1.4 miles until the intersection with Magnolia Avenue. The line would continue to extend along West Ontario Avenue for approximately 0.2 mile, then

parallel SCE's existing Chase-Jefferson 66 kV subtransmission line between Kellogg Avenue and Interstate (I-) 15 for approximately 1.7 miles. The line would continue along East Ontario Avenue, pass under I-15, and exit the City of Corona after approximately 0.2 mile at the intersection of East Ontario Avenue and State Street. The line would extend southeast along East Ontario Avenue within Riverside County for approximately 1.8 miles until the intersection of Cajalco Road. At this intersection, the line would extend southeast along Temescal Canyon Road, crossing the City of Corona for approximately 1.2 miles between Cajalco Road and Dos Lagos Drive. The line would then continue within Riverside County along Temescal Canyon Road for approximately 3.9 miles, crossing under I-15 and terminating at SCE's existing 115 kV Ivyglen Substation. This segment of the system alternative would be approximately 21.6 miles in length.

2.4.3.4 New 115 kV Single-Circuit Subtransmission Line

A new 115 kV single-circuit subtransmission line segment would be constructed to tap SCE's future Valley-Ivyglen 115 kV subtransmission line into SCE's existing 115 kV Fogarty Substation. The new line segment would begin along the future Valley-Ivyglen 115 kV subtransmission line's alignment, approximately 680 feet southeast of the intersection of Pierce Street and Baker Street in the City of Lake Elsinore. The new line segment would extend generally southwest and parallel to SCE's existing Valley-Elsinore-Fogarty 115 kV subtransmission line until terminating at SCE's existing 115 kV Fogarty Substation. This segment of the system alternative would be approximately 0.6 mile in length.

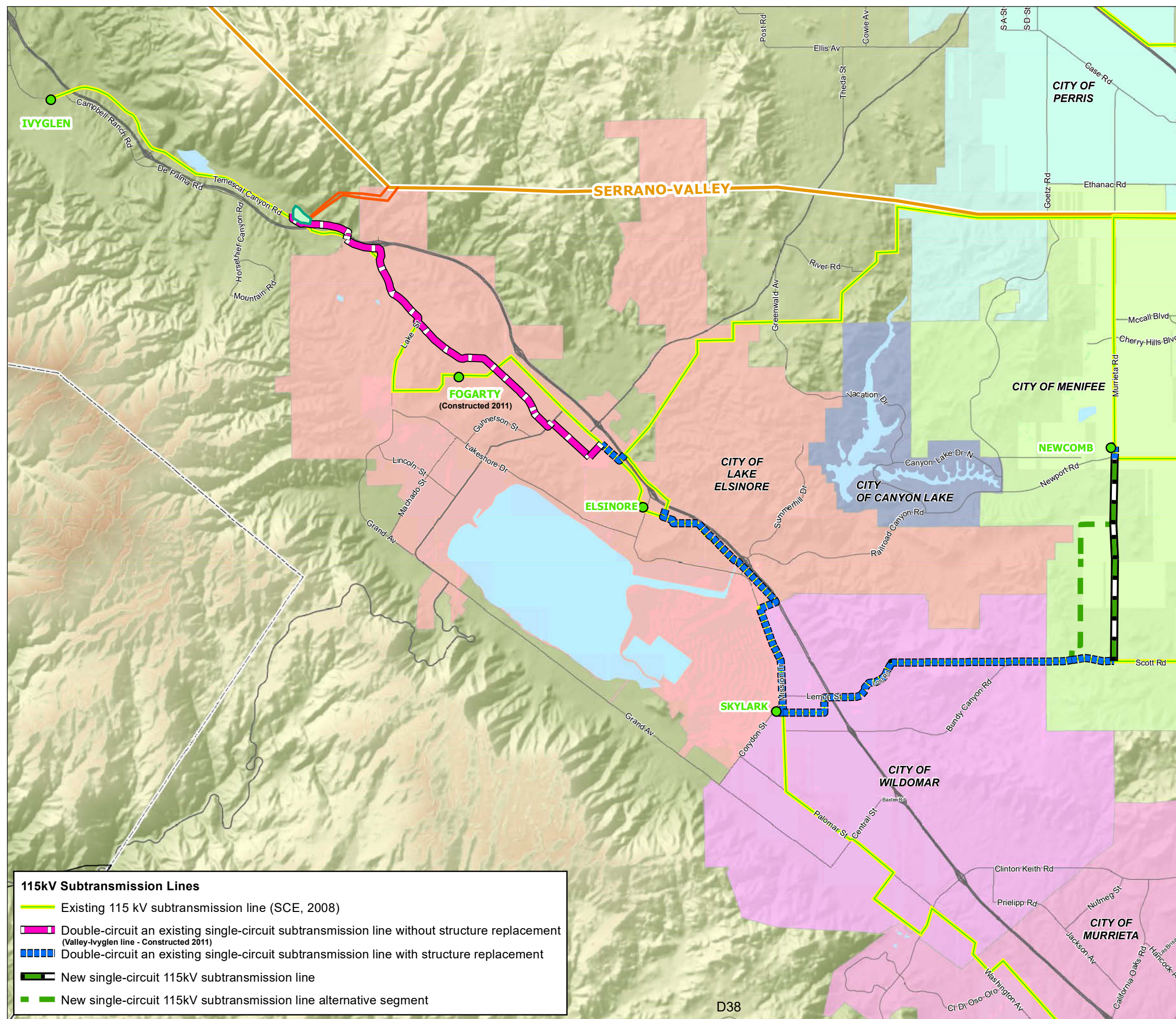
2.4.2.5 PROPOSED PROJECT

SCE proposes to construct the Alberhill System Project utilizing the Substation Site Alternative A, 500 kV transmission line segments SA and VA, and New 115 kV Subtransmission Line Segment Alternative 1 (Proposed Project). The Proposed Project meets the basic objectives of the Alberhill System Project, and is described in detail in Chapter 3, Project Description.

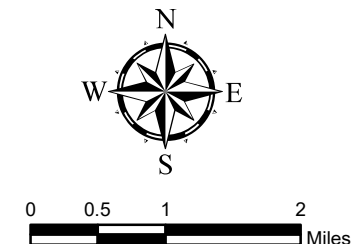
New 115 kV Subtransmission Line Segment Alternative 2 is evaluated in this the original Proponent's Environmental Assessment (PEA) as an Alternative 115 kV Segment to the Proposed Project. Additionally, three system alternatives are evaluated in this second amendment to the PEA as system alternatives to the Proposed Project.

These components are shown on Figure 2.4a, Proposed Project and Alternative; and on Figures 2.4b, SDG&E System Alternative; 2.4c, SCE Orange County System Alternative; and 2.4d, Mira Loma System Alternative.

Figure 2.4a
Proposed Project and Alternative



- Substations**
- Proposed Alberhill Substation
 - Substations (SCE, 2008)
- 500kV Transmission Lines (SCE, 2007)**
- Existing 500 kV Transmission Lines (SCE, 2007)
 - Proposed 500kV Alternative Routes
- Basemap Data**
- Transportation Lines (TBM, 2008)
 - SCE Service Territory Boundary (SCE, 2006)
 - County Boundaries (TBM, 2008)
 - Water Features (TBM, 2008)



- 115kV Subtransmission Lines**
- Existing 115 kV subtransmission line (SCE, 2008)
 - Double-circuit an existing single-circuit subtransmission line without structure replacement (Valley-Ivyglen line - Constructed 2011)
 - Double-circuit an existing single-circuit subtransmission line with structure replacement
 - New single-circuit 115kV subtransmission line
 - New single-circuit 115kV subtransmission line alternative segment

Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted at this scale. Always consult with the proper legal documents or agencies regarding such features.
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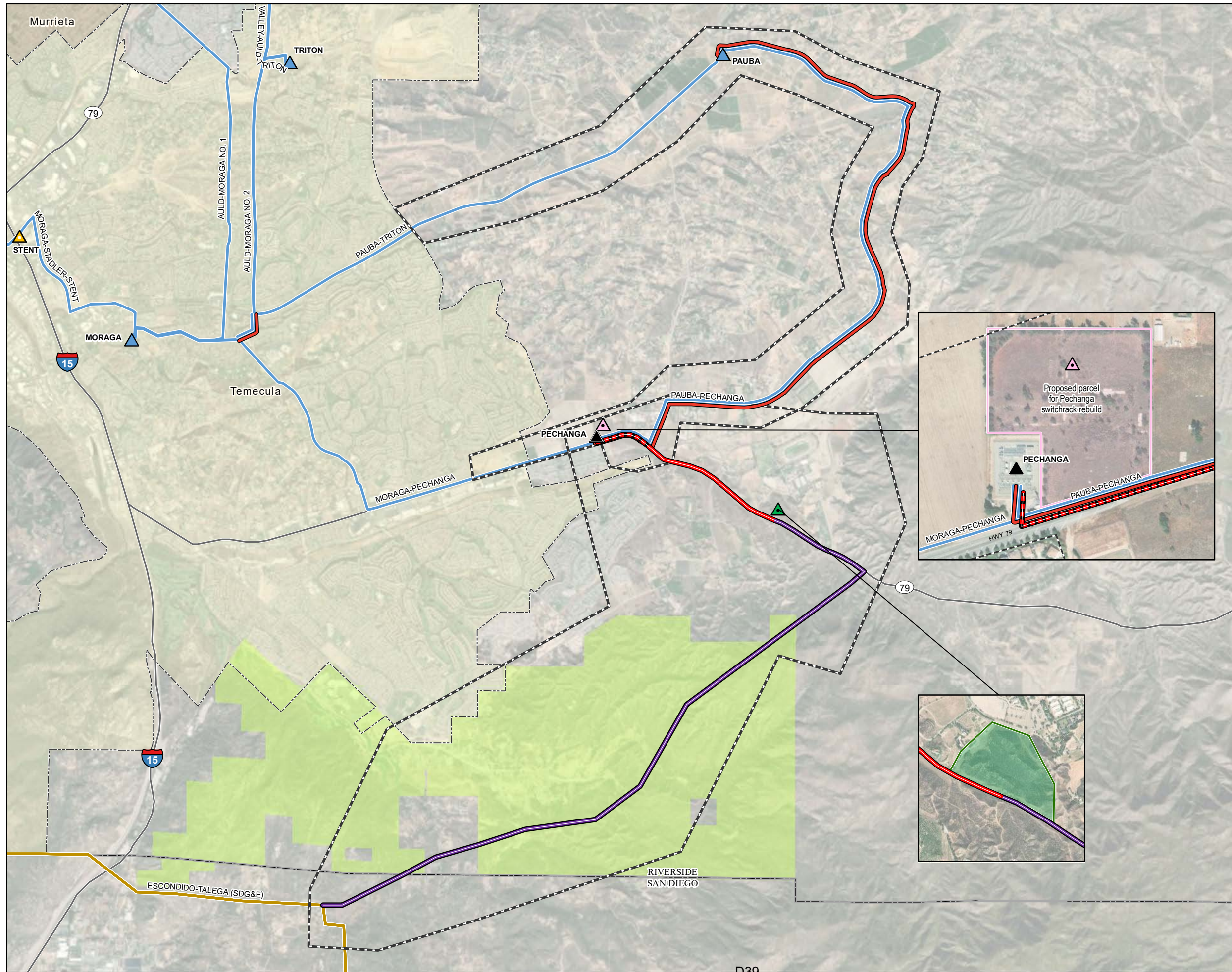
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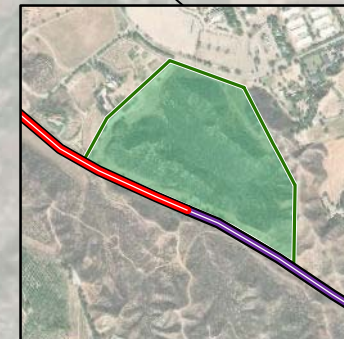
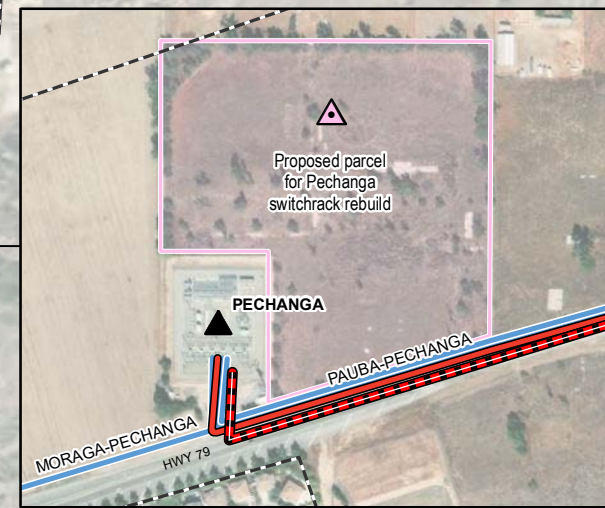
Major Transmission Projects - Alberhill Sub Project

**Figure 2.4b
SDG&E System Alternative**

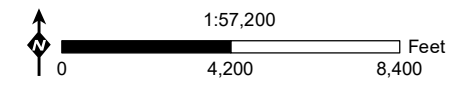
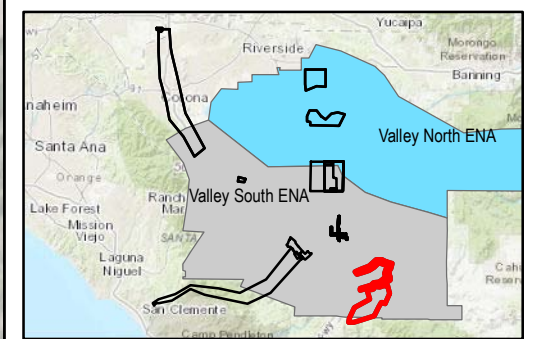
Alberhill System Project



- Study Area(s)
- Existing 115 kV Distribution Substation
- Existing 115 kV Customer Substation
- New 220 kV Transmission Substation
- Rebuild Existing Switchrack
- Demolish Existing Switchrack
- Existing 230/220 kV Line*
- Existing 115 kV Line
- New 220 kV Double Circuit Overhead Line
- New 115 kV Double Circuit Overhead Line
- New 115 kV Double Circuit Underground Line
- Double Circuit Existing 115 kV Line
- Pechanga Reservation
- County Boundary
- City Boundary



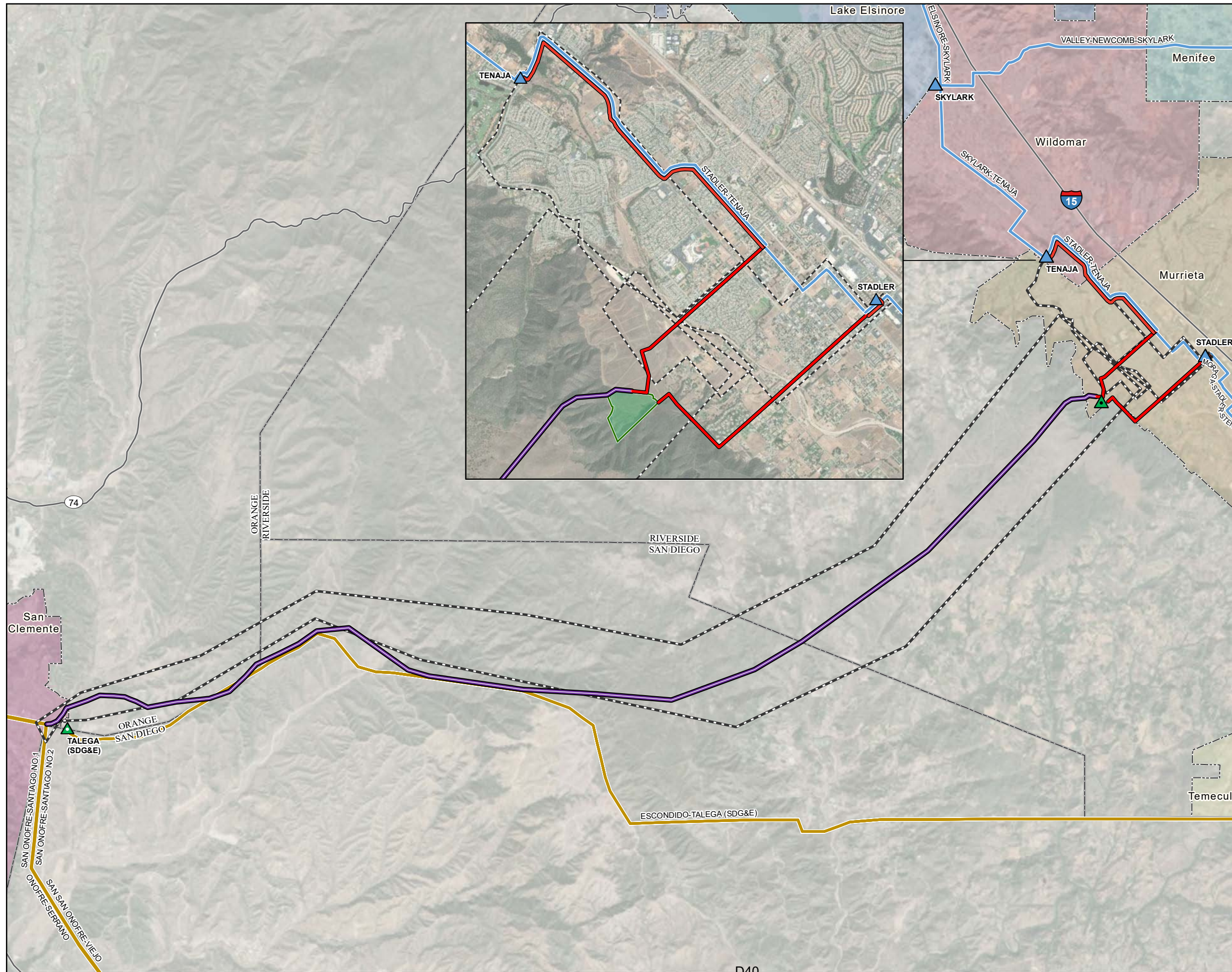
*SDG&E's transmission system in the vicinity of this system alternative operates at 230 kV. In this area, SCE operates their transmission system at 220 kV.



Sources: Insignia, 2019; SCE, 2019

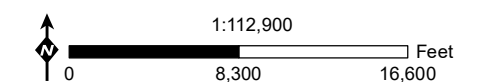
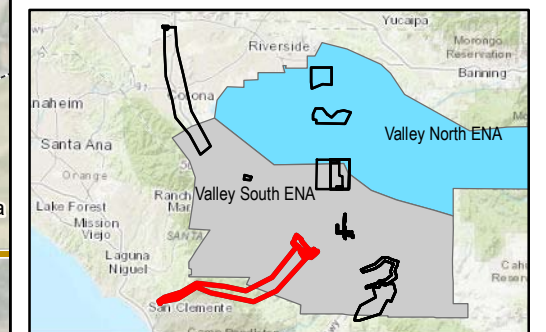
Figure 2.4c
SCE Orange County System Alternative

Alberhill System Project



- Study Area(s)
- Existing 220 kV Transmission Substation
- Existing 115 kV Distribution Substation
- New 220 kV Transmission Substation
- Existing 230/220 kV Line*
- Existing 115 kV Line
- New 220 kV Double Circuit Overhead Line
- New 115 kV Single Circuit Overhead Line
- Double Circuit Existing 115 kV Line
- County Boundary
- City Boundary

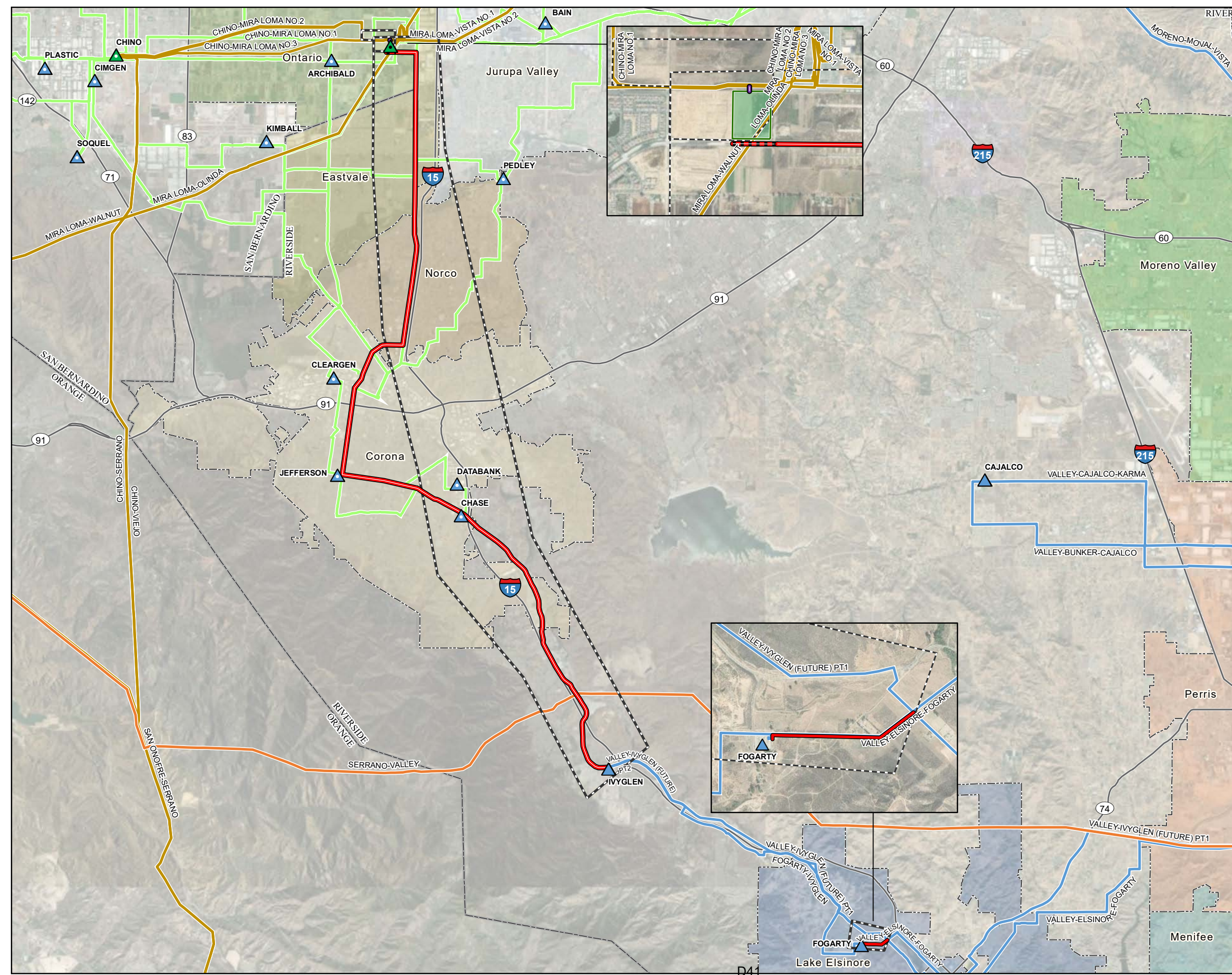
*SDG&E's transmission system in the vicinity of this system alternative operates at 230 kV. In this area, SCE operates their transmission system at 220 kV.



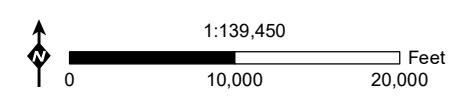
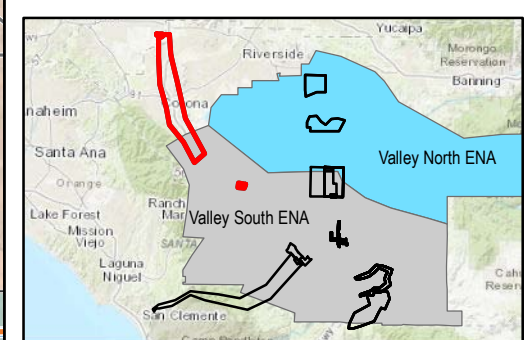
Sources: Insignia, 2019; SCE, 2019

Figure 2.4d
Mira Loma System Alternative

Alberhill System Project



- Study Area(s)
- Existing 220 kV Transmission Substation
- Existing 115 kV Distribution Substation
- Existing 66 kV Distribution Substation
- New 220 kV Transmission Substation
- Existing 500 kV Line
- Existing 220 kV Line
- Existing 115 kV Line
- Existing 66 kV Line
- New 220 kV Double Circuit Overhead Line
- New 115 kV Double Circuit Overhead Line
- New 115 kV Single Circuit Overhead Line
- New 115 kV Double Circuit Underground Line
- County Boundary
- City Boundary



Sources: Insignia, 2019; SCE, 2019

4.0 ENVIRONMENTAL IMPACT ASSESSMENT

This section examines the potential environmental impacts of the [Alberhill System Project](#) (Proposed Project) and the Alternative 115 [Kilovolt](#) (kV) Segment. The analysis of each resource category begins with an examination of the existing physical setting (baseline conditions as determined pursuant to Section 15125(a) of the [California Environmental Quality Act \[CEQA\]](#) Guidelines) that may be affected by the Proposed Project. The effects of the Proposed Project are defined as changes to the environmental setting that are attributable to project construction and operation.

Significance criteria are identified for each environmental issue area. The significance criteria serve as a benchmark for determining if a project would result in a significant adverse environmental impact when evaluated against the baseline. According to the CEQA Guidelines Section 15382, a significant effect on the environment means "...a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the Project..." If significant impacts are identified, feasible Mitigation Measures are formulated to eliminate or reduce the level of the impacts and focus on the protection of sensitive resources.

CEQA Guidelines Section 15126.4(a)(3) states that mitigation measures are not required for effects which are not found to be significant. Therefore, where an impact is less than significant no mitigation measures have been proposed. In addition, compliance with laws, regulations, ordinances, and standards designed to reduce impacts to less than significant levels are not considered mitigation measures under CEQA. Where potentially adverse impacts may occur, SCE has proposed Applicant Proposed Measures (APMs) to minimize the environmental impacts.

[The Proponent's Environmental Assessment \(PEA\) concluded that impacts to air quality would be significant. The Final Environmental Impact Report \(FEIR\), dated April 2017, concluded there were Significant impacts to Aesthetics, Air Quality, and Noise and Vibration.¹ The FEIR also concluded there were Less than Significant impacts to Agriculture and Forestry Resources; Biological Resources; Cultural Resources; Geology, Soils, and Minerals; Greenhouse Gases; Hazards and Hazardous Materials; Hydrology and Water Quality; Land Use and Planning; Population and Housing; Public Services and Utilities; Recreation; and Transportation. The FEIR supersedes the PEA and based on the FEIR findings, SCE will comply with the Applicant-Proposed Measures and Mitigation Measures included in the FEIR.](#)

[Three new system alternatives—San Diego Gas & Electric Company \(SDG&E\), Southern California Edison \(SCE\) Orange County, and Mira Loma—as described in Chapter 2, Project Alternatives, have been identified for further evaluation. The subsections that follow provide a comparison between the impacts associated with the Proposed Project as determined by the FEIR and the impacts associated with each of the three new system alternatives. This analysis is intended to supplement, and not replace, the Chapter 4 impact analyses in the September 20,](#)

¹ [The FEIR also determined there would be significant cumulative impacts to Aesthetics, Air Quality, and Biological Resources. It also determined there would be a potential for significant cumulative impacts to Cultural Resources if multiple projects were to impact the same known resource.](#)

2009 PEA; therefore, the analysis associated with the Proposed Project and Alternative 115 kV Segment have not been replicated below.

SDG&E SYSTEM ALTERNATIVE

4.1 AESTHETICS

The SDG&E System Alternative is located in Riverside and San Diego counties, as well as within the City of Temecula and the community of Rainbow. The area is characterized by rolling hills and rural residential development. The new substation and portions of all transmission and subtransmission components of this system alternative would be located adjacent to the well-traveled California State Route (SR-) 79. This alternative's components would not represent a significant change in the existing visual quality as SCE currently owns and operates Pauba Substation, approximately 1.8 miles west of the proposed SDG&E System Alternative substation site, and overhead subtransmission line facilities in this area. The system alternative would also include the installation of approximately 6.4 miles of new double-circuit transmission line within undisturbed land in San Diego and Riverside counties. The grading of new, permanent access roads and pads to install and maintain the new facilities would result in permanent visual changes to this undeveloped landscape. While impacts to aesthetics would be significant with the implementation of applicant-proposed and/or mitigation measures, the SDG&E System Alternative would have greater aesthetic impacts than the Proposed Project because it involves the construction of more new transmission line, and associated permanent access roads and pads, within previously undeveloped areas.

4.2 AGRICULTURAL RESOURCES

Similar to the Proposed Project, the SDG&E System Alternative would not cross Unique Farmland, Williamson Act lands, or Farmland of Statewide Importance.² However, the SDG&E System Alternative would require approximately 500 feet of new transmission line and approximately 370 feet of existing subtransmission line to be double-circuited within Prime Farmland. While impacts to agriculture would be less than significant with the implementation of applicant-proposed and/or mitigation measures, the SDG&E System Alternative would have greater agricultural impacts than the Proposed Project because it involves construction within Prime Farmland.

² Prime Farmlands have the optimum combination of physical and chemical conditions that are able to sustain long-term agricultural production. The soil quality, growing season, and moisture supply on Prime Farmlands provide conditions to produce sustained high yields. Prime Farmlands must have been used for irrigated production within four years of the mapping date. Farmlands of Statewide Importance are similar to Prime Farmlands; however, these farmlands have minor shortcomings, such as a higher slope or decreased ability to store soil moisture. Similar to Prime Farmlands, Farmlands of Statewide Importance must have been used for irrigated production within four years of the mapping date. Unique Farmlands have lower-quality soils and are used for the production of California's leading agricultural products. Unique Farmlands are typically irrigated but may also include non-irrigated vineyards or orchards found in certain climatic zones. Unique Farmlands must have been cropped within four years of the mapping date.

4.3 AIR QUALITY

The SDG&E System Alternative would utilize similar construction methods, equipment, and crew sizes as the Proposed Project. As a result, the SDG&E System Alternative and the Proposed Project would result in similar daily criteria air pollutant emissions from the use of off-road equipment and on-road vehicles. The SDG&E System Alternative would require the installation of a new, double-circuit transmission line across approximately 6.4 miles of undisturbed, rugged terrain, while the Proposed Project would require approximately 3 miles of new single-circuit transmission line in similar conditions. Construction in this type of terrain would require significant grading to establish access roads and permanent pads to operate and maintain these facilities. When compared to the Proposed Project, the increased grading associated with the SDG&E System Alternative will result in increased fugitive dust emissions and more impacts to air quality during construction. The increased length of new transmission and subtransmission lines associated with the SDG&E System Alternative will lead to an increase in criteria air pollutants during operation and maintenance from heavy vehicle use. Fugitive dust emissions during operation and maintenance will also be higher than the Proposed Project due to the additional unpaved vehicle travel required to access the transmission facilities. While impacts to air quality would be significant with the implementation of applicant-proposed and/or mitigation measures, the SDG&E System Alternative would have greater air quality impacts than the Proposed Project because it involves more grading to establish permanent access to the transmission line and requires a larger increase in operation and maintenance activities over what SCE currently conducts in the area.

4.4 BIOLOGICAL RESOURCES

The Proposed Project and the SDG&E System Alternative would cross suitable habitat for multiple special-status species, sensitive natural habitats, wildlife migratory corridors, and jurisdictional water features. The SDG&E System Alternative would require the installation of a new, double-circuit transmission line across approximately 6.4 miles of undisturbed, rugged terrain, while the Proposed Project would require approximately 3 miles of new single-circuit transmission line in similar conditions. Construction in this type of terrain would require significant grading and vegetation clearing to establish access roads and permanent pads to install and maintain these facilities. The increased grading associated with the SDG&E System Alternative's transmission line construction will result in a greater disturbance to biological resources, including special-status species habitat and sensitive natural communities. These activities would also increase the potential for direct take of special-status species. The remainder of the SDG&E System Alternative would occur along existing roadways, similar to the Proposed Project. The substations associated with the SDG&E System Alternative and the Proposed Project would require similar levels of grading to prepare the site for use. While impacts to biological resources would be less than significant with the implementation of applicant-proposed and/or mitigation measures, the SDG&E System Alternative would have greater biological resource impacts than the Proposed Project because it involves more construction in potentially sensitive habitat.

4.5 CULTURAL RESOURCES

The SDG&E System Alternative would require the installation of a new, double-circuit transmission line across approximately 6.4 miles of undisturbed, rugged terrain, while the Proposed Project would require approximately 3 miles of new single-circuit transmission line in similar conditions. Construction in this type of terrain would require significant grading and vegetation clearing to establish access roads and permanent pads to install and maintain these facilities. The remainder of the SDG&E System Alternative would occur along existing roadways, similar to the Proposed Project. The substations associated with the SDG&E System Alternative and the Proposed Project would require similar levels of grading to prepare the site for use.

The additional ground disturbance associated with the SDG&E System Alternative would increase the possibility of disturbing surface and subsurface cultural and paleontological resources. In addition, approximately 5 miles of the SDG&E System Alternative cross the Pechanga Reservation, resulting in the increased possibility of impacting a Traditional Cultural Property or Tribal Cultural Resource. While impacts to cultural resources would be less than significant with the implementation of applicant-proposed and/or mitigation measures, the SDG&E System Alternative would likely have greater cultural resource impacts than the Proposed Project because it involves more ground disturbance in previously undisturbed areas and construction within the Pechanga Reservation.

4.6 GEOLOGY AND SOILS

The SDG&E System Alternative would be located in a similar geologic setting to the Proposed Project and would involve the installation of similar structures. The new substation, portions of the transmission line, portions of the subtransmission lines, and the double-circuiting of existing subtransmission lines would be located within 1 mile of known earthquake faults. The SDG&E System Alternative, like the Proposed Project, is not located in the vicinity of historic landslides or on unstable geologic units. A Stormwater Pollution Prevention Plan (SWPPP) and proper engineering practices would be implemented for both the SDG&E System Alternative and the Proposed Project. As a result, the SDG&E System Alternative would have similar impacts to geology and soils as the Proposed Project. Based on the information SCE has analyzed, impacts to geology and soils would be less than significant.

4.7 HAZARDS AND HAZARDOUS MATERIALS

The majority of the SDG&E System Alternative (approximately 16.7 miles of transmission and subtransmission line and the new substation) would be constructed within a California Public Utilities Commission (CPUC) Tier 3 (i.e., extreme) fire threat area. Portions of the Proposed Project (approximately 12 miles of transmission and subtransmission line and the new Alberhill Substation) would also be constructed in high-fire-threat areas. Similar measures would be implemented for both the SDG&E System Alternative and the Proposed Project to reduce the risk of wildfire during construction, operation, and maintenance. In order to evaluate the risk of wildfire, SCE utilized its Multi-Attribute Risk Score (MARS) model from the Risk Assessment and Mitigation Phase (RAMP) proceeding to determine the relative contribution that each of the system alternatives would make to increase the overall wildfire risk profile of SCE's system. The

SDG&E System Alternative and the Proposed Project would result in similar increases to the wildfire risk profile if implemented. Similar to the Proposed Project, measures would be implemented for the SDG&E System Alternative to reduce the risk of transport, use, or disposal of hazardous materials and the release of hazardous materials, substances, or waste. Similar to the Proposed Project, off-road equipment and on-road vehicle use are anticipated to be the dominant noise sources during construction; therefore, noise from local airports would not pose a hazard for construction personnel. In addition, neither the SDG&E System Alternative nor the Proposed Project would involve construction on a site known to have hazardous waste or contamination. As a result, the SDG&E System Alternative would have similar impacts to hazards and hazardous materials when compared to the Proposed Project. Based on the information SCE has analyzed, impacts would be less than significant with the implementation of applicant-proposed and/or mitigation measures.

4.8 HYDROLOGY AND WATER QUALITY

The SDG&E System Alternative would be constructed using similar construction techniques to the Proposed Project; however, it would be located in an area that has more topographic variation and undeveloped areas than the Proposed Project. This topographic variation will result in a higher potential to affect water quality in the area due to the grading associated with the construction of new, permanent access roads and pads to install and maintain the transmission facilities. Further, the increased construction in undeveloped areas is likely to result in the direct impact of more jurisdictional water features when compared to the Proposed Project. Similar to the Proposed Project, the SDG&E System Alternative would implement measures to reduce the potential for impacts to water quality and changes in drainage patterns. Both the SDG&E System Alternative and Proposed Project would involve the construction of a new substation. These substations would be of similar size and introduce a similar amount of new impermeable surfaces. The installation of new overhead transmission and subtransmission facilities would result in minimal increases in impermeable surfaces; therefore, both would lead to similar levels of increased runoff. While impacts would be less than significant with the implementation of applicant-proposed and/or mitigation measures, the SDG&E System Alternative would have greater hydrology and water quality impacts than the Proposed Project because it involves more grading in undeveloped areas and is likely to impact more jurisdictional water features.

4.9 LAND USE AND PLANNING

The SDG&E System Alternative would be located in unincorporated portions of San Diego and Riverside counties, the City of Temecula, and the community of Rainbow and would cross the Pechanga Reservation. Similar to the Proposed Project, the new substation would be constructed in a primarily undeveloped area; therefore, it would not divide an established community. In addition, the overhead transmission and subtransmission lines associated with the SDG&E System Alternative and Proposed Project would not impair movement or otherwise physically divide communities. Lastly, the SDG&E System Alternative and Proposed Project would participate in one or more Habitat Conservation Plans and/or Natural Community Conservation Plans. As a result, similar to the Proposed Project and based on the information SCE has analyzed, the SDG&E System Alternative would have less-than-significant impacts on land use and planning with the implementation of applicant-proposed and/or mitigation measures.

4.10 MINERAL RESOURCES

The Proposed Project is partially located within an identified Mineral Resource Zone (MRZ)-3 zone and would result in the potential loss of exploration and utilization of potentially occurring mineral resources due to the installation of new facilities. The SDG&E System Alternative is not located within a known MRZ and therefore would not impact known mineral resources. As a result, and based on the information SCE has analyzed, there would be no impact; the SDG&E System Alternative would have less impact to mineral resources than the Proposed Project.

4.11 NOISE

The SDG&E System Alternative is located in an area characterized by rolling hills and rural residential development. The majority of the new transmission line construction would occur within undeveloped areas, while the majority of subtransmission line construction would occur along existing roadways, including SR-79. The SDG&E System Alternative and the Proposed Project would utilize similar construction techniques; therefore, noise levels during construction of the transmission and subtransmission lines would be similar. In addition, the operation and maintenance practices of (and therefore the noise from) these facilities would be similar for the SDG&E System Alternative and the Proposed Project. The new substation would be bounded by existing residences to the west, while Alberhill Substation would be surrounded by undeveloped uses. While impacts to noise would be significant with the implementation of applicant-proposed and/or mitigation measures, the SDG&E System Alternative would have greater noise impacts than the Proposed Project because the construction and operation and maintenance of the substation would be located closer proximity to sensitive receptors.

4.12 POPULATION AND HOUSING

Similar to the Proposed Project, the SDG&E System Alternative would rely on a primarily local workforce and would not induce population growth. Neither the Proposed Project nor the SDG&E System Alternative would displace substantial numbers of existing housing units or people, and no new housing would need to be constructed. As a result, similar to the Proposed Project and based on the information SCE has analyzed, the SDG&E System Alternative would have less-than-significant impacts on population and housing.

4.13 PUBLIC SERVICES

The majority of the SDG&E System Alternative (approximately 16.7 miles of transmission and subtransmission line and the new substation) would be constructed in CPUC Tier 3 (i.e., extreme) fire threat areas. Portions of the Proposed Project (approximately 12 miles of transmission and subtransmission line and the new Alberhill Substation) would also be constructed in high-fire-threat areas. Similar measures would be implemented for both the SDG&E System Alternative and the Proposed Project to reduce the risk of wildfire during construction, operation, and maintenance and the measures would not require the expansion of fire protection services. In addition, the majority of the transmission line construction would occur off of public roadways, reducing the potential impact on government agency response times. Neither the SDG&E System Alternative nor the Proposed Project would be likely to require the use of law enforcement agencies, nor would either induce population growth

requiring the construction of additional governmental or public facilities. As a result, similar to the Proposed Project and based on the information SCE has analyzed, impacts to public services would be less than significant with the implementation of applicant-proposed and/or mitigation measures.

4.14 RECREATION

The SDG&E System Alternative is not anticipated to require the closure of any existing parks or other recreational facilities nor involve the construction or expansion of existing recreational facilities. If construction crews from the local workforce are not used, similar to the Proposed Project, there is the potential for an increase the use of recreational facilities. The Proposed Project would require the temporary closure of one existing park during conductor stringing. As a result, the SDG&E System Alternative would have less impacts to recreation than the Proposed Project. Based on the information SCE has analyzed, impacts from the SDG&E System Alternative would be less than significant with the implementation of applicant-proposed and/or mitigation measures.

4.15 TRANSPORTATION AND TRAFFIC

The SDG&E System Alternative would involve construction of approximately 10.3 miles of transmission and subtransmission line along existing roadways, including SR-79. This is less than the 17.5 miles of subtransmission line construction along existing roadways associated with the Proposed Project. While the SDG&E System Alternative and Proposed Project are anticipated to use similar construction techniques, which would likely require temporary lane and/or road closures, the reduced length of construction along existing roadways is likely to result in less congestion during construction. Similar operation and maintenance activities would be utilized for the SDG&E System Alternative and the Proposed Project; therefore, these impacts would be similar. Similar to the Proposed Project, the SDG&E System Alternative is not anticipated to increase hazards, result in inadequate emergency access, result in inadequate parking, or conflict with alternative transportation. As a result, the SDG&E System Alternative would have less impact on transportation and traffic than the Proposed Project. Based on the information SCE has analyzed, impacts would be less than significant with the implementation of applicant-proposed and/or mitigation measures.

4.16 UTILITIES AND SERVICE SYSTEMS

The SDG&E System Alternative and the Proposed Project would have similar grading requirements for substation construction. The Proposed Project and alternative would also have similar landfill, solid waste, and water treatment requirements. As a result, the SDG&E System Alternative would have similar impacts to utilities and service systems to the Proposed Project. Based on the information SCE has analyzed, impacts to utilities and service systems would be less than significant.

SCE ORANGE COUNTY SYSTEM ALTERNATIVE

4.1 AESTHETICS

The SCE Orange County System Alternative is located in Riverside, San Diego, and Orange counties within the cities of Murrieta, Wildomar, and San Clemente. The northeastern portion of this system alternative is characterized by urban development, while the remainder is characterized by undisturbed steep hills and terrain. The new subtransmission lines would be constructed mainly along city streets in urbanized areas and would not represent a significant change in visual quality. The new substation would be located in a rural residential area. The new transmission line would cross approximately 22.6 miles of undeveloped land in Riverside, San Diego, and Orange counties, including portions of the Cleveland National Forest (CNF), which is under the jurisdiction of the United States Forest Service, and the Santa Rosa Plateau Ecological Reserve, which is under the jurisdiction of the California Department of Fish and Wildlife. The transmission line would be visible from public vantage points, including recreational trails, within the CNF and reserve. The grading of new permanent access roads and pads to install and maintain the new facilities would result in permanent visual changes to this undeveloped landscape. While impacts to aesthetics would be significant with the implementation of applicant-proposed and/or mitigation measures, the SCE Orange County System Alternative would have greater aesthetic impacts than the Proposed Project because it involves the construction of more new transmission line, and associated permanent access roads and pads, within previously undeveloped and recreational areas.

4.2 AGRICULTURAL RESOURCES

Similar to the Proposed Project, the Orange County System Alternative would not cross Prime Farmland, Farmland of Statewide Importance, or Williamson Act lands.² However, approximately 0.3 mile of new 220 kV transmission line would be constructed within areas designated as Unique Farmland. While impacts to agriculture would be less than significant with the implementation of applicant-proposed and/or mitigation measures, the SCE Orange County System Alternative would have greater agricultural impacts than the Proposed Project because it involves construction within Unique Farmland.

4.3 AIR QUALITY

The SCE Orange County System Alternative would utilize similar construction methods, equipment, and crew sizes as the Proposed Project. As a result, the SCE Orange County System Alternative and the Proposed Project would result in similar daily criteria air pollutant emissions from the use of off-road equipment and on-road vehicles. The SCE Orange County System Alternative would require the installation of a new, double-circuit transmission line across approximately 22.6 miles of undisturbed, rugged terrain while the Proposed Project would require approximately 3 miles of new single-circuit transmission line in similar conditions. Construction in this type of terrain would require significant grading to establish access roads and permanent pads to install and maintain these facilities. When compared to the Proposed Project, the increased grading associated with the SCE Orange County System Alternative will result in increased fugitive dust emissions and more impacts to air quality during construction. The increased length of new transmission and subtransmission lines associated with the SCE

Orange County System Alternative will lead to an increase in criteria air pollutants during operation and maintenance from heavy vehicle use. Fugitive dust emissions during operation and maintenance will also be higher than the Proposed Project due to the additional unpaved vehicle travel required to access the transmission facilities. While impacts to air quality would be significant with the implementation of applicant-proposed and/or mitigation measures, the SCE Orange County System Alternative would have greater air quality impacts than the Proposed Project because it involves more grading to establish permanent access to the transmission line and requires a larger increase in operation and maintenance activities over what SCE currently conducts in the area.

4.4 BIOLOGICAL RESOURCES

The Proposed Project and the SCE Orange County System Alternative would cross suitable habitat for multiple special-status species, sensitive natural habitats, wildlife migratory corridors, and jurisdictional water features. The SCE Orange County System Alternative would require the installation of a new, double-circuit transmission line across approximately 22.6 miles of undisturbed, rugged terrain, while the Proposed Project would require approximately 3 miles of new single-circuit transmission line in similar conditions. Construction in this type of terrain would require significant grading and vegetation clearing to establish access roads and permanent pads to operate and maintain these facilities. The increased grading associated with the SCE Orange County System Alternative's transmission line construction will result in a greater disturbance to biological resources, including special-status species habitat and sensitive natural communities. These activities would also increase the potential for direct take of special-status species. The remainder of the SCE Orange County System Alternative would occur along existing roadways, similar to the Proposed Project. The substations associated with the SCE Orange County System Alternative and the Proposed Project would require similar levels of grading to prepare the site for use. While impacts to biological resources would be less than significant with the implementation of applicant-proposed and/or mitigation measures, the SCE Orange County System Alternative would have greater biological resource impacts than the Proposed Project because it involves more construction in potentially sensitive habitat.

4.5 CULTURAL RESOURCES

The SCE Orange County System Alternative would require the installation of a new, double-circuit transmission line across approximately 22.6 miles of undisturbed, rugged terrain, while the Proposed Project would require approximately 3 miles of new single-circuit transmission line in similar conditions. Construction in this type of terrain would require significant grading and vegetation clearing to establish access roads and permanent pads to operate and maintain these facilities. The remainder of the SCE Orange County System Alternative would occur along existing roadways, similar to the Proposed Project. The substations associated with the SCE Orange County System Alternative and the Proposed Project would require similar levels of grading to prepare the site for use.

The additional ground disturbance associated with the SCE Orange County System Alternative would increase the possibility of disturbing surface and subsurface cultural and paleontological resources. While impacts to cultural resources would be less than significant with the implementation of applicant-proposed and/or mitigation measures, the SCE Orange County

System Alternative would likely have greater cultural resource impacts than the Proposed Project because it involves more ground disturbance in previously undisturbed areas.

4.6 GEOLOGY AND SOILS

The SCE Orange County System Alternative would be located in a similar geologic setting to the Proposed Project and would involve the installation of similar structures. The new substation, portions of the transmission line, and portions of the subtransmission lines would be located within 1 mile of known earthquake faults. The SCE Orange County System Alternative, like the Proposed Project, is not located in the vicinity of historic landslides or on unstable geologic units. A SWPPP and proper engineering practices would be implemented for both the SCE Orange County System Alternative and the Proposed Project. As a result, the SCE Orange County System Alternative would have similar impacts to geology and soils as the Proposed Project. Based on the information SCE has analyzed, impacts to geology and soils would be less than significant.

4.7 HAZARDS AND HAZARDOUS MATERIALS

The majority of the SCE Orange County System Alternative (approximately 22 miles of transmission line) would be constructed within a CPUC Tier 3 (i.e., extreme) fire threat area. Portions of the Proposed Project (approximately 12 miles of transmission and subtransmission line and the new Alberhill Substation) would also be constructed in high-fire-threat areas. Similar measures would be implemented for both the SCE Orange County System Alternative and the Proposed Project to reduce the risk of wildfire during construction, operation, and maintenance. In order to evaluate the risk of wildfire, SCE utilized its MARS model from the RAMP proceeding to determine the relative contribution that each of the system alternatives would make to increase the overall wildfire risk profile of SCE's system. The SCE Orange County System Alternative would cause a greater increase in wildfire risk profile than the Proposed Project if implemented. Similar to the Proposed Project, measures would be implemented for the SCE Orange County System Alternative to reduce the risk of transport, use, or disposal of hazardous materials and the release of hazardous materials, substances, or waste. Similar to the Proposed Project, off-road equipment and on-road vehicle use are anticipated to be the dominant noise sources during construction; therefore, noise from local airports would not pose a hazard for construction personnel. In addition, neither the SCE Orange County System Alternative nor Proposed Project would involve construction on a site known to have hazardous waste or contamination. While impacts to hazards and hazardous materials would be less than significant with the implementation of applicant-proposed and/or mitigation measures, the SCE Orange County System Alternative would have greater hazard and hazardous material impacts than the Proposed Project because it involves the construction and operation and maintenance of more new facilities within a CPUC Tier 3 fire threat area.

4.8 HYDROLOGY AND WATER QUALITY

The SCE Orange County System Alternative would be constructed with similar construction techniques to the Proposed Project; however, it would be located in an area that has more topographic variation and undeveloped areas than the Proposed Project. This topographic variation will result in a higher potential to affect water quality in the area due to the grading

associated with the construction of new, permanent access roads and pads to install and maintain the transmission facilities. Further, the increased construction in undeveloped areas is likely to result in the direct impact of more jurisdictional water features when compared to the Proposed Project. Similar to the Proposed Project, the SCE Orange County System Alternative would implement measures to reduce the potential for impacts to water quality and changes in drainage patterns. Both the SCE Orange County System Alternative and Proposed Project would involve the construction of a new substation. These substations would be of similar size and introduce a similar amount of new impermeable surfaces. The installation of new overhead transmission and subtransmission facilities would result in minimal increases in impermeable surfaces; therefore, both would lead to similar levels of increased runoff. While impacts would be less than significant with the implementation of applicant-proposed and/or mitigation measures, the SCE Orange County System Alternative would have greater hydrology and water quality impacts than the Proposed Project because it involves more grading in undeveloped areas and is likely to impact more jurisdictional water features.

4.9 LAND USE AND PLANNING

The SCE Orange County System Alternative would be located in unincorporated portions of Orange, San Diego, and Riverside counties, and the cities of Murrieta and Wildomar. Similar to the Proposed Project, the new substation would be constructed in a primarily undeveloped area; therefore, it would not divide an established community. In addition, the overhead transmission and subtransmission lines associated with the SCE Orange County System Alternative and Proposed Project would not impair movement or otherwise physically divide communities. The SCE Orange County System Alternative would involve the construction of a new, double-circuit transmission line across approximately 5.5 miles of the CNF and approximately 4.7 miles of the Santa Rosa Plateau Ecological Reserve. Though these existing land uses promote open space, utility uses are typically allowed. Lastly, the SDG&E System Alternative and Proposed Project would participate in one or more Habitat Conservation Plans and/or Natural Community Conservation Plans. As a result, similar to the Proposed Project and based on the information SCE has analyzed, the SCE Orange County System Alternative would have less-than-significant impacts on land use and planning with the implementation of applicant-proposed and/or mitigation measures.

4.10 MINERAL RESOURCES

The Proposed Project is partially located within an identified MRZ-3 zone and would result in the potential loss of exploration and utilization of potentially occurring mineral resources due to the installation of new facilities. The SCE Orange County System Alternative is not located within a known MRZ and therefore would not impact known mineral resources. As a result, and based on the information SCE has analyzed, there would be no impact; the Orange County System Alternative would have less impact to mineral resources when compared to the Proposed Project.

4.11 NOISE

The northeastern portion of the SCE Orange County System Alternative is characterized by urban development and the remainder is characterized by undisturbed steep hills and terrain. The

majority of the new transmission line construction would occur within undeveloped areas where limited noise sensitive receptors would be present. Similar to the Proposed Project, the majority of the subtransmission line construction would occur along existing roadways and in developed areas. The SCE Orange County System Alternative and Proposed Project would also utilize similar construction techniques; therefore, noise levels during construction of the transmission and subtransmission lines would be similar. In addition, the operation and maintenance practices of (and therefore the noise from) these facilities would be similar for the SCE Orange County System Alternative and the Proposed Project. The new substation would have existing residences approximately 0.25 mile to the northeast, while Alberhill Substation would be surrounded by undeveloped uses. While impacts to noise would be significant with the implementation of applicant-proposed and/or mitigation measures, the SCE Orange County System Alternative would have greater noise impacts than the Proposed Project because the construction and operation and maintenance of the substation would be located closer proximity to sensitive receptors.

4.12 POPULATION AND HOUSING

Similar to the Proposed Project, the SCE Orange County System Alternative would rely on a primarily local workforce and would not induce population growth. Neither the Proposed Project nor the SCE Orange County System Alternative would displace substantial numbers of existing housing units or people, and no new housing would need to be constructed. As a result, similar to the Proposed Project and based on the information SCE has analyzed, the SCE Orange System Alternative would have less-than-significant impacts on population and housing.

4.13 PUBLIC SERVICES

The majority of the SCE Orange County System Alternative (approximately 22 miles of transmission line) would be constructed in CPUC Tier 3 (i.e., extreme) fire threat areas. Portions of the Proposed Project (approximately 12 miles of transmission and subtransmission line and the new Alberhill Substation) would also be constructed in high-fire-threat areas. Similar measures would be implemented for both the SCE Orange County System Alternative and the Proposed Project to reduce the risk of wildfire during construction, operation, and maintenance and the measures would not require the expansion of fire protection services. In addition, the majority of the transmission line construction would occur off of public roadways, reducing the potential impact on government agency response times. Neither the SCE Orange County System Alternative nor the Proposed Project would be likely to require the use of law enforcement agencies, nor would either induce population growth requiring the construction of additional governmental or public facilities. As a result, similar to the Proposed Project and based on the information SCE has analyzed, impacts to public services would be less than significant with the implementation of applicant-proposed and/or mitigation measures.

4.14 RECREATION

The SCE Orange County System Alternative would cross the Santa Rosa Plateau Ecological Reserve, which includes multi-use trails for recreational activities. Construction of the new transmission line would result in temporary access restrictions or a partial closure of the reserve and some of the associated trails. The Proposed Project would also require the temporary closure

of one existing park during conductor stringing. If construction crews from the local workforce are not used, similar to the Proposed Project, there is the potential for an increase the use of recreational facilities. Neither the Proposed Project nor the SCE Orange County System Alternative would involve the construction or expansion of existing recreational facilities. As a result, similar to the Proposed Project and based on the information SCE has analyzed, impacts to recreation would be less than significant with the implementation of applicant-proposed and/or mitigation measures.

4.15 TRANSPORTATION AND TRAFFIC

The SCE Orange County System Alternative would involve construction of approximately 7.6 miles of subtransmission line along existing roadways. This is less than the 17.5 miles of subtransmission line construction along existing roadways associated with the Proposed Project. While the SCE Orange County System Alternative and Proposed Project are anticipated to use similar construction techniques, which would likely require temporary lane and/or road closures, the reduced length of construction along existing roadways is likely to result in less congestion during construction. Similar operation and maintenance activities would be utilized for the SCE Orange County System Alternative and the Proposed Project; therefore, these impacts would be similar. Similar to the Proposed Project, the SCE Orange County System Alternative is not anticipated to increase hazards, result in inadequate emergency access, result in inadequate parking, or conflict with alternative transportation. As a result, the SCE Orange County System Alternative would have less impact on transportation and traffic than the Proposed Project. Based on the information SCE has analyzed, impacts would be less than significant with the implementation of applicant-proposed and/or mitigation measures.

4.16 UTILITIES AND SERVICE SYSTEMS

The SCE Orange County System Alternative and the Proposed Project would have similar grading requirements for substation construction. The Proposed Project and alternative would also have similar landfill, solid waste, and water treatment requirements. As a result, the SCE Orange County System Alternative would have similar impacts to utilities and service systems to the Proposed Project. Based on the information SCE has analyzed, impacts to utilities and service systems would be less than significant.

MIRA LOMA SYSTEM ALTERNATIVE

4.1 AESTHETICS

The Mira Loma System Alternative is located in unincorporated portions of Riverside County as well as in the cities of Ontario, Norco, and Corona. The system alternative is located in areas primarily characterized as developed, including residential, commercial, and industrial areas. The new substation would be visible from residential areas; however, it would be located on a parcel that currently contains an existing SCE transmission corridor. It will also be adjacent to SCE's existing Mira Loma Substation. The proposed Alberhill Substation would be located in a more rural setting where it would be visible to motorists utilizing Interstate 15. The new subtransmission line portion of the system alternative between this new substation and Ivy Glen Substation would extend approximately 21.6 miles along existing roadways. Similar to the

Proposed Project, portions of the new subtransmission line would be constructed in areas where SCE owns and operates existing overhead transmission and subtransmission line facilities. Due to the relatively developed nature of this route, the new subtransmission line would represent an incremental change in the existing visual character. In addition, the short new subtransmission line near Fogarty Substation would be built adjacent to an existing overhead subtransmission line, representing an incremental change in visual character. While this system alternative involves more new subtransmission line construction than the Proposed Project, the Mira Loma System Alternative would result in similar impacts to the Proposed Project due to its location in a previously developed area. Based on the information SCE has analyzed, impacts to aesthetics would be significant with the implementation of applicant-proposed and/or mitigation measures.

4.2 AGRICULTURAL RESOURCES

Similar to the Proposed Project, the Mira Loma System Alternative would not cross Unique Farmland, Williamson Act land, or Farmland of Statewide Importance.² However, approximately 0.5 mile of new, double-circuit subtransmission line would be constructed within Prime Farmland. While impacts to agriculture would be less than significant with the implementation of applicant-proposed and/or mitigation measures, the Mira Loma System Alternative would have greater agricultural impacts than the Proposed Project because it involves construction within Prime Farmland.

4.3 AIR QUALITY

The Mira Loma System Alternative would utilize similar construction methods, equipment, and crew sizes as the Proposed Project. As a result, the Mira Loma System Alternative and the Proposed Project would result in similar daily criteria air pollutant emissions from the use of off-road equipment and on-road vehicles. Both the Mira Loma System Alternative and the Proposed Project have existing access along the majority of their transmission and subtransmission routes; therefore, grading to establish access roads and permanent pads to install and maintain these facilities would be considered similar. As a result, the Mira Loma System Alternative's impacts to air quality would be similar to those associated with the Proposed Project. Based on the information SCE has analyzed, impacts to air quality would be significant with the implementation of applicant-proposed and/or mitigation measures.

4.4 BIOLOGICAL RESOURCES

The Mira Loma System Alternative's subtransmission line components would primarily be constructed adjacent to existing roadways, limiting the need for grading to establish access and permanent pads to operate and maintain these facilities. Similarly, the Proposed Project's subtransmission line components would primarily consist of construction along existing roadways or where SCE has already established permanent access. The Mira Loma System Alternative would require the construction of new, double-circuit subtransmission line across the Santa Ana River, where special-status species are known to occur. The substations associated with the Mira Loma System Alternative and the Proposed Project would require similar levels of grading to prepare the site for use. Due to the similar levels of ground disturbance and the limited special-status species habitat along the Mira Loma System Alternative route, this alternative and the Proposed Project would have similar impacts to biological resources. Based on the

information SCE has analyzed, impacts to biological resources would be less than significant with the implementation of applicant-proposed and/or mitigation measures.

4.5 CULTURAL RESOURCES

The Mira Loma System Alternative's subtransmission line components would primarily be constructed adjacent to existing roadways, limiting the need for grading to establish access and permanent pads to operate and maintain these facilities. Similarly, the Proposed Project's subtransmission line components would primarily consist of construction along existing roadways or where SCE has already established permanent access. The substations associated with the Mira Loma System Alternative and the Proposed Project would require similar levels of grading to prepare the site for use. Because surface and subsurface cultural and paleontological resources are most likely to be disturbed during ground-disturbing activities, the Mira Loma System Alternative and the Proposed Project would likely have similar impacts to cultural resources. Based on the information SCE has analyzed, impacts to cultural resources would be less than significant with the implementation of applicant-proposed and/or mitigation measures.

4.6 GEOLOGY AND SOILS

The Mira Loma System Alternative would be located in a similar geologic setting to the Proposed Project and would involve the installation of similar structures. The Mira Loma System Alternative would not be located within 1 mile of known earthquake faults, nor in the vicinity of historic landslide or unstable geologic units. A SWPPP and proper engineering practices would be implemented for both the Mira Loma System Alternative and the Proposed Project. As a result, the Mira Loma System Alternative would have similar impacts to geology and soils as the Proposed Project. Based on the information SCE has analyzed, impacts to geology and soils would be less than significant.

4.7 HAZARDS AND HAZARDOUS MATERIALS

The Mira Loma System Alternative would be constructed within developed areas or areas of low fire threat. In contrast, the Proposed Project would be constructed in high-fire-threat areas. Similar measures would be implemented for both the Mira Loma System Alternative and the Proposed Project to reduce the risk of wildfire during construction, operation, and maintenance. In order to evaluate the risk of wildfire, SCE utilized its MARS model from the RAMP proceeding to determine the relative contribution that each of the system alternatives would make to increase the overall wildfire risk profile of SCE's system. The Mira Loma System Alternative would result in a smaller increase to in wildfire risk profile than the Proposed Project if implemented. Similar to the Proposed Project, measures would be implemented for the Mira Loma System Alternative to reduce the risk of transport, use, or disposal of hazardous materials and the release of hazardous materials, substances, or waste. Similar to the Proposed Project, off-road equipment and on-road vehicle use are anticipated to be the dominant noise sources during construction; therefore, noise from local airports would not pose a hazard for construction personnel. In addition, neither the Mira Loma System Alternative nor Proposed Project would involve construction on a site known to have hazardous waste or contamination. As a result of the reduced impact on the MARS baseline, the Mira Loma System Alternative would have less impacts to hazards and hazardous materials when compared to the Proposed Project. Based on

the information SCE has analyzed, impacts would be less than significant with the implementation of applicant-proposed and/or mitigation measures.

4.8 HYDROLOGY AND WATER QUALITY

The Mira Loma System Alternative would be constructed with similar construction techniques to the Proposed Project and would be also be located primarily along existing roadways. Because the new subtransmission line would be installed primarily in developed areas, limited grading (and thus, limited impacts to jurisdictional water features) would be anticipated. Similar to the Proposed Project, the SCE Mira Loma System Alternative would implement measures to reduce the potential for impacts to water quality and changes in drainage patterns. Both the Mira Loma System Alternative and the Proposed Project would involve the construction of a new substation. These substations would be of similar size and introduce a similar amount of new impermeable surfaces. The installation of new overhead subtransmission facilities would result in minimal increases in impermeable surfaces; therefore, both would lead to similar levels of increased runoff. Due to the limited grading and anticipated impacts to potentially jurisdictional water features, the Mira Loma System Alternative would result in similar impacts to hydrology and water quality as the Proposed Project. Based on the information SCE has analyzed, impacts would be less than significant with the implementation of applicant-proposed and/or mitigation measures.

4.9 LAND USE AND PLANNING

The Mira Loma System Alternative would be located in unincorporated portions of Riverside County and in the cities of Ontario, Norco, and Corona. The new substation would be constructed in an area surrounded by industrial uses and undeveloped land that is zoned for residential uses, but that is vacant. Similar to the Proposed Project, construction of the substation would not divide an established community. In addition, the overhead transmission and subtransmission lines associated with the Mira Loma System Alternative and Proposed Project would not impair movement or otherwise physically divide communities. The Mira Loma System Alternative substation would be constructed within the Rich-Haven Specific Plan area in a location that is planned for single-family residential housing. The area includes existing SCE utility corridors and is adjacent to SCE's existing Mira Loma Substation. Lastly, the SDG&E System Alternative and Proposed Project would participate in one or more Habitat Conservation Plans and/or Natural Community Conservation Plans. While impacts to land use and planning would be less than significant with the implementation of applicant-proposed and/or mitigation measures, the Mira Loma System Alternative would have greater land use and planning impacts than the Proposed Project because construction of the substation would conflict with an existing specific plan.

4.10 MINERAL RESOURCES

The Proposed Project is partially located within an identified MRZ-3 zone and would result in the potential loss of exploration and utilization of potentially occurring mineral resources due to the installation of new facilities. The Mira Loma System Alternative is not located within a known MRZ and therefore would not impact known mineral resources. As a result, and based on

the information SCE has analyzed, there would be no impact; the Mira Loma System Alternative would have less impact to mineral resources when compared to the Proposed Project.

4.11 NOISE

The Mira Loma System Alternative is primarily characterized as developed, including residential, commercial, and industrial areas. The new transmission line and the majority of the new subtransmission line would be constructed in developed or residential areas. As a result, these facilities would be located in close proximity to multiple sensitive noise receptors. While the Mira Loma System Alternative and Proposed Project would utilize similar construction, operation, and maintenance techniques, the Mira Loma System Alternative's proximity to a greater number of sensitive noise receptors would lead to more impacts than the Proposed Project. The new substation would be located in a primarily industrial area with limited sensitive noise receptors; therefore, the noise impacts associated with the construction, operation, and maintenance of this substation would be similar to those associated with Alberhill Substation. While impacts to noise would be significant with the implementation of applicant-proposed and/or mitigation measures, the Mira Loma System Alternative would have greater impacts to noise when compared to the Proposed Project because it involves construction in closer proximity to more sensitive noise receptors.

4.12 POPULATION AND HOUSING

Similar to the Proposed Project, the Mira Loma System Alternative would rely on a primarily local workforce and would not induce population growth. Neither the Proposed Project nor the Mira Loma System Alternative would displace substantial numbers of existing housing units or people, and no new housing would need to be constructed. As a result, similar to the Proposed Project and based on the information SCE has analyzed, the Mira Loma System Alternative would have less-than-significant impacts on population and housing.

4.13 PUBLIC SERVICES

The Mira Loma System Alternative would be constructed within developed areas or areas of low fire threat. In contrast, the Proposed Project would be constructed in high-fire-threat areas. Similar measures would be implemented for both the Mira Loma System Alternative and the Proposed Project to reduce the risk of wildfire during construction, operation, and maintenance and the measures would not require the expansion of fire protection services. The majority of the subtransmission line construction for the Mira Loma System Alternative would occur in more densely populated areas than the Proposed Project. Work along these existing public roadways would likely require temporary lane and/or road closure and would have the potential to increase government agency response times. Neither the Mira Loma System Alternative nor the Proposed Project would be likely to require the use of law enforcement agencies, nor would either induce population growth requiring the construction of additional governmental or public facilities. While impacts to public services would be less than significant with the implementation of applicant-proposed and/or mitigation measures, the Mira Loma System Alternative would have greater public service impacts than the Proposed Project because it involves more construction along roadways in densely populated areas, likely leading to increased agency response times.

4.14 RECREATION

Similar to the Proposed Project, the Mira Loma System Alternative may require the temporary closure of existing parks and other recreational facilities located adjacent to the subtransmission line. If construction crews from the local workforce are not used, similar to the Proposed Project, there is the potential for an increase the use of recreational facilities. The Proposed Project and Mira Loma System Alternative would not involve the construction or expansion of existing recreational facilities. As a result, similar to the Proposed Project and based on the information SCE has analyzed, the Mira Loma System Alternative would have less-than-significant impacts on recreation with the implementation of applicant-proposed and/or mitigation measures.

4.15 TRANSPORTATION AND TRAFFIC

The Mira Loma System Alternative would involve construction of approximately 21.6 miles of subtransmission line along existing roadways. This is greater than the 17.5 miles of subtransmission line construction along existing roadways associated with the Proposed Project. While the Mira Loma System Alternative and Proposed Project are anticipated to use similar construction techniques, which would likely require temporary lane and/or road closures, the increased length of construction along existing roadways is likely to result in an increase in congestion during construction. Similar operation and maintenance activities would be utilized for the Mira Loma System Alternative and the Proposed Project; therefore, these impacts would be similar. Similar to the Proposed Project, the Mira Loma System Alternative is not anticipated to increase hazards, result in inadequate emergency access, result in inadequate parking, or conflict with alternative transportation. While impacts would be less than significant with the implementation of applicant-proposed and/or mitigation measures, the Mira Loma System Alternative would have greater transportation and traffic impacts than the Proposed Project because it involves more construction along roadways in densely populated areas, likely leading to increased congestion.

4.16 UTILITIES AND SERVICE SYSTEMS

The Mira Loma System Alternative and the Proposed Project would have similar grading requirements for substation construction. The Proposed Project and alternative would also have similar landfill, solid waste, and water treatment requirements. As a result, the Mira Loma System Alternative would have similar impacts to utilities and service systems to the Proposed Project. Based on the information SCE has analyzed, impacts to utilities and service systems would be less than significant.

5.0 COMPARISON OF ALTERNATIVES

This section compares the environmental impacts of the alternatives. [California Environmental Quality Act \(CEQA\)](#) Guidelines (Section 15126.6(d)) require that an environmental impact report include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the [Alberhill System Project \(ASP or Proposed Project\)](#).

The Basic Objectives, developed in Section 1.43, are as follows:

- Serve current and long-term projected electrical demand requirements in the Electrical Needs Area
- Increase system operational flexibility and maintain system reliability by creating system ties that establish the ability to transfer substations from the current Valley South 115 [Kilovolt \(kV\)](#) System
- Transfer a sufficient amount of load off of the Valley South 115 kV System to maintain a positive reserve capacity on the Valley South 115 kV System through the 10-year planning horizon
- Provide safe and reliable electrical service consistent with [Southern California Edison's \(SCE's\)](#) Transmission Planning Criteria and Guidelines
- Increase electrical system reliability by constructing a project in a location suitable to serve the Electrical Needs Area
- Meet project need while minimizing environmental impacts
- Meet project need in a cost-effective manner

These objectives guide in developing a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives. All of the alternatives evaluated in [the here and in Chapter 4 of this second amendment to the Proponent's Environmental Assessment \(PEA\)](#), with the exception of the No Project Alternative, satisfy the project objectives.

General Order No. 131-D requires that an Application for a [Permit to Construct Certificate of Public Convenience and Necessity](#) include the “[r]easons for adoption of the ~~power line route or substation location~~ selected, including comparison with alternative routes ~~or locations~~, including the advantages and disadvantages of each.”

As described in Chapter 4, Environmental Impact Assessment, with the implementation of Applicant Proposed Measures, the Proposed Project would have a potentially significant impact to air quality. All other impacts from construction and operation of the Proposed Project ~~are anticipated to be less than significant~~ [were anticipated to be less than significant. The Final Environmental Impact Report \(FEIR\), dated April 2017, supersedes the PEA and concluded](#)

5.0 COMPARISON OF ALTERNATIVES

there were Significant impacts to Aesthetics, Air Quality, and Noise and Vibration.¹ The FEIR also concluded there were Less than Significant impacts to Agriculture and Forestry Resources; Biological Resources; Cultural Resources; Geology, Soils, and Minerals; Greenhouse Gases; Hazards and Hazardous Materials; Hydrology and Water Quality; Land Use and Planning; Population and Housing; Public Services and Utilities; Recreation; and Transportation.

As discussed in Chapter 2, Project Alternatives, both the Proposed Project and the Alternative 115 kV Segment have the ability to serve the Alberhill Substation System Project. However, the new 115 kV subtransmission line associated with the Proposed Project would be built along paved roads, facilitating access for construction and maintenance, minimizing environmental impacts. The Alternative 115 kV Segment would require construction on unpaved roads in hilly terrain along a route that is slightly longer in length. This would require more earthwork and dust control during construction.

Chapter 2, Project Alternatives also provides a detailed description of three additional System Alternatives—San Diego Gas & Electric Company (SDG&E), SCE Orange County, and Mira Loma—that have been developed to meet the ASP’s Project Objectives.

The SDG&E system alternative would be located in unincorporated portions of San Diego and Riverside counties, the City of Temecula, and the community of Rainbow. Similar to the Proposed Project, a new, approximately 15-acre substation would be constructed on undeveloped land. This system alternative would involve the construction approximately 6.4 miles of new, double-circuit transmission line within previously undisturbed, hilly terrain. This portion of the SDG&E system alternative would require new, permanent access roads and pads for installation and operation and maintenance of the transmission facilities. This would require more earthwork and dust control during construction. This component of the system alternative would also cross the Pechanga Reservation. The remainder of the system alternative would primarily be constructed along existing roadways, similar to the Proposed Project.

The SCE Orange County system alternative would be located in unincorporated portions of Orange, San Diego, and Riverside counties, the cities of Murrieta and Wildomar. Similar to the Proposed Project, a new, approximately 15-acre substation would be constructed on undeveloped land. This system alternative would also involve the construction of approximately 22.6 miles of new, double-circuit transmission line within previously undisturbed, hilly terrain. This portion of the SCE Orange County system alternative would require new, permanent access roads and pads for installation and operation and maintenance of the transmission facilities. This would require more earthwork and dust control during construction. This component system alternative would also cross Cleveland National Forest, under the jurisdiction of the United States Forest Service, and the Santa Rosa Plateau Ecological Reserve, under the jurisdiction of the California Department of Fish and Wildlife. The remainder of the system alternative would generally be constructed adjacent to existing roadways in developed areas, similar to the Proposed Project.

¹ The FEIR also determined there would be significant cumulative impacts to Aesthetics, Air Quality, and Biological Resources. It also determined there would be a potential for significant cumulative impacts to Cultural Resources if multiple projects were to impact the same known resource.

The Mira Loma system alternative would be located in unincorporated portions of Riverside County, and the cities of Ontario, Norco, and Corona. Similar to the Proposed Project, a new, approximately 15-acre substation would be constructed on undeveloped land. This system alternative involves approximately 21.6 miles of new, double-circuit subtransmission line construction primarily adjacent to existing roads in developed areas. An additional, approximately 0.6-mile segment of new subtransmission line would be constructed adjacent to an existing subtransmission line near SCE's Fogarty Substation. As a result, limited earth work and grading would be associated with this system alternative.

Table 5.1, Comparison of Alternatives, compares the environmental impact of the Proposed Project ~~and~~, the Alternative 115 kV Segment, and the three additional System Alternatives by CEQA resource category.

5.0 COMPARISON OF ALTERNATIVES

Table 5.1 Comparison of Alternatives

Section	Proposed Project (PEA)	Proposed Project (FEIR)	Alternative 115 kV Segment	SDG&E System Alternative	SCE Orange County System Alternative	Mira Loma System Alternative
Aesthetics	Less than significant	Significant	Similar to the Proposed Project	More than the Proposed Project	More than the Proposed Project	Similar to the Proposed Project
Agriculture Agricultural Resources	Less than significant	Less than significant	Similar to the Proposed Project	More than the Proposed Project	More than the Proposed Project	More than the Proposed Project
Air Quality	Significant	Significant	More than the Proposed Project	More than the Proposed Project	More than the Proposed Project	Similar to the Proposed Project
Biological Resources	Less than significant	Less than significant with mitigation	Similar to the Proposed Project	More than the Proposed Project	More than the Proposed Project	Similar to the Proposed Project
Cultural Resources	Less than significant	Less than significant with mitigation	Similar to the Proposed Project	More than the Proposed Project	More than the proposed Project	Similar to the Proposed Project
Geology and Soils	Less than significant	Less than significant	More than the Proposed Project	Similar to the Proposed Project	Similar to the Proposed Project	Similar to the Proposed Project
Hazards and Hazardous Materials	Less than significant	Less than significant with mitigation	More than the Proposed Project	Similar to the Proposed Project	More than the Proposed Project	Less than the Proposed Project
Hydrology and Water Quality	Less than significant	Less than significant with mitigation	More than the Proposed Project	More than the Proposed Project	More than the Proposed Project	Similar to the Proposed Project
Land Use and Planning	No Impact	Less than significant with mitigation	Same as the Proposed Project	Similar to the Proposed Project	Similar to the Proposed Project	More than the Proposed Project
Mineral Resources	Less than significant	Less than significant	Similar to the Proposed Project	Less than the Proposed Project	Less than the Proposed Project	Less than the Proposed Project

Section	Proposed Project (PEA)	<u>Proposed Project (FEIR)</u>	Alternative 115 kV Segment	<u>SDG&E System Alternative</u>	<u>SCE Orange County System Alternative</u>	<u>Mira Loma System Alternative</u>
Noise	Less than significant	<u>Significant</u>	More than the Proposed Project	<u>More than the Proposed Project</u>	<u>More than the Proposed Project</u>	<u>More than the Proposed Project</u>
Population and Housing	No Impact	<u>Less than significant</u>	Same as the Proposed Project	<u>Same as the Proposed Project</u>	<u>Same as the Proposed Project</u>	<u>Same as the Proposed Project</u>
Public Services	Less than significant	<u>Less than significant with mitigation</u>	Similar to the Proposed Project	<u>Similar to the Proposed Project</u>	<u>Similar to the Proposed Project</u>	<u>More than the Proposed Project</u>
Recreation	No Impact	<u>Less than significant</u>	Same as the Proposed Project	<u>Less than the Proposed Project</u>	<u>Similar to the Proposed Project</u>	<u>Similar to the Proposed Project</u>
Transportation and Traffic	Less than significant	<u>Less than significant with mitigation</u>	Similar to the Proposed Project	<u>Less than the Proposed Project</u>	<u>Less than the Proposed Project</u>	<u>More than the Proposed Project</u>
Utilities and Service Systems	Less than significant	<u>Less than significant</u>	Similar to the Proposed Project	<u>Similar to the Proposed Project</u>	<u>Similar to the Proposed Project</u>	<u>Similar to the Proposed Project</u>

Appendix E

**Second Amendment to Proponent's Environmental Assessment,
Executive Summary, Chapters 1, 2 and 5 and Revisions to Chapter 4
(Clean Copy)**

EXECUTIVE SUMMARY

This second amendment to the Proponent's Environmental Assessment (PEA) (Second Amendment to PEA) evaluates the potential environmental impacts of Southern California Edison's (SCE's) Alberhill System Project (Proposed Project or ASP).¹ In Decision (D.) 18-08-026 for the ASP proceeding issued August 31, 2018, the California Public Utilities Commission (CPUC) took no action on the ASP and directed SCE to supplement the existing record with additional analyses. These additional analyses include a Planning Study² and other documentation that supports the project need, describes the applicable planning criteria and reliability standards, and provides a technical and economic analysis of additional alternatives SCE considered in order to enhance system reliability and provide additional system capacity. The purpose of this Second Amendment to PEA is to include those additional alternatives developed in the Planning Study in the PEA analysis. Based on this analysis, the ASP continues to be the Proposed Project.

The purpose of the Proposed Project is to serve current and projected demand for electricity, and maintain electric system reliability in portions of southwestern Riverside County including the cities of Lake Elsinore, Canyon Lake, Perris, Menifee, Murrieta, Murrieta Hot Springs, Temecula, and Wildomar, as well as the surrounding unincorporated portions of Riverside County (Electrical Needs Area).

In addition to serving the forecasted demand for the Electrical Needs Area, the Proposed Project would relieve the Valley South 115 kilovolt (kV) System by transferring electrical demand from this system to the new Alberhill system. The Proposed Project would also improve electrical reliability and operational flexibility in southwestern Riverside County. The Proposed Project would include the following major components:

- Construction of a new 1,120 megavolt ampere (MVA) 500/115 kV substation to increase electrical service capacity to the area presently served by the Valley South 115 kV System
- Construction of two new 500 kV transmission line segments to connect the new substation to SCE's existing Serrano-Valley 500 kV transmission line
- Construction of a new 115 kV subtransmission line (approximately three miles in length) and modifications to four existing 115 kV subtransmission lines to transfer five existing 115/12 kV substations (Ivyglen, Fogarty, Elsinore, Skylark, and Newcomb Substations) presently served by the Valley South 115 kV System to the new Alberhill 500/115 kV Substation

¹ After the site selection for the Alberhill Substation concluded, SCE commenced the routing analysis for 500 kV transmission line segment options to access the existing Serrano-Valley 500 kV transmission line to source the new substation. During this process, seven alternative routes were developed. Two additional segments were added in March 2011.

² See Item C- "Planning Study" as attached to SCE's Motion to Supplement the Record dated May 11, 2020

- Installation of telecommunications improvements to connect the new facilities to SCE's telecommunications network

This PEA includes the information required by the CPUC PEA Guidelines (State of California Public Utilities Commission Information and Criteria List, Appendix B, Section V), as well as the CPUC's requirements for a Certificate of Public Convenience and Necessity (CPCN) pursuant to General Order 131-D (D.94-06-014, Appendix A, as modified by D.95-08-038). The CPUC requires applicants to provide this information for review in compliance with the mandates of the California Environmental Quality Act (CEQA). This PEA is designed to meet the above-mentioned CPUC requirements.

Following a discussion of the purpose and need for the project (Chapter 1), the alternatives (Chapter 2), and the project description (Chapter 3), this PEA evaluates the potential environmental impacts of the Proposed Project and the alternatives (Chapter 4). Potential impacts are assessed for all environmental factors contained in the most recent CEQA Environmental Checklist Form³ (Appendix A). With the implementation of Applicant Proposed Measures the PEA concluded that the Proposed Project would have a significant effect to air quality.

The Final Environmental Impact Report (FEIR), dated April 2017, concluded there were Significant impacts to Aesthetics, Air Quality, and Noise and Vibration.⁴ The FEIR also concluded there were Less than Significant impacts to Agriculture and Forestry Resources; Biological Resources; Cultural Resources; Geology, Soils, and Minerals; Greenhouse Gases; Hazards and Hazardous Materials; Hydrology and Water Quality; Land Use and Planning; Population and Housing; Public Services and Utilities; Recreation; and Transportation. The FEIR supersedes the SCE PEA and based on the FEIR findings, SCE will comply with the APMs and Mitigation Measures included in the FEIR. Table E.1, Comparison of PEA and FEIR Impacts summarizes the differences between the impact assessments in the PEA and FEIR.

A comparison of alternatives is described in Chapter 5. No cumulative impacts or growth-inducing impacts (Chapter 6) were identified for the proposed project.

The names and titles of persons assisting in the preparation of this document are listed in Appendix B.

³ In order to stay consistent with the existing Alberhill System Project PEA, SCE's environmental analysis was based on the 2009 version of the CEQA Environmental Checklist Form.

⁴ The FEIR also determined there would be significant cumulative impacts to Aesthetics, Air Quality, and Biological Resources. It also determined there would be a potential for significant cumulative impacts to Cultural Resources if multiple projects were to impact the same known resource.

Table E.1 Comparison of PEA and FEIR Impacts

Section	Proposed Project (PEA)	Proposed Project (FEIR)
Aesthetics	Less than significant	Significant
Agricultural Resources	Less than significant	Less than significant
Air Quality	Significant	Significant
Biological Resources	Less than significant	Less than significant with mitigation
Cultural Resources	Less than significant	Less than significant with mitigation
Geology and Soils	Less than significant	Less than significant
Hazards and Hazardous Materials	Less than significant	Less than significant with mitigation
Hydrology and Water Quality	Less than significant	Less than significant with mitigation
Land Use and Planning	No Impact	Less than significant with mitigation
Mineral Resources	Less than significant	Less than significant
Noise	Less than significant	Significant
Population and Housing	No Impact	Less than significant
Public Services	Less than significant	Less than significant with mitigation
Recreation	No Impact	Less than significant
Transportation and Traffic	Less than significant	Less than significant with mitigation
Utilities and Service Systems	Less than significant	Less than significant

1.0 PURPOSE AND NEED

Southern California Edison's (SCE's) Valley South System currently serves over 187,000 metered customers, representing approximately 560,000 individuals, nearly 6,000 of which are critical care customers. As discussed further below, 2018 adjusted peak demand, which includes weather adjustments to reflect a 1-in-5 year heat storm, is currently at 99.9 percent of the Valley South System's ultimate system design capacity (1,120 megavolt amperes [MVA]). Forecasted load growth shows that peak demand is expected to exceed the rated transformer capacity of the system by the year 2022.

The Valley South System has a unique combination of characteristics as compared to SCE's other subtransmission systems that result in reliability and resiliency challenges and contribute to the likelihood of occurrence and/or impact of events that lead to loss of service to customers.¹ The reliability issues in the Valley South System are associated with a combination of characteristics related to its limited capacity margin, configuration, and size. In its current configuration, The Valley South System is the only SCE subtransmission system that does not have any system tie-lines to other systems. This results in an isolated system with negative impacts to reliability and resiliency due to the inability to transfer load during typically planned-for system contingency events and unplanned outages, including high-impact, low-probability events. The lack of capacity and absence of system tie-lines requires a solution to maintain the integrity of the electric system, and to prevent and mitigate customer service outages.

SCE proposes to construct the Alberhill System Project (Proposed Project or ASP) to serve current and projected demand for electricity, and maintain electric system reliability in portions of southwestern Riverside County including the cities of Lake Elsinore, Canyon Lake, Perris, Menifee, Murrieta, Murrieta Hot Springs, Temecula, and Wildomar, as well as the surrounding unincorporated portions of Riverside County (Electrical Needs Area).

In addition to serving the forecasted demand for the Electrical Needs Area, the Proposed Project would relieve the Valley South 115 kilovolt (kV) System by transferring electrical demand from this system to the new Alberhill System. The Proposed Project would also improve electrical reliability and operational flexibility in southwestern Riverside County.

The Proposed Project would include the following major components:

- Construction of a new 1,120 MVA 500/115 kV substation to increase electrical service capacity to the area presently served by the Valley South 115 kV System
- Construction of two new 500 kV transmission line segments to connect the new substation to SCE's existing Serrano-Valley 500 kV transmission line
- Construction of a new 115 kV subtransmission line (approximately three miles in length) and modifications to four existing 115 kV subtransmission lines to transfer five existing 115/12 kV substations (Ivyglen, Fogarty, Elsinore, Skylark, and Newcomb Substations)

¹ See Item B - "Identification of all subtransmission planning areas in the SCE system with similar reliability issues" as attached to SCE's Compliance filing dated May 8, 2020

1.0 PURPOSE AND NEED

presently served by the Valley South 115 kV System to the new Alberhill 500/115 kV Substation

- Installation of telecommunications improvements to connect the new facilities to SCE's telecommunications network

1.1 PROJECT PURPOSE

Under the rules, guidelines and regulations of the Federal Energy Regulatory Commission (FERC), North American Electric Reliability Council (NERC), Western Electricity Coordinating Council, and California Public Utilities Commission (CPUC), electrical transmission, subtransmission, and distribution systems must have sufficient capacity to maintain safe, reliable, and adequate service to customers. The safety and reliability of the systems must be maintained under normal conditions when all facilities are in service, as well as under abnormal conditions during equipment or line failures, maintenance outages, or outages that cannot be predicted or controlled, which are caused by weather, earthquakes, traffic accidents or any other unforeseeable events.





1.2 PROJECT NEED

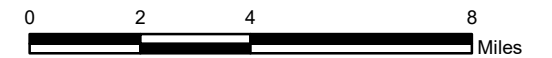
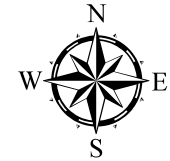
SCE's Valley Substation, located in Romoland, California, is the sole source serving customer electrical demand in the San Jacinto Region of southwestern Riverside County, an area encompassing roughly 1,260 square miles and serving approximately 350,000 metered customers. Valley Substation transforms voltage from 500 kV to 115 kV with four 560 MVA transformers. In 2004, the Valley 115 kV System was split into two separate and distinct 115 kV systems, the Valley North 115 kV System and the Valley South 115 kV System. Each of these systems is served by two 560 MVA transformers. These two 115 kV systems are served from the same 500 kV sources, however, they are not connected at the 115 kV level. The Valley North 115 kV System consists of 11 distribution substations and the Valley South 115 kV System is served by 14 distribution substations.

Operating limits (the amount of electrical load that can be served by equipment) have been established to ensure that SCE maintains the required capacity and system operational flexibility to safely and reliably meet the projected peak electrical demands during periods of extreme heat, under both normal and abnormal conditions. The amount of electrical load that can be served by the Valley South 115 kV System is limited to the maximum amount of electrical power that the two Valley South 115 kV System transformers can serve before exceeding operating limits.

The Electrical Needs Area for the Proposed Project is bounded by the Cleveland National Forest on the west, San Diego Gas & Electric Company's service territory to the south, the San Bernardino National Forest to the east. The northern boundary of the Electrical Needs Area is generally formed by an approximate line beginning at Lake Mathews and extending eastward through Hemet along State Route 74 to the San Bernardino National Forest. This portion of southwestern Riverside County includes the cities of Lake Elsinore, Canyon Lake, Perris, Menifee, Murrieta, Murrieta Hot Springs, Temecula, and Wildomar, and is shown on Figure 1.1, Electrical Needs Area.

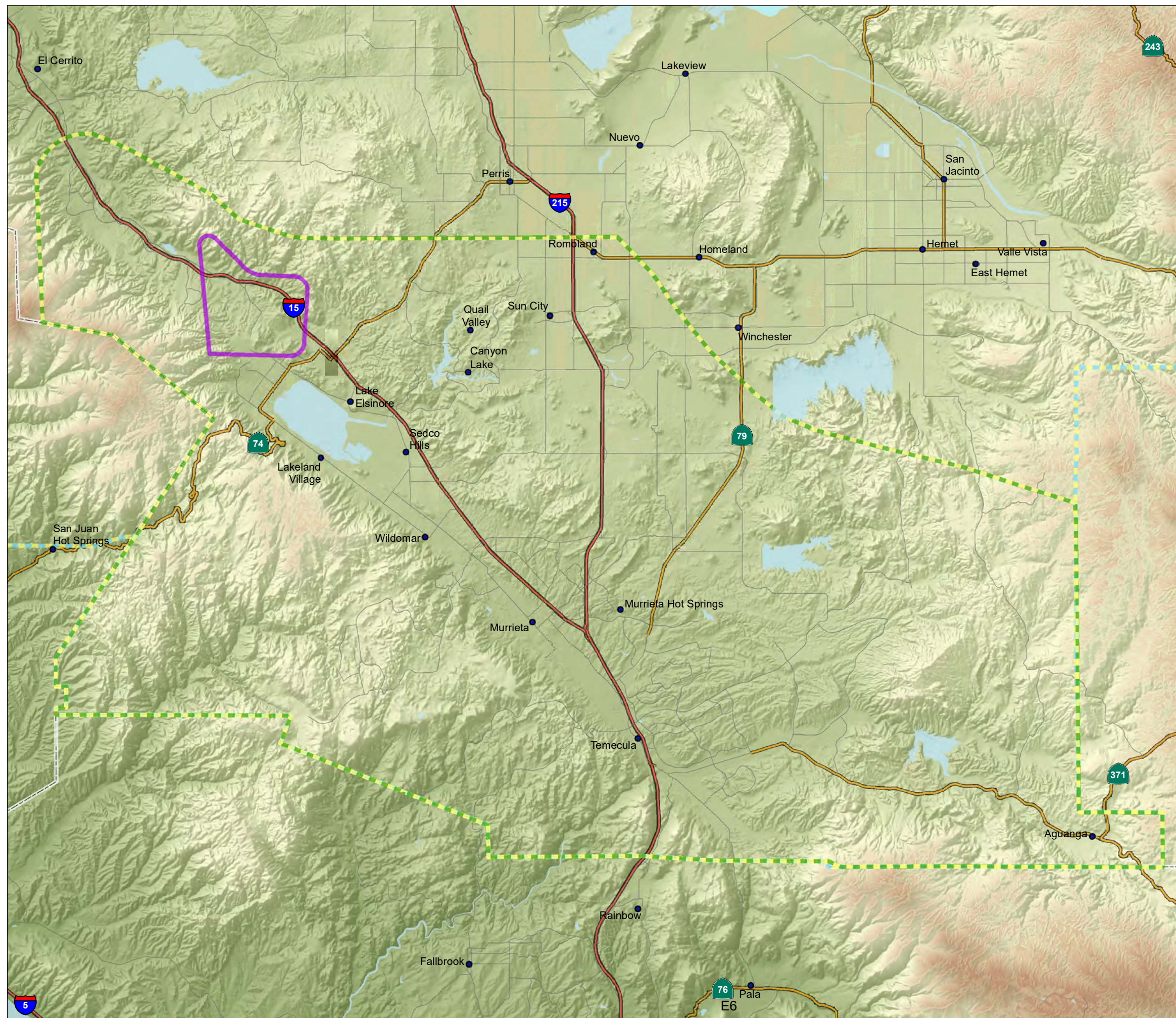
**Figure 1.1
Electrical Needs Area**

- Electrical Needs Area**
-  Electric Needs Area
 -  Substation Target Area
 -  SCE Service Territory Boundary (SCE, 2006)
 -  County Boundaries (TBM, 2008)



Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted at this scale. Always consult with the proper legal documents or agencies regarding such features.
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1.2.1 Substation Capacity and Electrical Demand

For substations connected directly to a 500 kV transmission system, a 10-year forecast is developed annually that identifies the projected peak electrical demands under normal conditions as well as the projected peak electrical demands for 1-in-5 year heat storms (time periods during which the effective temperature exceeds the 10-year average peak effective temperature by four degrees Fahrenheit).

Peak electrical demand forecasts are typically based on residential, commercial and industrial developments that are planned or under construction, as well as historical growth trends of the area. The Electrical Needs Area has continued to experience growth in electrical demand and has demonstrated an average annualized growth rate of approximately 2.1 percent from 2009 to 2018; approximately 1 percent in recent years.

Historical adjusted values are developed by adjusting actual recorded values to account for temperature and other factors to produce representative load values used for planning purposes. SCE first normalizes the historical data to a common temperature base. In order to determine the forecast for system-level studies, SCE also adjusts the historical data using a temperature representative of a 1-in-5 year heat storm. This is consistent with the CAISO practice of using 1-in-5 year weather adjusted load for subtransmission system studies.² The historical adjusted peak electrical demand for the years 2009 to 2018 and the forecasted peak electrical demand for the years 2019 to 2028 are shown in Table 1.1, Valley South 115 kV System Capacity and Peak Demand, and on Figure 1.2, Valley South 115 kV System Capacity and Peak Demand. As shown in Table 1.1, Valley South 115 kV System Capacity and Peak Demand, and on Figure 1.2, Valley South 115 kV System Capacity and Peak Demand, SCE forecasts that the 1-in-5 year heat storm projected peak electrical demand will increase to 1,125 MVA by 2022, exceeding the available transformer capacity of the Valley South 115 kV System. SCE's forecasted peak electrical demand indicates that there is a need to reduce loading on the transformers that provide service to the Valley South 115 kV System.

Though SCE triggers a new capacity project (such as the ASP) when peak demand is projected to exceed the total normal-condition rating of the transformers (in this case 1,120 MVA), SCE notes that when loading levels exceed the short-term emergency loading limit (896 MVA) of a single 560 MVA transformer should there be an unplanned outage of the second transformer, there is load at risk of losing electrical service and the potential of equipment damage if loading is permitted to exceed 896 MVA. Generally, this can be addressed with an automatic load-shedding scheme and then with load restoration through the use of system tie-lines. However, in the case of the Valley South System, this is not possible as it does not have any system tie-lines.

As a result of SCE installing a fifth 500/115 kV transformer at Valley Substation to comply with SCE's Transmission Planning Criteria and Guidelines as well as having applied for a Certificate of Public Convenience and Necessity (CPCN) to construct a proper long-term solution (ASP) and could not implement a load-shedding scheme, SCE elected to develop a mitigation plan. This mitigation plan was expected to address the few years during which it was projected that a

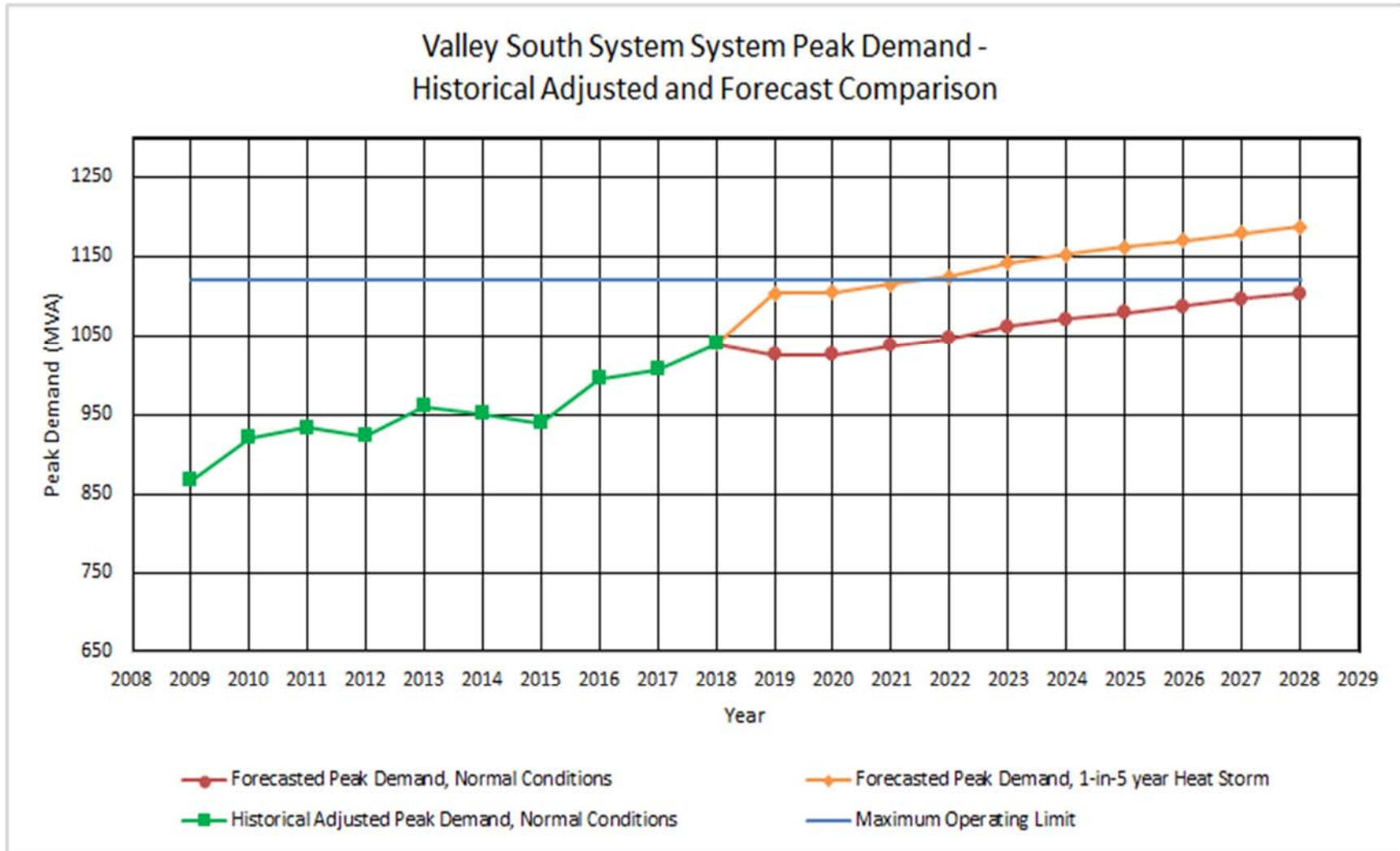
² See Item A - "Load Forecast" as attached to SCE's Compliance filing dated May 8, 2020

Table 1.1 Valley South 115 kV System Capacity and Peak Demand

Historical Adjusted	2009	2010	2011	2012	2013
Maximum Operating Limit (MVA)	1,119	1,119	1,119	1,119	1,119
Adjusted Peak Demand, Normal Conditions (MVA)	867	921	934	923	960
Historical Adjusted	2014	2015	2016	2017	2018
Maximum Operating Limit (MVA)	1,119	1,119	1,119	1,119	1,119
Adjusted Peak Demand, Normal Conditions (MVA)	951	940	995	1,006	1,039
Forecasted	2019	2020	2021	2022	2023
Planned Maximum Operating Limit (MVA)	1,119	1,119	1,119	1,119	1,119
Forecasted Peak Demand Normal Conditions (MVA)	1,025	1,026	1,037	1,046	1,061
Forecasted Peak Demand 1-in-5 Year Heat Storm (MVA)	1,103	1,104	1,116	1,125	1,142
Forecasted	2024	2025	2026	2027	2028
Planned Maximum Operating Limit (MVA)	1,119	1,119	1,119	1,119	1,119
Forecasted Peak Demand Normal Conditions (MVA)	1,071	1,079	1,087	1,096	1,104
Forecasted Peak Demand 1-in-5 Year Heat Storm (MVA)	1,153	1,161	1,170	1,179	1,187

Note: 2019 data is expected to be available by June 2020

Figure 1.2 Valley South 115 kV System Capacity and Peak Demand



relatively small number of instances (with short durations) would occur where load would be less than the 1,120 MVA but greater than 896 MVA. If electrical demand was projected to exceed the short-term emergency rating of a single transformer (896 MVA) of the Valley South 115 kV System, the spare transformer would be temporarily put into service as a contingency measure to ensure overloads would not occur. This short-term mitigation plan was and still is not intended to be a long-term solution.³

1.2.2 Operational Flexibility

As a result of geographic boundaries and SCE service territory boundaries, the Valley South 115 kV System has no system tie-lines to any other system at the 115 kV level. As such, SCE's ability to transfer load between systems is nonexistent. The inability to transfer load from the Valley South 115 kV System to another system limits the operational flexibility of the system which increases the potential for electrical service interruptions to prevent potential transformer or subtransmission line overloads. Having no system tie-lines also limits the ability to operate the system during construction of new facilities and routine maintenance activities.

1.3 BASIC OBJECTIVES

The California Environmental Quality Act (CEQA) and CEQA Guidelines (Section 15126.6(a)) require consideration of a reasonable range of alternatives to a proposed project, or the location of the project, which would feasibly attain most of the basic objectives of the project, but would avoid or substantially lessen any of the significant effects of the project. SCE has identified the following basic objectives⁴ to meet the Proposed Project's purpose and need as described in this chapter:

- Serve current and long-term projected electrical demand requirements in the Electrical Needs Area
- Increase system operational flexibility and maintain system reliability by creating system ties that establish the ability to transfer substations from the current Valley South 115 kV System
- Transfer a sufficient amount of electrical demand from the Valley South 115 kV System to maintain a positive reserve capacity on the Valley South 115 kV System through the 10-year planning horizon
- Provide safe and reliable electrical service consistent with SCE's Transmission Planning Criteria and Guidelines

³ See Item H "Identify capital investments or operational changes effectuated to address reliability issues in the absence of construction of Alberhill Substation and associated costs for such actions" as attached to SCE's Compliance filing dated May 8, 2020.

⁴ In this Second Amendment to PEA, SCE retained the Project Objectives from the original PEA (dated September 30, 2009) instead of the modified Project Objectives in the Final Environmental Impact Report (FEIR). This is because the FEIR Objectives would have constrained alternatives to those that include a 500 kV substation and such a constraint would be counter to the purpose of the supplemental analysis that SCE was directed to perform in Decision (D.) 18-08-026 for the ASP proceeding.

1.0 PURPOSE AND NEED

- Increase electrical system reliability by constructing a project in a location suitable to serve the Electrical Needs Area
- Meet project need while minimizing environmental impacts
- Meet project need in a cost-effective manner

SCE considered these basic objectives in developing a reasonable range of alternatives.

1.4 ELECTRICAL SYSTEM EVALUATION

SCE utilizes a multi-step planning process to ensure that necessary system facilities are developed in time to meet projected electrical demand. This planning process begins with the development of a peak electrical demand forecast for each substation. Peak electrical demand forecasts are developed using historical data and trends in population data, urbanization data, and meteorological data.

1.4.1 Electrical System Evaluation Methodology

Electrical systems have defined operating limits. Technical engineering studies are conducted to determine whether the forecasted peak electrical demand can be accommodated on the existing transmission, subtransmission, and distribution systems. When projections indicate that these limits will be exceeded within a specific planning horizon (typically 10 years), a project is proposed to keep the electrical system within specified operating limits.

During this process, SCE evaluates existing facilities within the Electrical Needs Area. SCE first evaluates whether the existing electrical infrastructure could be modified to meet the project need. If not, SCE evaluates what new infrastructure would be required and where it would be located in order to meet the project need. Evaluating SCE's system ability to address identified needs consists of the four-step process described below.

Step 1. Technical engineering analyses are performed to determine whether the forecasted peak electrical demand could be accommodated by modifying the existing electrical infrastructure.

Step 2. If the forecasted electrical demand cannot be accommodated by modifying the existing electrical infrastructure, then a series of system scenarios are developed.

Step 3. Each system scenario is evaluated in accordance with the following criteria:

- The extent to which the system scenario would substantially meet the project need; and
- The feasibility of the system scenario, including system capacity limits, ability to upgrade the system on existing utility sites, and economic considerations

Step 4. If a system scenario is determined not to be feasible, it is eliminated from further consideration.

1.4.2 Evaluation of System Scenarios

The original PEA dated September 30, 2009, evaluated a total of four system scenarios: the ASP (System Scenario 1); installation of an additional transformer serving the Valley South System (System Scenario 2); transfer of electrical demand from the Valley South System to the Valley North System (System Scenario 3); and a no project alternative (System Scenario 4).

In Decision (D.) 18-08-026 for the ASP proceeding, the California Public Utilities Commission (CPUC) took no action on the ASP and directed SCE to supplement the existing record with additional analyses. These additional analyses include a Planning Study⁵ that supports the project need, describes the applicable planning criteria and reliability standards, and provides a cost/benefit analysis of additional alternatives for enhancing reliability and providing additional capacity. This Second Amendment to PEA retains all of the original system scenarios, and now includes additional system scenarios developed in the Planning Study and associated Cost/Benefit analysis.⁶ For System Scenario 3, the transfer of electrical demand from Valley South to Valley North, the PEA discussion has been modified from that in the original PEA to reflect the additional analysis that was performed in the Planning Study.

Section 1.4.2.3 through Section 1.4.2.9 below describe these new system alternatives and provide a summary conclusion on each new alternative's viability of meeting the ASP Project Objectives and each alternative's performance, cost effectiveness, and implementation risk as determined in the Planning Study.

1.4.2.1 System Scenario 1: Alberhill System Project

This section evaluates System Scenario 1, the construction of the new Alberhill 500/115 kV Substation with an initial capacity of 1,120 MVA and the formation of the Alberhill System. The substation would be located within the Electrical Needs Area, west of the existing Valley Substation and in proximity to an existing 500 kV line right-of-way (ROW). Construction of two 500 kV transmission line segments, approximately one mile in length each, would be required to loop the existing Serrano-Valley 500 kV transmission line into the new substation. Major project components are listed below.

- Construction of the new 1,120 MVA Alberhill 500/115 kV Substation
- Construction of two new 500 kV transmission line segments to connect the Alberhill Substation to SCE's existing Serrano-Valley 500 kV transmission line
- Construction of a new 115 kV subtransmission line and modifications to existing 115 kV subtransmission lines to facilitate the transfer of five existing 115/12 kV substations which are presently served by the Valley South 115 kV System to the new Alberhill 115 kV System
- Installation of necessary of telecommunication improvements

⁵ See Item C - "Planning Study" as attached to SCE's Compliance filing dated May 8, 2020

⁶ See Item G - "Cost-Benefit" Analysis as attached to SCE's Compliance filing dated May 8, 2020

System Scenario 1 would provide the following electrical benefits:

- Addition of 1,120 MVA of transformer capacity to the Electrical Needs Area resulting from the construction of the Alberhill 500/115 kV Substation
- Reduction in transformer loading with the transfer of approximately 380 MVA from the Valley South 115 kV System to the Alberhill 115 kV System through the initial transfer of five existing 115/12 kV substations
- Increased system operational flexibility due to the formation of the Alberhill System and the creation of 115 kV system ties between the Valley South 115 kV System and the Alberhill 115 kV System
- Potential for the future transfer of additional 115 kV substations to the Alberhill 115 kV System when the equipment within the Valley South 115 kV System approaches operating limits

1.4.2.2 System Scenario 2: Install an Additional Transformer at Valley South 115 kV System

This section evaluates the feasibility of installing an additional 560 MVA 500/115 kV transformer to increase the load serving capacity of the Valley South 115 kV System. The addition of a new transformer at Valley Substation would increase the total number of 500/115 kV transformers from five to six. If an additional transformer were installed, SCE would operate five load-serving transformers, two serving the Valley North System and three serving the Valley South System. The sixth transformer would serve as a system spare transformer as required to comply with SCE's Transmission Planning Criteria and Guidelines. This alternative is not technically feasible because there is insufficient space at Valley Substation to accommodate six 500/115 kV transformers (five load-serving plus one spare) and the property of Valley Substation cannot be expanded due to roads, railroads, and development surrounding the substation. Additionally, this scenario raises concerns regarding potentially violating electrical design criteria (short-circuit duty) associated with three transformers operating in parallel. Finally, it does not satisfy the Project Objectives because it does not create system tie-lines for the Valley South System.

1.4.2.3 System Scenario 3: Transfer Electrical Demand from the Valley South 115 kV System to the Valley North 115 kV System

The Valley South to Valley North Alternative proposes to transfer load away from SCE's existing Valley South 115 kV System to SCE's existing Valley North 115 kV System via construction of new 115 kV subtransmission lines. This alternative would include 115 kV line scope to transfer SCE's Sun City and Newcomb 115/12 kV distribution substations to the Valley North System. Subtransmission line modifications in the Valley South System would also create two system-ties between the Valley South and Valley North Systems. The system tie-lines would allow for the transfer of load from the Valley North System back to the Valley South System (either, or both, Sun City and Newcomb Substations). This alternative creates system tie-lines; however, the Planning Study analysis showed that the tie-lines do not benefit Valley South because no additional load could be transferred from the Valley South System to the Valley

North System (in the event of an unplanned outage to 115 kV lines or to one Valley South System transformer). This is because the next substation in line to be transferred is too heavily loaded and its transfer would adversely impact the ability to serve the customers further downstream because of the change in the system configuration. The tie-lines would benefit the Valley North System as load could be transferred back to the Valley South System should there be an outage of a Valley North System transformer, but the Valley North System already has sufficient tie-line capacity and is not the intended beneficiary of the project. This alternative would afford a modest improvement over existing conditions in events which would impact resiliency (specifically a high impact, low probability event affecting both Valley South System transformers).

The Planning Study and supporting analyses conclude that, while this alternative satisfies the system capacity needs of the Valley South System through 2043, it provides very limited reliability and resiliency benefits because the system tie-lines that would be established when load is transferred from the Valley South System to the Valley North System provide very limited ability to transfer additional load to the Valley North System in the event of abnormal operating conditions in the Valley South System.⁷

The Planning Study and Cost/Benefit Analysis also considered the addition of Distributed Energy Resources (DER), represented for modelling purposes as distributed Battery Energy Storage Systems (BESS), to meet the capacity needs for a longer time period (through 2048). However, the addition of BESS does not substantially improve the effectiveness of System Alternative 3 in meeting the project reliability objective.

1.4.2.4 System Scenario 4: Transfer Electrical Demand from the Valley South 115 kV System to the Valley North 115 kV System, and from the Valley North 115 kV System to the Vista 115 kV System

The Valley South to Valley North to Vista Alternative proposes to transfer load away from SCE's existing Valley South 115 kV System to the Valley North 115 kV System, and away from the Valley North 115 kV System to the Vista 115 kV System via construction of new 115 kV subtransmission lines. This alternative would include 115 kV line scope to transfer SCE's Sun City and Newcomb 115/12 kV distribution substations from the Valley South System to the Valley North System, and the Moreno 115/12 kV distribution substation from the Valley North System to the Vista System. Subtransmission line construction and modifications in the Valley South System would create two system tie-lines between the Valley South System and the Valley North System. The system tie-lines would allow for the transfer of load from the Valley North System back to the Valley South System (either, or both Sun City and Newcomb Substations). Subtransmission line construction and modifications in the Valley North System would maintain system tie-lines between the Valley North and Vista Systems. These system tie-lines would allow for the transfer of load from the Vista System back to the Valley North System (Moreno

⁷ See Sections 6.4 and 8.1.2 in the Planning Study for additional discussion and data related to short-term, long-term and monetized benefits for each alternative.

Substation) as well as the potential of transferring additional load from the Valley North System to the Vista System (Mayberry Substation) as needed.

The Planning Study⁸ and supporting analyses conclude that, while this alternative satisfies the system capacity needs of the Valley South System through 2043, it provides very limited reliability and resiliency benefits because the system tie lines that would be established when load is transferred from the Valley South System to the Valley North System provide limited ability to transfer additional load to the Valley North System in the event of an abnormal operating condition in the Valley South System. Additionally, the associated scope to implement the additional transfers from the Valley North System to the Vista System does not substantially improve the effectiveness of System Alternative 4 in meeting the Project Objectives and is not cost effective.

1.4.2.5 System Scenario 5: Transfer Electrical Demand from the Valley South 115 kV System to a newly constructed 115 kV system adjacent to San Diego Gas & Electric

The San Diego Gas and Electric (SDG&E) Alternative proposes to transfer load away from SCE's existing Valley South 115 kV System to a new 230/115 kV system created at the southern boundary of the SCE service territory and adjacent to SDG&E's service territory. The new system would be providing power from the existing SDG&E 230 kV system via construction of a new 230/115 kV substation and looping in the existing SDG&E Escondido-Talega 230 kV transmission line. This alternative would include 115 kV subtransmission line scope to transfer SCE's Pauba and Pechanga 115/12 kV distribution substations to the newly formed 230/115 kV system. Subtransmission line construction and modifications in the Valley South System would also create two 115 kV system-tie lines between the Valley South System and the newly formed 230/115 kV SDG&E-sourced system. The system-tie lines would allow for the transfer of load from the new system back to the Valley South System (either, or both, of Pauba and Pechanga Substations) as well as additional load transfer from the Valley South System to the new system (Triton Substation and under certain high-impact, low probability events some of the load at Moraga Substation) as needed.

The Planning Study concluded that this alternative meets the Project Objectives of the ASP. It satisfies the system capacity needs through 2040 and creates system tie-lines allowing some transfer of load out of the Valley South System to the newly created SDG&E 220/115 kV system, thus providing reliability/resiliency benefits. However, this system alternative performs worse in capacity system benefits (the ASP meets capacity needs through at least 2048), and is substantially worse in reliability/resiliency system benefits.⁹ Additionally, the project would have additional challenges to implement due to required coordination with SDG&E, significant

⁸ See Sections 6.4 and 8.1.2 in the Planning Study for additional discussion and data related to short-term, long-term and monetized benefits for each alternative.

⁹ See Sections 6.4 and 8.1.2 in the Planning Study for additional discussion and data related to short-term, long-term and monetized benefits for each alternative.

construction of 220 kV transmission line facilities¹⁰ through rugged terrain and conservation land, as well as a need to acquire land rights from the Pechanga Tribe.

To extend the capacity benefits of the system alternative to 2048 and provide a capacity solution approximately equivalent to the ASP, augmenting the SDG&E System Alternative was considered to further reduce load in the Valley South System. Specifically, a new 115 kV connected substation with incremental battery energy storage system (BESS) additions would be constructed near the existing Auld or Pechanga Substation with a loop-in of a 115 kV line to interconnect it to the grid. This would add substantial additional costs and does not result in substantially improved capacity and/or reliability/resilience benefits on an absolute basis or compared to the ASP. The BESS additions would occur outside of SCE's typical project planning horizon. Thus, while the need to augment capacity through future scope and associated investment is an important consideration in the cost/benefit evaluation in the Planning Study, these prospective BESS additions are not considered in this PEA.

1.4.2.6 System Scenario 6: Transfer Electrical Demand from the Valley South 115 kV System to a new 220/115 kV Orange County System

The SCE Orange County Alternative proposes to transfer load away from SCE's existing Valley South 115 kV System to a new 115 kV system via construction of a new 220/115 kV substation and looping in the existing SONGS-Viejo 220 kV line. This alternative would include 115 kV subtransmission line scope to transfer SCE's existing Stadler and Tenaja 115/12 kV distribution substations from the Valley South System to the newly formed 220/115 kV system. The existing 115 kV subtransmission lines serving Stadler and Tenaja Substations would become two system-ties between the new 220/115 kV system and the Valley South System. The system-tie lines would allow for the transfer of load from the new system back to the Valley South System (either or both Stadler and Tenaja Substations) as well as additional load transfer from the Valley South System to the new system (Skylark Substation and under certain high-impact, low probability events, Moraga Substation) as needed.

The Planning Study concluded that this alternative meets the Project Objectives of the ASP but performs substantially worse than the ASP from the perspective of reliability/resiliency benefits¹¹ and is more expensive.¹² Further it will be challenging to implement due to the required construction of extensive transmission line facilities through rugged, mountainous terrain, as well as Department of Defense (DoD), United States Forest Service, and conservation land.¹³

¹⁰ SDG&E's transmission system in the vicinity of this system alternative operates at 230 kV. In this area, SCE operates its transmission system at 220 kV. To avoid confusion, all transmission lines associated with this system alternative have been categorized as 220 kV.

¹¹ See Sections 6.4 and 8.1.2 in the Planning Study for additional discussion and data related to short-term, long-term and monetized benefits for each alternative.

¹² Cost estimates for each alternative are compared in Section 8.1.1 and are detailed in Appendix C of the Planning Study.

¹³ Siting and routing of each alternative is described in Appendix C of the Planning Study.

1.4.2.7 System Scenario 7: Transfer Electrical Demand from the Valley South 115 kV System to a new 500/115 kV Menifee System

The Menifee Alternative proposes to transfer load away from SCE's existing Valley South 115 kV System to a new 500/115 kV system via construction of a new 500/115 kV substation and looping in the Serrano-Valley 500 kV transmission line. This alternative includes 115 kV subtransmission line scope to transfer SCE's Sun City and Newcomb 115/12 kV distribution substations to the newly formed 500/115 kV system. Subtransmission line construction and modifications in the Valley South System would also create two system-ties between the Valley South System and the newly formed 500/115 kV Menifee System. The system-tie lines would allow for the transfer of load from the new system back to the Valley South System (either or both Sun City and Newcomb Substations) as well as some additional load transfer (under certain extreme conditions) from the Valley South System to the new system.

The Planning Study and supporting analyses conclude that, while satisfying the system capacity needs through 2043, this alternative provides very limited reliability/resiliency benefits.¹⁴ The system tie lines that would be established when load is transferred from the Valley South System to the new Menifee System provide limited ability to transfer additional load in the event of abnormal operating conditions in the Valley South System. In addition, due to the close proximity of the new 500/115 kV Menifee Substation to the Valley Substation, there is no appreciable reliability/resiliency benefit that would otherwise be gained by a solution where the source substation was located in a geographically diverse location; therefore, limiting the impact of certain catastrophic events on both substations should they be located very near to each other.

1.4.2.8 System Scenario 8: Transfer Electrical Demand from the Valley South 115 kV System to a new 115 kV Mira Loma System

The Mira Loma Alternative proposes to transfer load away from SCE's existing Valley South 115 kV System to a new 115 kV system located in the City of Ontario just west of SCE's existing Mira Loma Substation via construction of a new 220/115 kV substation and looping in SCE's existing Mira Loma-Chino 220 kV transmission line. This alternative would also include 115 kV subtransmission line scope to facilitate the transfer of SCE's Ivyglen and Fogarty 115/12 kV distribution substations from the Valley South System to the new 220/115 kV system. The existing 115 kV subtransmission lines serving Ivyglen and Fogarty Substations would become two system-ties between the newly formed 220/115 kV Mira Loma System and the Valley South System.

The Planning Study concluded that this alternative meets the Project Objectives of the ASP, but provides limited benefits over both short-term and longer-term study horizons because it would only meet capacity needs through 2031 and would have only marginally effective system tie-lines due to the resulting system topology.¹⁵ This is because while the created system-tie lines would allow for the transfer of all the load from the new 220/115 kV Mira Loma System back to the Valley South System (either or both Fogarty and Ivyglen Substations) should there be an

¹⁴ See Sections 6.4 and 8.1.2 in the Planning Study for additional discussion and data related to short-term, long-term, and monetized benefits for each alternative.

¹⁵ See Sections 6.4 and 8.1.2 in the Planning Study for additional discussion and data related to short-term, long-term, and monetized benefits for each alternative.

unplanned outage in the new system, the ability to transfer additional load from the Valley South System to the new 220/115 kV Mira Loma System (during a similar type event) is limited to only Elsinore Substation and under certain high-impact, low probability events a portion of Skylark Substation. This results in the Mira Loma Alternative underperforming as compared to the ASP with respect to reliability/resiliency benefits during unplanned contingencies and more extreme high-impact, low probability events. Further it would be challenging to implement due to comparatively extensive (more than 20 miles) subtransmission construction through developed communities in Riverside County.¹⁶

To extend the capacity benefits of this system alternative past the year 2031, SCE evaluated additional solutions to incrementally augment the new Mira Loma System through the addition of a centralized BESS in the Valley South System. A new 115 kV connected substation with incremental BESS additions would be constructed near Auld Substation with a loop-in of the existing Auld-Moraga #1 115 kV subtransmission line. This satisfies the capacity needs through 2048 but adds substantial costs and does not substantially improve system reliability/resilience benefits and overall performance. The BESS additions would be outside SCE's typical project planning horizon. Thus, while the need to augment capacity through future scope and associated investment is an important consideration in the cost/benefit evaluation in the Planning Study, these prospective BESS additions are not considered in this PEA.

1.4.2.9 System Scenario 9: Construct a Centralized Battery Energy Storage System in the Valley South 115 kV System

The Centralized Battery Energy Storage System (BESS) alternative proposes to reduce peak demand in the Valley South 115 kV System via construction of two new 115/12 kV substations with BESSs near Pechanga and Auld Substations, which would loop-in to the Pauba-Pechanga and Auld-Moraga #1 115 kV subtransmission lines, respectively.

The Planning Study concludes that although this system alternative can meet capacity needs through 2048 via incremental BESS additions, it does not meet the Project Objective of providing system tie-lines to improve the reliability/resilience of the Valley South System.

1.4.2.10 System Scenario 10: No Project Alternative

Under the No Project Alternative, no action would be taken. The No Project Alternative would involve no construction and no modification of the existing system. There would be no electrical benefit to the No Project Alternative.

1.4.3 System Alternatives Evaluation Results

Construction of the ASP (System Scenario 1) would initially provide 1,120 MVA of additional capacity within the Electrical Needs Area and provide the ability to reliably serve long-term electrical demand from the Valley South 115 kV System through the transfer of five existing 115/12 kV substations from the Valley South 115 kV System to the proposed Alberhill 115 kV System. The transfers of these substations would reduce the loading of the Valley South 115 kV

¹⁶ Siting and routing of each alternative is described in Appendix C of the Planning Study.

1.0 PURPOSE AND NEED

System by approximately 380 MVA, bringing the loading of the Valley South 115 kV System transformers to well within operating limits.

The ASP would increase system reliability and operational flexibility in the Electrical Needs Area by providing 115 kV subtransmission system tie-lines to the Valley South 115 kV System (which currently has none). These system tie-lines would allow SCE to transfer electrical service of substations between the two systems under both normal and abnormal conditions. The formation of Alberhill System in the Electrical Needs Area would also allow for the transfer of additional 115/12 kV substations from the Valley South 115 kV System to the Alberhill System if that becomes necessary in the future with relatively modest additional 115 kV line construction.

System Scenario 10 (the No Project Alternative) is not a viable scenario since it would prevent SCE from providing safe and reliable electrical service to its customers in the Electrical Needs Area. It would lead to frequent and prolonged electrical service interruptions and is therefore eliminated from further consideration.

System Scenarios 2, 3, 4, 7 and 9 are not viable scenarios because they are shown in the Planning Study to be ineffective in satisfying the Project Objective to increase system operational flexibility and maintain system reliability by creating system ties that establish the ability to transfer substations from the current Valley South 115 kV System.

As a result, SCE is proposing construction of System Scenario 1, the ASP, to add transformer capacity to the Electrical Needs Area and to increase operational flexibility within the area presently served by the Valley South 115 kV System. System Scenarios 5, 6 and 8 are considered as additional Project Alternatives in Chapter 4 (Environmental Impact Assessment) because they satisfy the Project Objectives but were demonstrated in the Planning Study to be inferior to Scenario 1 from the overall perspective of benefits, cost effectiveness, and risk.¹⁷

¹⁷ See Section 8 of the Planning Study and Item I - "Detailed Justification of the Recommended Solution" attached to SCE's Compliance filing dated May 8, 2020

2.0 PROJECT ALTERNATIVES

The following sections describe the development of alternatives for the selection of the Alberhill Substation site, 500 kV transmission line segments to serve the Alberhill Substation, the required 115 kV subtransmission line modifications, and alternatives for a new 115 kV subtransmission line. Additionally, descriptions of the three new system alternatives that were identified in Chapter 1, Purpose and Need are provided.

2.1 500/115 KV SUBSTATION SITE ALTERNATIVES

Site selection for the Alberhill Substation began with the development of a Substation Target Area that delineated an area within which the Alberhill Substation would have the maximum electrical benefit for the Electrical Needs Area, and meet both the Purpose and Need for the project and be consistent with the Basic Objectives of the project. The Substation Target Area was developed using the following basic requirements:

- The substation site should be in proximity to the Serrano-Valley 500 kV transmission line to facilitate connection of the new substation to SCE's existing 500 kV transmission system
- The substation site should be in proximity to existing 115 kV subtransmission lines to facilitate the transfer of existing 115/12 kV substations from the Valley South 115 kV System to the new Alberhill System
- The substation site should be in proximity to planned development along the I-15 corridor to facilitate service of additional 115 kV substations, should they become required in the future

Substation sites would require a minimum parcel size of 40 acres. After a review of available land of 40 acres or more, three potential substation sites were identified. These sites are shown on Figure 2.1, Substation Site Alternatives, and are described below. In addition, SCE also evaluated the Nevada Hydro Company's LEAPS Lake Switchyard site, as described in Section 2.1.1, LEAPS Lake Switchyard Site, below.

2.1.1 LEAPS Lake Switchyard Site

Previous applications from the Nevada Hydro Company to the CPUC for a Certificate of Public Convenience and Necessity (CPCN) to construct the Lake Elsinore Advanced Pump Storage (LEAPS) project have included a proposed switchyard on property between the I-15 freeway and Temescal Canyon Road adjacent to Lee Lake. SCE evaluated the LEAPS Lake Switchyard Site, and determined the site would be unsuitable for a 500/115 kV substation. The site is susceptible to liquefaction, and there is evidence of past faulting on and adjacent to the site. The site is less than 40 acres and is in a shape that cannot accommodate the substation equipment. In addition, the 500 kV lines would have to be constructed over Lee Lake, presenting engineering and maintenance issues and potential environmental impacts. As a result, SCE did not pursue this site as a viable substation site alternative.

2.0 PROJECT ALTERNATIVES

2.1.2 Alternative Site A

Alternative Site A is approximately 124 acres, on the north side of the intersection of Temescal Canyon Road and Concordia Ranch Road. It has been previously disturbed and is presently used as a horse farm. Although much of the northern part of the property has steep topography, a sufficient portion of the southern portion of the property is flat. This parcel has been designated light industrial in the Riverside County General Plan. This site is a viable site for the Alberhill Substation.

2.1.3 Alternative Site B

Alternative Site B is located on a west-facing slope of the Gavilan Hills. This site consists of two 80 acre parcels, totaling 160 acres. These parcels are not located adjacent to an existing paved road and would require cutting into the slope midway up the mountain along with extensive grading to accommodate the substation. This grading would be more than required for Alternative Site A. As a result, SCE did not pursue this site as a viable substation site alternative.

2.1.4 Alternative Site C

Alternative Site C consists of 45 acres located adjacent to and east of Alternative Site A. Although the size of the site is above the 40 acres needed for the substation, the site would require that the substation incorporate gas-insulated switchgear on both the high side and low side of the transformer banks in order to conserve space, increasing the cost of constructing and operating the substation. Extensive blasting/fracturing would be required for site preparation. Extensive waste material would be required to be removed from the site. As a result, SCE did not pursue this site as a practical substation site alternative.

2.1.5 Alberhill Substation Site Selection

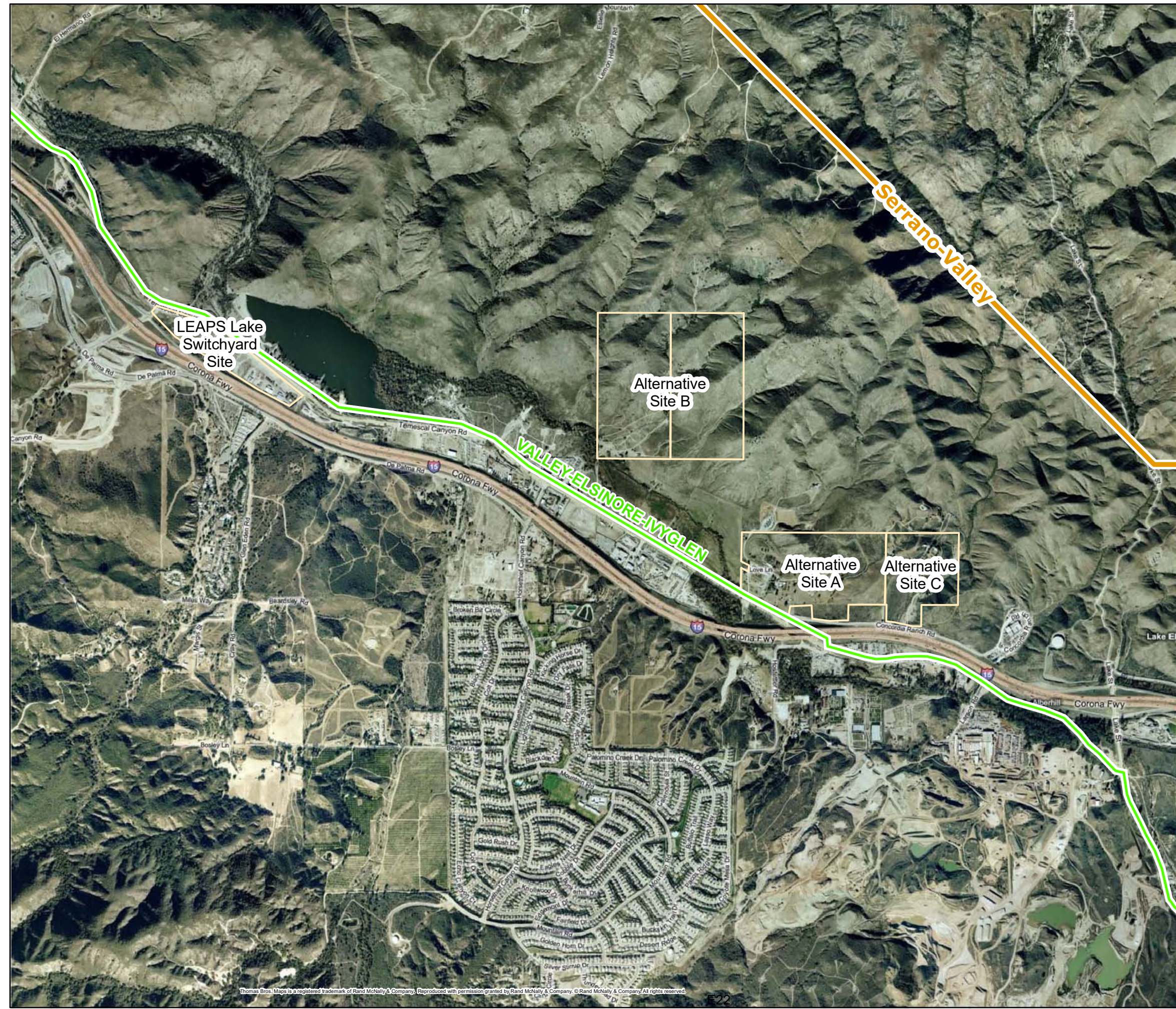
The only viable and practical substation site identified during the siting process was Alternative Site A. As a result, SCE selected this site to construct the Alberhill Substation. The entire substation property would total 124 acres. Due to the mountainous nature of the property, approximately 34 acres would be devoted to the substation and its surrounding improvements such as landscaping and access roads. With the exception of a portion of the site dedicated to the 500 kV transmission lines leading to the substation, the remaining property would not be disturbed.

2.2 ALBERHILL SYSTEM PROJECT 500 KV TRANSMISSION LINES SEGMENTS

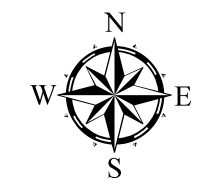
After the site selection for the Alberhill Substation concluded, SCE commenced development of 500 kV transmission line segment options to access the existing Serrano-Valley 500 kV transmission line to source the new substation. During this process, seven alternative routes were developed. These segments are shown on Figure 2.2a, 500 kV Transmission Line Segment Alternatives. Two additional segments were added in March 2011. All of these segments are described below.

All the segments originate at the Alberhill Substation and extend into a mountainous area through Critical Habitat for the California gnatcatcher (federally threatened), as well as conservation land (or land designated for conservation) to the existing Serrano-Valley 500 kV transmission line. These features are also shown on Figure 2.2a, 500 kV Transmission Line

**Figure 2.1
Substation Site Alternatives**



- Substation Site Alternatives
- Subtransmission Lines**
- Existing 115-161 kV (SCE, 2009)
- Major Transmission Lines**
- Existing 500 kV (SCE, 2009)



0 0.14 Miles



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Contact Corporate Security (27910) for handling/storage requirements, if any questions.



Figure 2.2a
500 kV Transmission Line
Segment Alternatives

500kV Transmission Alternatives

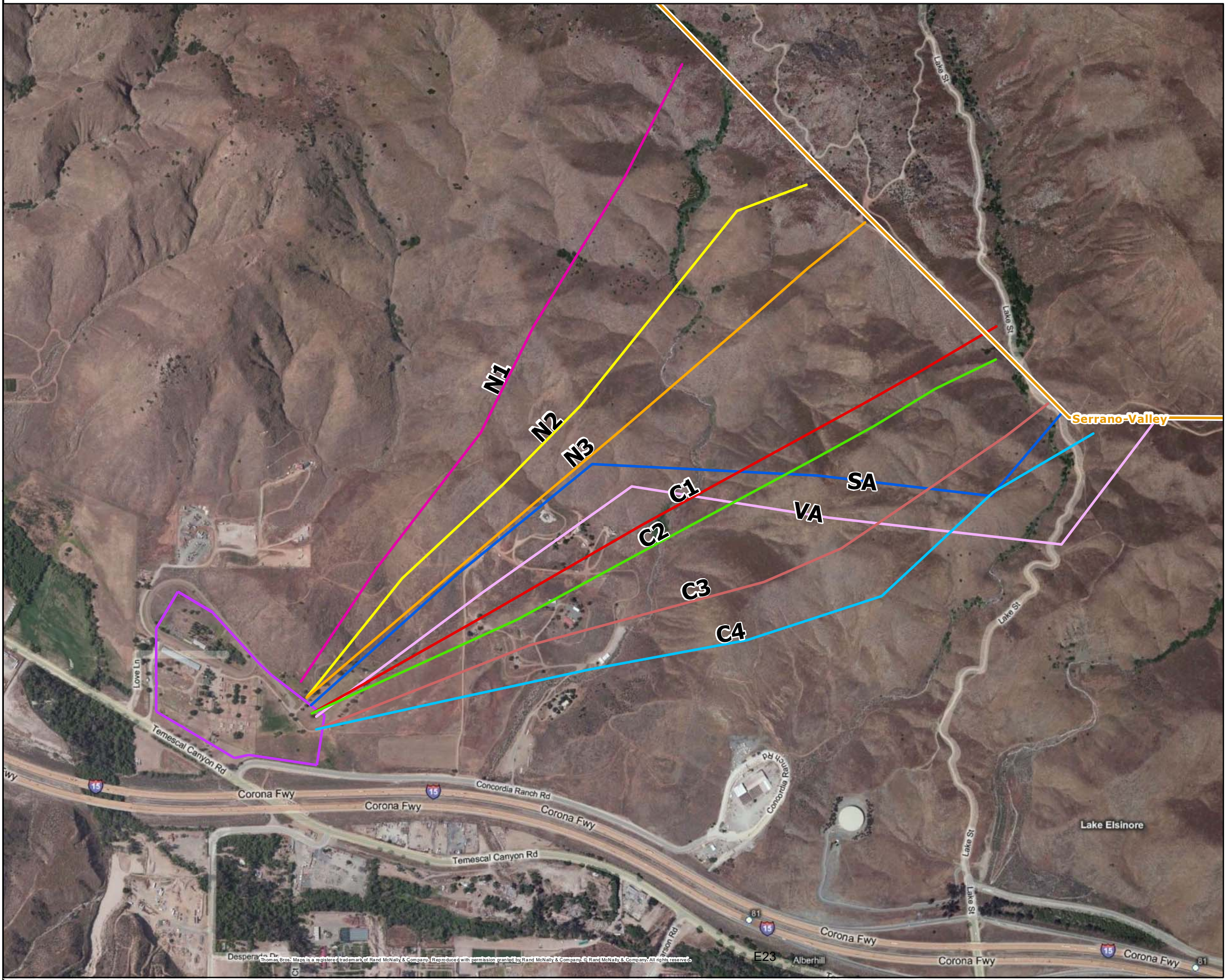
- Segment C1
- Segment C2
- Segment C3
- Segment C4
- Segment N1
- Segment N2
- Segment N3
- Segment SA
- Segment VA
- Existing 500 kV (SCE, 2006)
- Proposed Alberhill Substation



0 0.2 Miles



Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted at this scale. Always consult with the proper legal documents or agencies regarding such features.
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Alternative Segments. There are two types of conservation land in the area that is crossed by one or more of the segments:

- Stephens' Kangaroo Rat (SKR) Habitat Conservation Plan (HCP) Core Reserve: This land has been established as part of the SKR HCP for the conservation, preservation, restoration and enhancement of the SKR and its habitat.
- Designated conservation land for the Western Riverside County Multiple Species Habitat Conservation Plan (WRMSHCP): This land is presently owned by Riverside County and is designated to have ownership transferred to the Regional Conservation Authority for conservation under the WRMSHCP.

Each segments' distinctive features are described below.

- Segment N1: This segment crosses an area with the steepest topographic features, and some tower sites may not be accessible by road and would require helicopter construction. This segment crosses land designated as SKR HCP Core Reserve.
- Segment N2: This segment would have a greater number of dead-end structures, adding to the cost, and some tower sites may not be accessible by road and would require helicopter construction. This segment crosses land designated as SKR HCP Core Reserve.
- Segment N3: One of the straightest segments, minimizing the need for extensive engineering and minimizing use of large-sized towers. This segment crosses land designated as SKR HCP Core Reserve.
- Segment C1: One of the straightest segments, minimizing the need for extensive engineering and minimizing use of large-sized towers. This segment crosses land designated as SKR HCP Core Reserve.
- Segment C2: There is a residence in very close proximity to the segment, and the construction effort would require entry onto land managed by the Bureau of Land Management. This segment crosses land designated as SKR HCP Core Reserve.
- Segment C3: The construction effort would require entry onto land managed by the Bureau of Land Management. This segment crosses land designated as SKR HCP Core Reserve.
- Segment C4: The longest segment of the N and C segments, and would have a comparatively greater number of large-sized towers and access roads. This segment crosses land designated as SKR HCP Core Reserve.
- Segment SA: Approximately one-half mile longer than the N and C segments, this segment would avoid the SKR HCP Core Reserve.

2.0 PROJECT ALTERNATIVES

- Segment VA: Approximately one-half mile longer than the N and C segments, this segment would avoid the SKR HCP Core Reserve and span the designated conservation land for the WRMSHCP.

2.2.1 Alberhill System Project 500 kV Transmission Line Segment Selection

SCE selected Segments N3 and C1 as the 500 kV transmission line segments to connect the Alberhill Substation to the existing Serrano-Valley 500 kV transmission line. These two segments are anticipated to have the fewest construction issues, and would require the fewest number of large-sized towers.

Segment SA and Segment VA are now being proposed as potential 500 kV segments. Both SA and VA would avoid the SKR HCP Core Reserve.

2.3 ALBERHILL SYSTEM PROJECT 115 KV SUBTRANSMISSION LINES

SCE evaluated the ability of the existing subtransmission lines to support the transfer of the Ivyglen, Fogarty, Elsinore, Skylark, and Newcomb Substations to the new Alberhill 115 kV system. As a result of this evaluation, portions of four existing 115 kV subtransmission lines were identified as requiring additions or extensions in order to reliably serve existing substations from the new Alberhill Substation. This change in configuration is shown on Figure 2.3a, Alberhill System Configuration. The existing lines that require additional circuits are described in detail in Chapter 3, Project Description.

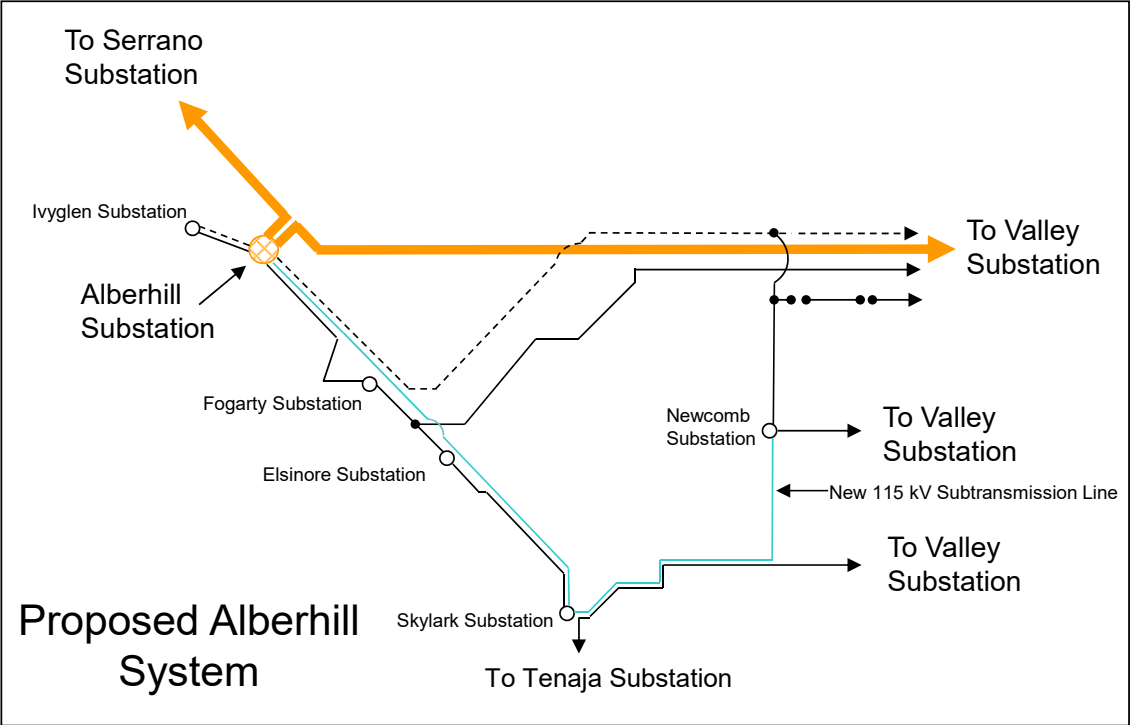
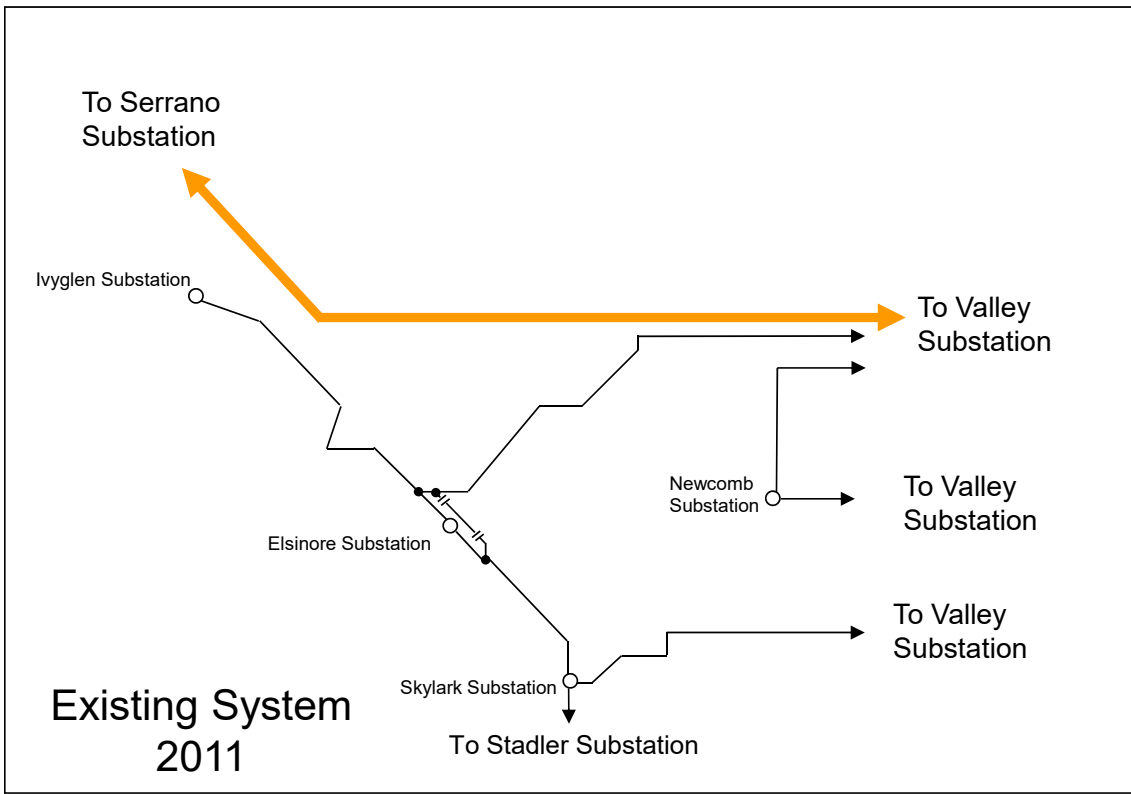
As shown on Figure 2.3a, Alberhill System Configuration, there is no existing connection between Newcomb Substation and Skylark Substation. Both Newcomb Substation and Skylark Substation are presently connected to Valley Substation from two separate subtransmission lines, each originating at Valley Substation. Because both Newcomb Substation and Skylark Substation would be served from the new Alberhill System, a connection is necessary between Newcomb and Skylark Substations to maintain the minimum number of source lines for each substation. Two potential new 115 kV subtransmission routes were identified to accomplish this connection and are described below.

2.3.1 New 115 kV Subtransmission Line Segment Alternatives Considered for Alberhill System Project

2.3.1.1 New 115 kV Subtransmission Line Segment Alternative 1

New 115 kV Subtransmission Line Segment Alternative 1 originates at the intersection of Newport Road and Murrieta Road in the City of Menifee. The route travels south along an existing SCE distribution line route on the west side of Murrieta Road to the intersection of Murrieta Road and Bundy Canyon Road where it would connect to the Valley-Skylark 115 kV subtransmission line ROW. The entire segment alternative would follow SCE's existing distribution lines.

In total, New 115 kV Subtransmission Line Segment Alternative 1 is approximately 3 miles long, and crosses land that is presently undeveloped, rural residential, or is used as an exterior buffer for new housing developments.



LEGEND

- 500 kV Transmission Line
- Existing 115 kV Subtransmission Line
- - - Valley-Ivyglen 115 kV Subtransmission Line (construct 2010)
- 115 kV Subtransmission Circuit Installed for Alberhill System Project
- 115 kV Subtransmission Line Separation



Figure 2.3a
Alberhill System Configuration

2.3.1.2 New 115 kV Subtransmission Segment Alternative 2

New 115 kV Subtransmission Line Segment Alternative 2 originates at the intersection of Newport and Murrieta Roads in the City of Menifee. The route travels south along an existing distribution line on the west side of Murrieta Road for approximately 1 mile to the intersection of Murrieta Road and Holland Road, and then turns west on Holland Road for approximately 0.5 miles to the intersection of Holland Road and Byers Road. The route would travel south and west on Byers Road for approximately 2 miles and then follow Waldon Road for approximately 0.5 miles to the intersection of Waldon Road and Bundy Canyon Drive and the Valley-Skylark 115 kV subtransmission line ROW. The entire segment alternative would follow SCE's existing distribution lines.

In total, New 115 kV Subtransmission Line Segment Alternative 2 is approximately 4 miles long, and crosses land that is presently undeveloped or is used for rural residential purposes.

2.3.2 New 115 kV Subtransmission Line Segment Alternative Recommendation

Both New 115 kV Subtransmission Segment Alternatives 1 and 2 have the ability to serve the Alberhill Substation Project. However, New 115 kV Subtransmission Line Segment Alternative 1 would be built along paved roads, facilitating access for construction and maintenance. New 115 kV Subtransmission Line Segment Alternative 1 is also shorter in length, slightly reducing the amount of new construction required for the project.

New 115 kV Subtransmission Segment Alternative 2 would require construction on unpaved roads in hilly terrain along a route that is slightly longer in length. This would require more earthwork and dust control during construction.

For these reasons, New 115 kV Line Segment Alternative 1 was selected as the preferred route.

2.4 NEW SYSTEM ALTERNATIVES

The subsections that follow provide a brief description of the San Diego Gas & Electric Company (SDG&E), SCE Orange County, and Mira Loma system alternatives.¹

2.4.1 SDG&E

The SDG&E system alternative would include the following components:

- Construct a new 220/115 kV substation (approximately 15-acre footprint)
- Construct a new 220 kV double-circuit transmission line between SDG&E's existing Escondido-Talega 220 kV² transmission line and SCE's new 220/115 kV substation (approximately 7.2 miles)

¹ Additional detail can be found in the Planning Study attached to SCE's Motion to Supplement the Record filed on May 8, 2020.

² SDG&E's transmission system in the vicinity of this system alternative operates at 230 kV. In this area, SCE operates its transmission system at 220 kV. To avoid confusion, all transmission lines associated with this system alternative have been categorized as 220 kV.

2.0 PROJECT ALTERNATIVES

- Construct a new 115 kV double-circuit subtransmission line between SCE's new 220/115 kV substation and SCE's existing 115 kV Pechanga Substation (approximately 2.0 miles)
- Demolish SCE's existing 115 kV switchrack at SCE's existing 115 kV Pechanga Substation and reconstruct it on an adjacent parcel (approximately 3.2-acre footprint)
- Double-circuit SCE's existing Pauba-Pechanga 115 kV subtransmission line (approximately 7.5 miles)
- Double-circuit a segment of SCE's existing Auld-Moraga #2 115 kV subtransmission line (approximately 0.3 mile)

This system alternative would require the construction of approximately 9.2 miles of new 220 kV transmission and 115 kV subtransmission lines and the modification of approximately 7.8 miles of existing 115 kV subtransmission line. This system alternative totals approximately 17 miles. A detailed description of each of these components is provided in the subsections that follow.

2.4.1.1 New 220/115 kV Substation

The Proposed Project would involve the construction of a new, approximately 15-acre, 220/115 kV substation on a privately owned, approximately 56.4-acre, vacant parcel. The parcel is located north of Highway 79, between the intersections with Los Caballos Road and Pauba Road in Riverside County. The parcel is trapezoidal in shape and is bounded by residences and equestrian facilities to the north, east, and west; and Highway 79 and vacant land to the south. SCE may establish vehicular access to the site from Los Corralitos Road or Highway 79.

2.4.1.2 New 220 kV Double-Circuit Transmission Line

A new 220 kV double-circuit transmission line would be constructed, connecting the new 220/115 kV substation to SDG&E's existing Escondido-Talega 220 kV transmission line. This new 220 kV transmission line would begin at SDG&E's existing Escondido-Talega 220 kV transmission line approximately 0.6 miles northeast of the intersection of Rainbow Heights Road and Anderson Road in the community of Rainbow in San Diego County. The line would leave the interconnection with SDG&E's existing Escondido-Talega 220 kV transmission line on new structures extending to the northeast for approximately 0.8 mile. At this point, the new line would enter Riverside County and the Pechanga Reservation for approximately 4.0 miles. The line would continue in a generally northeast direction for approximately 1.0 mile before exiting the Pechanga Reservation³ and continuing until intersecting Highway 79. At the intersection with Highway 79, the line would extend northwest and parallel to Highway 79 for approximately 1.0 mile until reaching the new 220/115 kV substation. This segment of the system alternative would be approximately 7.2 miles in length.

³ Approximately 0.5 mile of this segment of the line would be located outside of the Pechanga Reservation.

2.4.1.3 New 115 kV Double-Circuit Subtransmission Line

A new 115 kV double-circuit subtransmission line would be constructed, connecting the new 220/115 kV substation to SCE's existing 115 kV Pechanga Substation. The line would depart the new 220/115 kV substation to the northwest on new structures for approximately 1.5 miles while traveling parallel to Highway 79. Near the intersection of Highway 79 and Anza Road, the line would transition to an underground configuration and continue along Highway 79 for approximately 0.5 mile until reaching SCE's existing 115 kV Pechanga Substation. This segment of the system alternative would be approximately 2.0 miles in length.

2.4.1.4 Demolish and Reconstruct an Existing 115 kV Switchrack

SCE currently operates the existing 115 kV Pechanga Substation that is located on an approximately 3.2-acre, SCE-owned parcel approximately 0.2 miles northeast of the intersection of Highway 79 and Horizon View Street. This site is bounded by vacant land to the east and west and residential uses to the north and south. SCE would demolish this existing 115 kV switchrack and reconstruct it on an approximately 16.9-acre, privately owned site that is directly east of the existing substation. The new 115 kV switchrack would occupy approximately 3.2 acres within the parcel.

2.4.1.5 Double-Circuit Existing 115 kV Subtransmission Lines

Pauba-Pechanga

SCE currently operates an existing 115 kV single-circuit subtransmission line between SCE's existing 115 kV Pauba and Pechanga Substations in Riverside County. This existing line would be converted to a double-circuit configuration, adding a new 115 kV circuit between SCE's existing 115 kV Pauba and Pechanga Substations. The existing line departs SCE's existing 115 kV Pechanga Substation and extends east along Highway 79 until reaching Anza Road. At the intersection of Highway 79 and Anza Road, the line extends northeast along Anza Road until reaching De Portola Road. At this intersection, the line extends generally northeast along De Portola Road until intersecting Monte De Oro Road, then the line extends west along Monte De Oro Road until reaching Rancho California Road. At this point, the line extends south along Rancho California Road and terminates at SCE's existing 115 kV Pauba Substation. This segment of the system alternative is approximately 7.5 miles in length.

Auld-Moraga #2

SCE currently operates an existing 115 kV single-circuit subtransmission line between SCE's existing 115 kV Auld Substation in the City of Murrieta and SCE's existing 115 kV Moraga Substation in the City of Temecula. An approximately 0.3-mile segment of this line within the City of Temecula would be converted from a single-circuit to double-circuit configuration. This segment would begin near the intersection of Rancho California Road and Calle Aragon. The existing line then extends south before turning west and intersecting Margarita Road, approximately 0.2 miles northwest of Rancho Vista Road.

2.0 PROJECT ALTERNATIVES

2.4.2 SCE Orange County

The SCE Orange County system alternative would include the following components:

- Construct a new 220/115 kV substation (approximately 15-acre footprint)
- Construct a new 220 kV double-circuit transmission line between SCE's existing San Onofre-Viejo 220 kV transmission line and SCE's new 220/115 kV substation (approximately 22.6 miles)
- Construct a new 115 kV single-circuit subtransmission line between SCE's new 220/115 kV substation and SCE's existing 115 kV Tenaja Substation (approximately 5.0 miles)
- Construct a new 115 kV single-circuit subtransmission line between SCE's new 220/115 kV substation and SCE's existing 115 kV Stadler Substation (approximately 2.6 miles)

In total, this system alternative would require the construction of approximately 30.2 miles of new 220 kV transmission and 115 kV subtransmission lines. A detailed description of each of these components is provided in the subsections that follow.

2.4.2.1 New 220/115 kV Substation

The SCE Orange County system alternative would involve the construction of a new, approximately 15-acre, 220/115 kV substation on a privately owned, approximately 67.3-acre, vacant parcel. The parcel is located southeast of Tenaja Road in the City of Murrieta. The parcel is generally trapezoidal in shape and surrounded by hilly, undeveloped land to the south and generally flat, undeveloped land to the north. SCE may establish vehicular access to this site from Tenaja Road, which is currently an unpaved road.

2.4.2.2 New 220 kV Double-Circuit Transmission Line

A new 220 kV double-circuit transmission line would be constructed, connecting the new 220/115 kV substation to SCE's existing San Onofre-Viejo 220 kV transmission line. This new 220 kV transmission line would begin at the existing San Onofre-Viejo 220 kV transmission line approximately 0.2 mile southwest of the intersection of East Avenida Pico and Camino la Pedriza in the City of San Clemente in Orange County. The line would leave the interconnection with the San Onofre-Viejo 220 kV transmission line on new structures to the east for approximately 3.2 miles. At this point, the new line would enter San Diego County, generally paralleling Talega Road and SDG&E's existing Escondido-Talega 220 kV transmission line for approximately 3.1 miles,⁴ reaching the intersection of Talega Road and Indian Potrero Truck Trail. The line would then extend southeast, briefly crossing Cleveland National Forest (CNF), then extending east generally parallel to SDG&E's existing Escondido-Talega 220 kV transmission line for approximately 2.2 miles. The line would continue east, crossing CNF for approximately 5.5 miles, then turn to the northeast for approximately 1.9 miles before entering Riverside County. At this point, the line would extend generally northeast until reaching the new

⁴ Approximately 0.4 mile of this portion of the line would cross back into Orange County.

220/115 kV substation site. Approximately 4.7 miles of this portion of the route would cross the Santa Rosa Plateau Ecological Preserve. This segment of the system alternative would total approximately 22.6 miles.

2.4.2.3 New 115 kV Single-Circuit Subtransmission Lines

New Substation to Tenaja Substation

A new 115 kV single-circuit subtransmission line would be constructed, connecting the new 220/115 kV substation to SCE’s existing 115 kV Tenaja Substation. The line would begin at the proposed new substation site in the City of Murrieta and extend generally north on new structures until intersecting Tenaja Road. At this point, the line would extend northeast along Tenaja Road, Vineyard Parkway, and Lemon Street until intersecting SCE’s existing Stadler-Tenaja 115 kV subtransmission line at Adams Avenue. At this point, the new 115 kV subtransmission line and Stadler-Tenaja 115 kV subtransmission line would be co-located on a single set of structures until reaching SCE’s existing 115 kV Tenaja Substation. The existing line travels generally northwest along Adams Avenue, southwest on Nutmeg Street, and then continues in a northwest direction along Washington Avenue. At the end of Washington Avenue, the route enters the City of Wildomar and continues northwest along Palomar Street until reaching Clinton Keith Road. At the intersection with Clinton Keith Road, the route travels south until terminating at SCE’s existing 115 kV Tenaja Substation. This segment of the system alternative would be approximately 5.0 miles in length.

New Substation to Stadler Substation

A new 115 kV single-circuit subtransmission line would be constructed, connecting the new 220/115 kV substation site to SCE’s existing 115 kV Stadler Substation. The line would begin at the proposed new substation site in the City of Murrieta and extend northeast for approximately 0.1 mile on new structures. At this point, the line would extend southeast, crossing the Santa Rosa Plateau Ecological Preserve for approximately 0.6 mile. The line would extend northeast, leaving the Santa Rosa Plateau Ecological Preserve, and parallel Ivy Street until the intersection with Jefferson Avenue. At this intersection, the new 115 kV subtransmission line would be co-located on a single set of structures with SCE’s existing Stadler-Tenaja 115 kV subtransmission line for approximately 0.2 mile along Los Alamos Road until terminating at SCE’s existing 115 kV Stadler Substation. This segment of the system alternative would be approximately 2.6 miles in length.

2.4.3 Mira Loma

The Mira Loma system alternative would include the following components:

- Construct a new 220/115 kV substation (approximately 15-acre footprint)
- Construct a new 220 kV double-circuit transmission line segment to loop SCE’s existing Chino-Mira Loma 220 kV transmission line into SCE’s new 220/115 kV substation (approximately 130 feet)
- Construct a new 115 kV double-circuit subtransmission line between SCE’s new 220/115 kV substation and SCE’s existing 115 kV Ivyglen Substation (approximately 21.6 miles)

2.0 PROJECT ALTERNATIVES

- Construct a new 115 kV single-circuit subtransmission line segment to tap SCE's future Valley-Ivyglen 115 kV subtransmission line to SCE's existing 115 kV Fogarty Substation (approximately 0.6 mile)

This system alternative would require the construction of approximately 22.2 miles of new 220 kV transmission and 115 kV subtransmission lines. A detailed description of each of these components is provided in the subsections that follow.

2.4.3.1 New 220/115 kV Substation

The Mira Loma system alternative would involve the construction of a new, approximately 15-acre, 220/115 kV substation on a privately owned, approximately 27-acre, vacant parcel. The parcel is located north of Ontario Ranch Road, east of Haven Avenue, and west of Hamner Avenue in the City of Ontario. The parcel is rectangular in shape and is bounded by vacant land to the north, SCE's existing 220 kV Mira Loma Substation and vacant land to the east, vacant land to the south, and vacant land and industrial uses to the west. The vacant parcel has a residential land use designation, and an existing SCE transmission corridor crosses the southeast portion of the site. Vehicular access would likely be established from Ontario Ranch Road.

2.4.3.2 New 220 kV Double-Circuit Transmission Line

A new 220 kV double-circuit transmission line segment would be constructed between the existing Chino-Mira Loma 220 kV transmission line and SCE's new 220/115 kV substation. This approximately 130-foot segment would begin within SCE's existing transmission corridor and approximately 2,000 feet east of Haven Avenue, and would extend south until reaching SCE's new 220/115 kV substation site.

2.4.3.3 New 115 kV Double-Circuit Subtransmission Line

A new 115 kV double-circuit subtransmission line would be constructed, connecting SCE's new 220/115 kV substation and SCE's existing 115 kV Ivyglen Substation. This line would exit the new 220/115 kV substation site from the southerly portion of the property and travel east in an underground configuration along Ontario Ranch Road for approximately 0.2 mile. The line would pass under SCE's existing transmission line corridor and then transition to an overhead configuration, continuing on new structures along Ontario Ranch Road for approximately 0.5 mile until intersecting Hamner Road. The line would then extend south along Hamner Road and parallel to SCE's existing Mira Loma-Corona 66 kV subtransmission line for approximately 6.8 miles. Within this approximately 6.8-mile portion of the route, the line would exit the City of Ontario and enter the City of Eastvale at the intersection with Bellegrave Avenue. Within the City of Eastvale, the line would continue along Hamner Avenue, cross the Santa Ana River, and enter the City of Norco. Within the City of Norco, the line would continue south along Hamner Avenue until intersecting 1st Street. At this point, the line would extend west along 1st Street for approximately 0.5 mile until West Parkridge Avenue. At this intersection, the line would enter the City of Corona and continue generally south along North Lincoln Avenue for approximately 3.2 miles, paralleling the Chase-Corona-Databank 66 kV subtransmission line between Railroad Street and West Ontario Avenue. At the intersection with West Ontario Avenue, the line would extend east and continue to parallel SCE's existing Chase-Corona-Databank 66 kV subtransmission line for approximately 1.4 miles until the intersection with Magnolia Avenue. The line would continue to extend along West Ontario Avenue for approximately 0.2 mile, then

parallel SCE's existing Chase-Jefferson 66 kV subtransmission line between Kellogg Avenue and Interstate (I-) 15 for approximately 1.7 miles. The line would continue along East Ontario Avenue, pass under I-15, and exit the City of Corona after approximately 0.2 mile at the intersection of East Ontario Avenue and State Street. The line would extend southeast along East Ontario Avenue within Riverside County for approximately 1.8 miles until the intersection of Cajalco Road. At this intersection, the line would extend southeast along Temescal Canyon Road, crossing the City of Corona for approximately 1.2 miles between Cajalco Road and Dos Lagos Drive. The line would then continue within Riverside County along Temescal Canyon Road for approximately 3.9 miles, crossing under I-15 and terminating at SCE's existing 115 kV Ivyglen Substation. This segment of the system alternative would be approximately 21.6 miles in length.

2.4.3.4 New 115 kV Single-Circuit Subtransmission Line

A new 115 kV single-circuit subtransmission line segment would be constructed to tap SCE's future Valley-Ivyglen 115 kV subtransmission line into SCE's existing 115 kV Fogarty Substation. The new line segment would begin along the future Valley-Ivyglen 115 kV subtransmission line's alignment, approximately 680 feet southeast of the intersection of Pierce Street and Baker Street in the City of Lake Elsinore. The new line segment would extend generally southwest and parallel to SCE's existing Valley-Elsinore-Fogarty 115 kV subtransmission line until terminating at SCE's existing 115 kV Fogarty Substation. This segment of the system alternative would be approximately 0.6 mile in length.

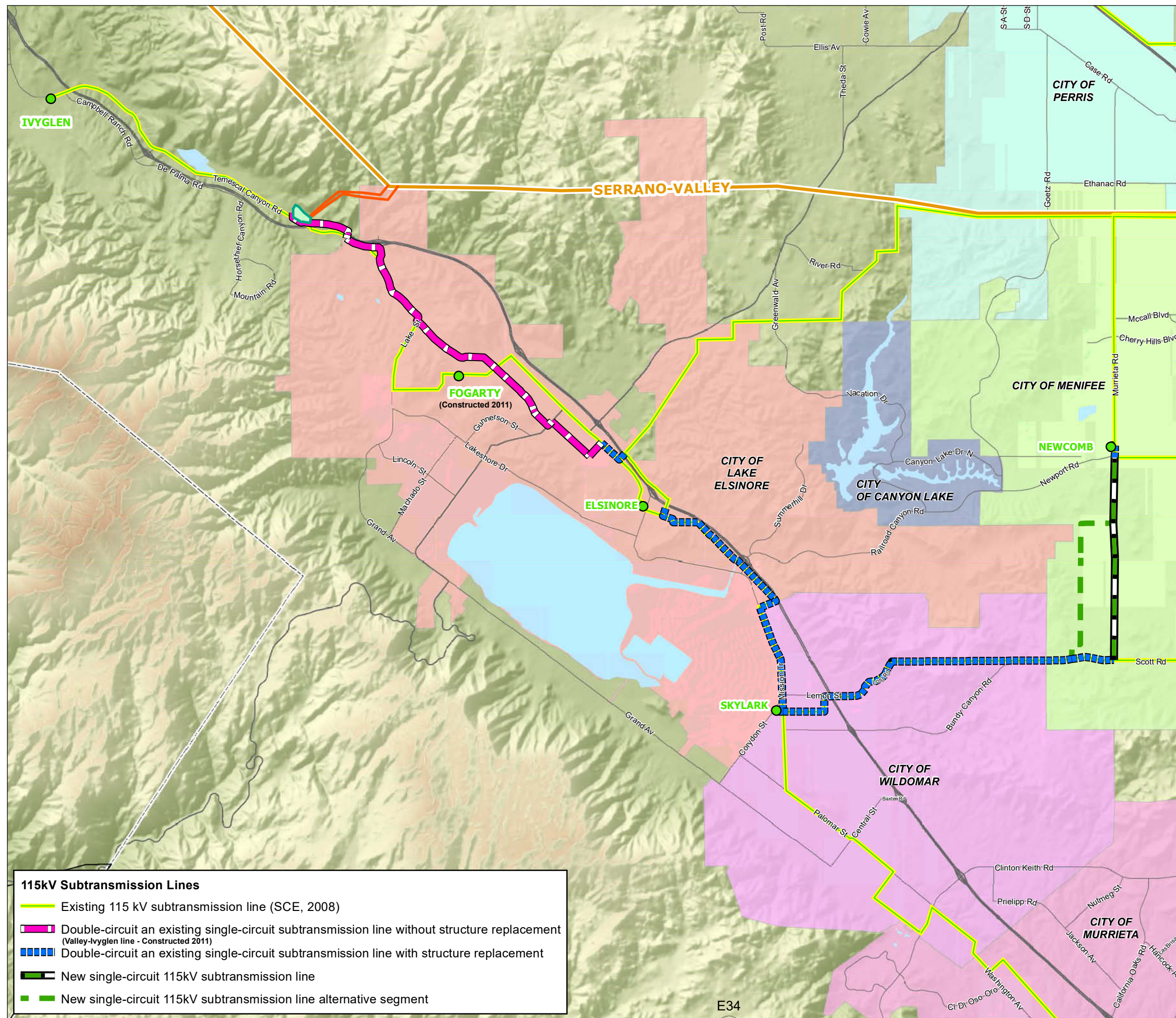
2.5 PROPOSED PROJECT

SCE proposes to construct the Alberhill System Project utilizing the Substation Site Alternative A, 500 kV transmission line segments SA and VA, and New 115 kV Subtransmission Line Segment Alternative 1 (Proposed Project). The Proposed Project meets the basic objectives of the Alberhill System Project, and is described in detail in Chapter 3, Project Description.

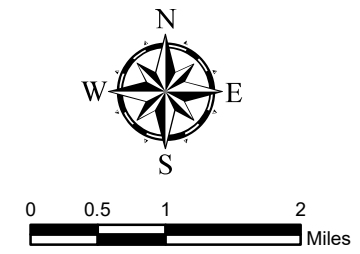
New 115 kV Subtransmission Line Segment Alternative 2 is evaluated in the original Proponent's Environmental Assessment (PEA) as an Alternative 115 kV Segment to the Proposed Project. Additionally, three system alternatives are evaluated in this second amendment to the PEA as system alternatives to the Proposed Project.

These components are shown on Figure 2.4a, Proposed Project and Alternative and on Figures 2.4b, SDG&E System Alternative; 2.4c, SCE Orange County System Alternative; and 2.4d, Mira Loma System Alternative.

Figure 2.4a
Proposed Project and Alternative



- Substations**
- Proposed Alberhill Substation
 - Substations (SCE, 2008)
- 500kV Transmission Lines (SCE, 2007)**
- Existing 500 kV Transmission Lines (SCE, 2007)
 - Proposed 500kV Alternative Routes
- Basemap Data**
- Transportation Lines (TBM, 2008)
 - SCE Service Territory Boundary (SCE, 2006)
 - County Boundaries (TBM, 2008)
 - Water Features (TBM, 2008)



- 115kV Subtransmission Lines**
- Existing 115 kV subtransmission line (SCE, 2008)
 - Double-circuit an existing single-circuit subtransmission line without structure replacement (Valley-Ivyglen line - Constructed 2011)
 - Double-circuit an existing single-circuit subtransmission line with structure replacement
 - New single-circuit 115kV subtransmission line
 - New single-circuit 115kV subtransmission line alternative segment

Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted at this scale. Always consult with the proper legal documents or agencies regarding such features.
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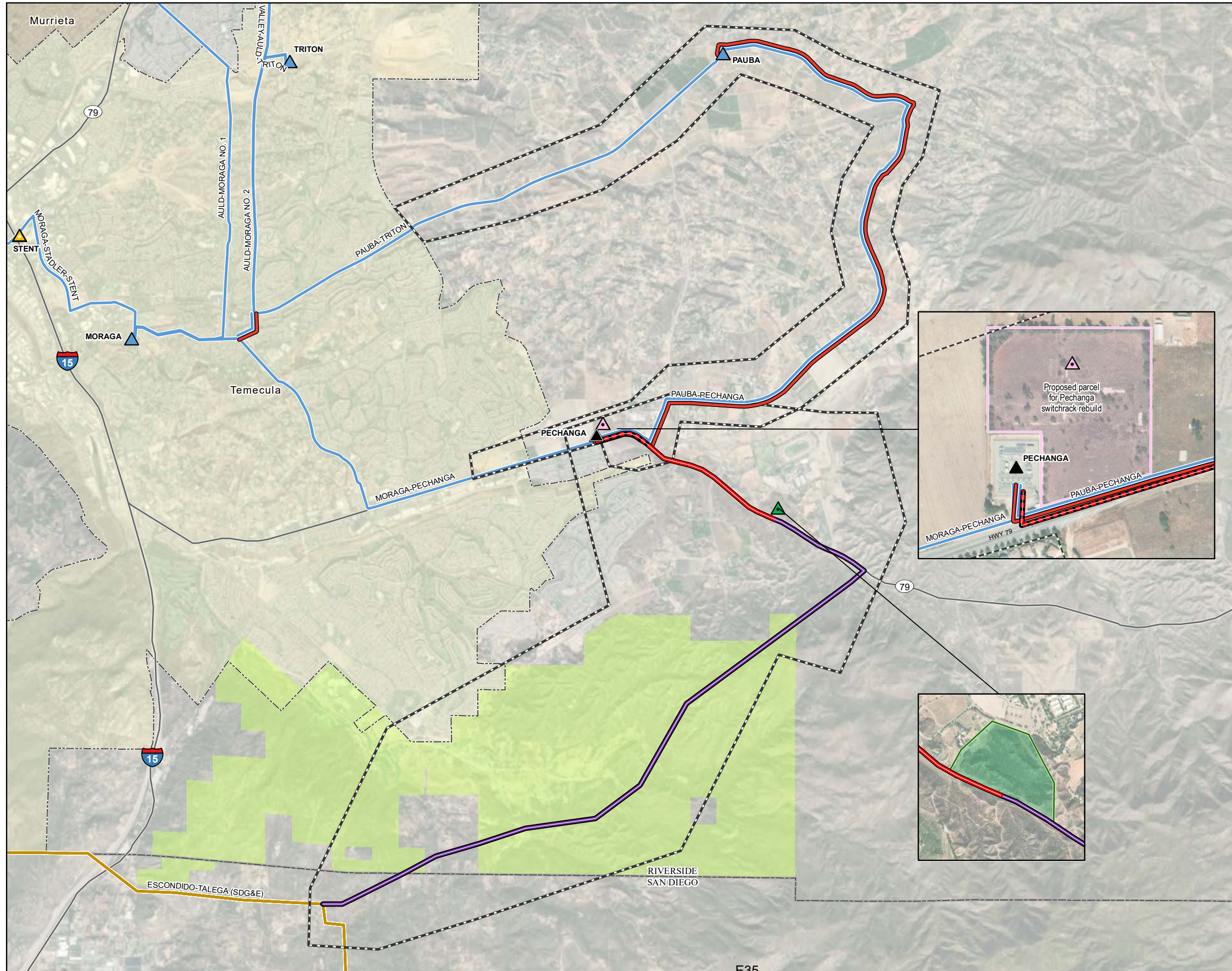
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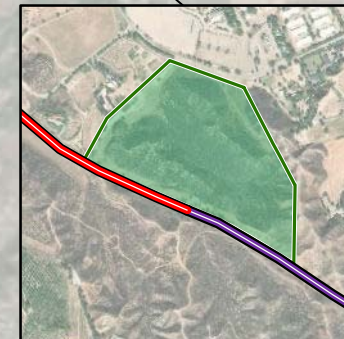
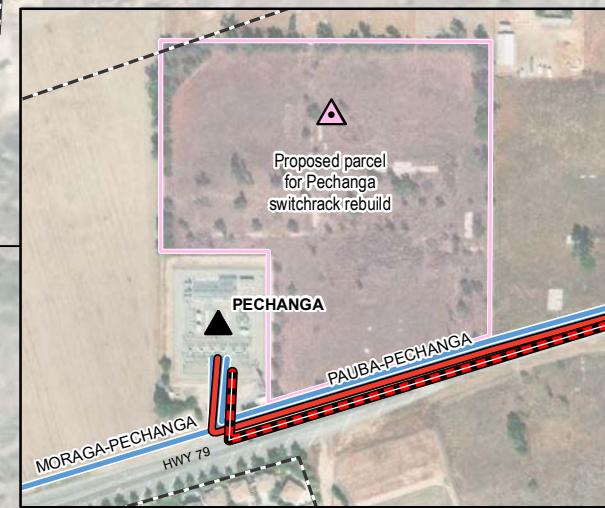
Major Transmission Projects - Alberhill Sub Project

**Figure 2.4b
SDG&E System Alternative**

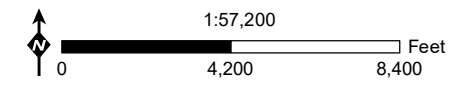
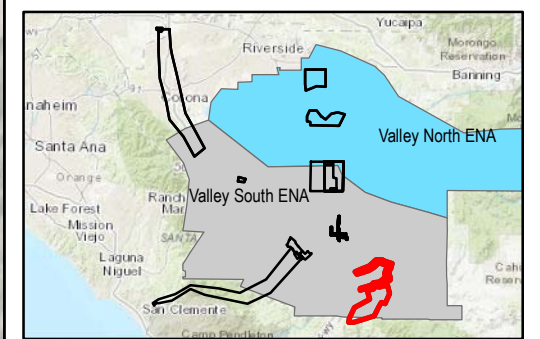
Alberhill System Project



- Study Area(s)
- Existing 115 kV Distribution Substation
- Existing 115 kV Customer Substation
- New 220 kV Transmission Substation
- Rebuild Existing Switchrack
- Demolish Existing Switchrack
- Existing 230/220 kV Line*
- Existing 115 kV Line
- New 220 kV Double Circuit Overhead Line
- New 115 kV Double Circuit Overhead Line
- New 115 kV Double Circuit Underground Line
- Double Circuit Existing 115 kV Line
- Pechanga Reservation
- County Boundary
- City Boundary



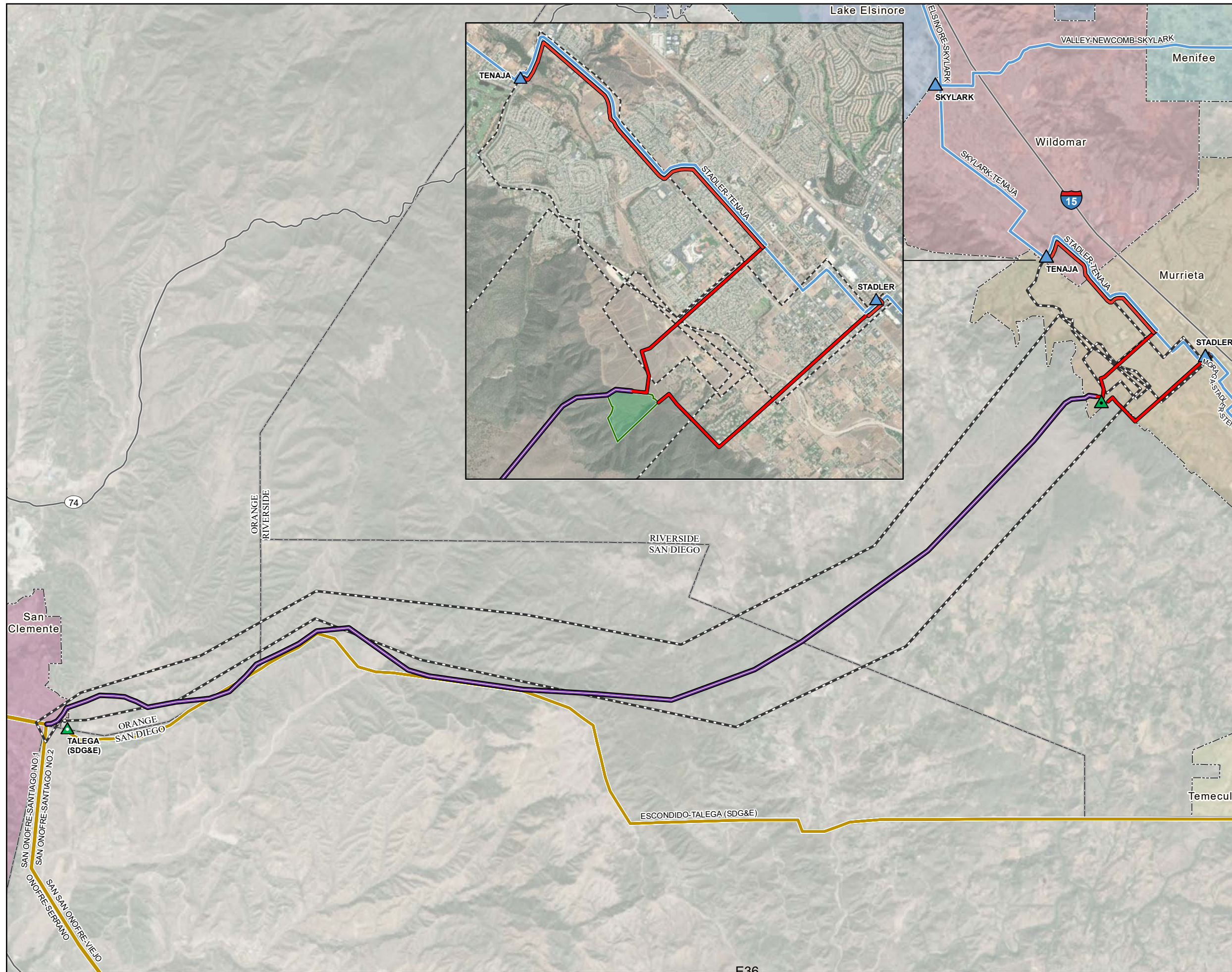
*SDG&E's transmission system in the vicinity of this system alternative operates at 230 kV. In this area, SCE operates their transmission system at 220 kV.



Sources: Insignia, 2019; SCE, 2019

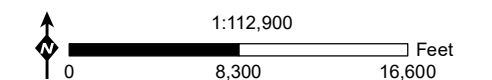
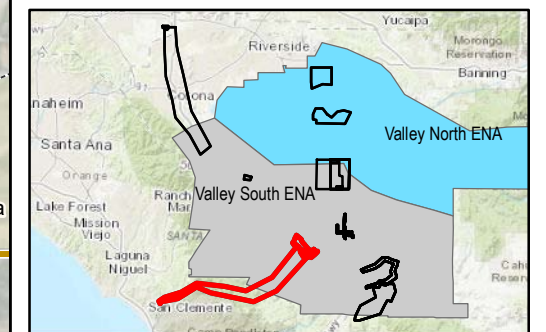
Figure 2.4c
SCE Orange County System Alternative

Alberhill System Project



- Study Area(s)
- Existing 220 kV Transmission Substation
- Existing 115 kV Distribution Substation
- New 220 kV Transmission Substation
- Existing 230/220 kV Line*
- Existing 115 kV Line
- New 220 kV Double Circuit Overhead Line
- New 115 kV Single Circuit Overhead Line
- Double Circuit Existing 115 kV Line
- County Boundary
- City Boundary

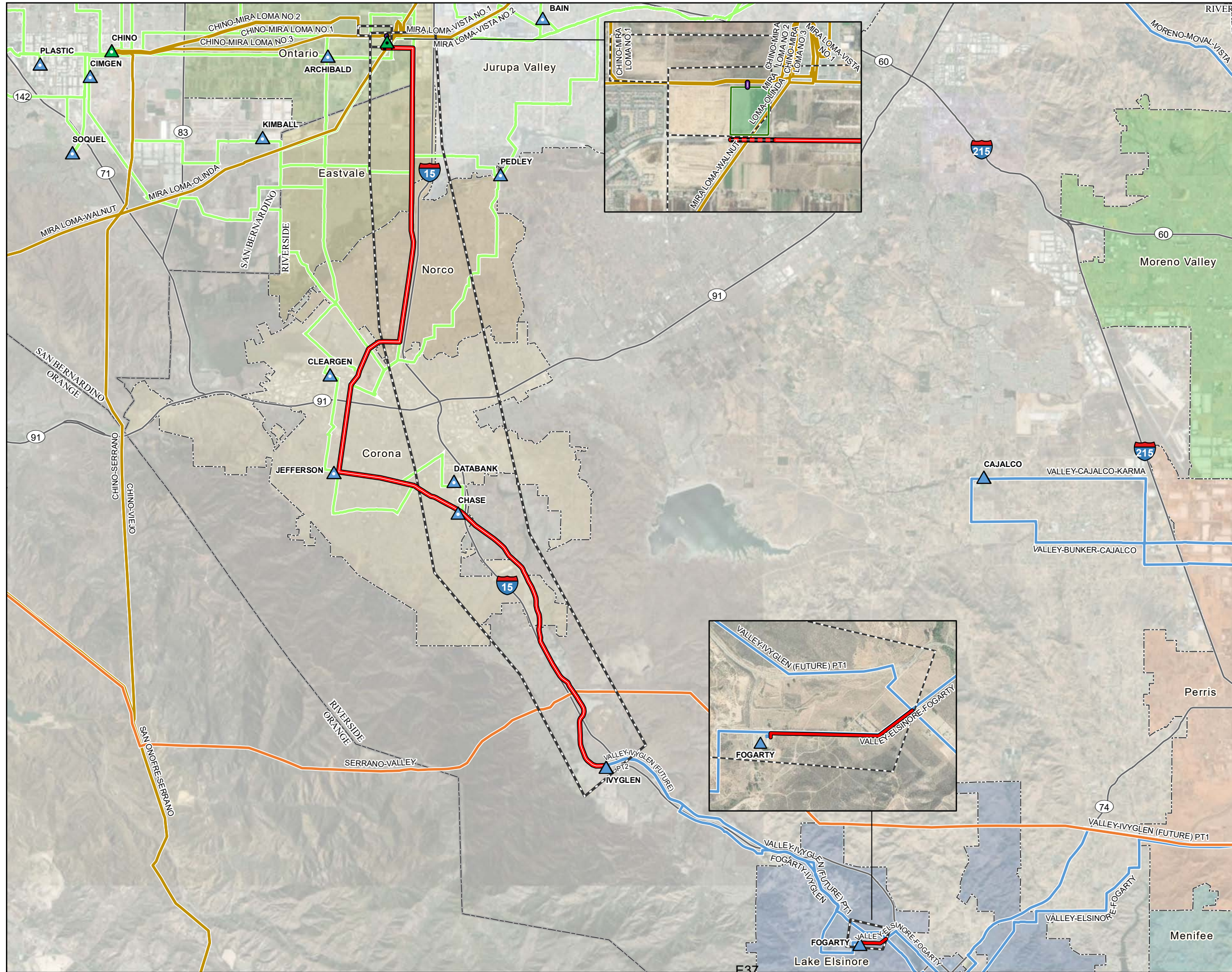
*SDG&E's transmission system in the vicinity of this system alternative operates at 230 kV. In this area, SCE operates their transmission system at 220 kV.



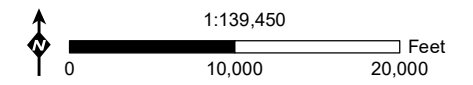
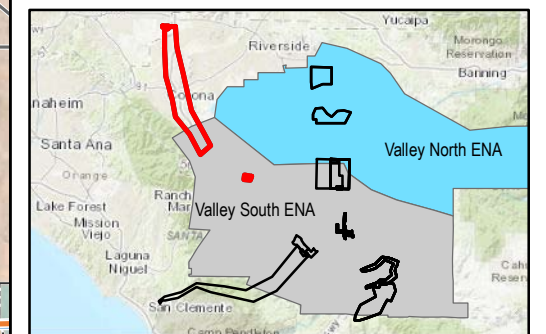
Sources: Insignia, 2019; SCE, 2019

Figure 2.4d
Mira Loma System Alternative

Alberhill System Project



- Study Area(s)
- Existing 220 kV Transmission Substation
- Existing 115 kV Distribution Substation
- Existing 66 kV Distribution Substation
- New 220 kV Transmission Substation
- Existing 500 kV Line
- Existing 220 kV Line
- Existing 115 kV Line
- Existing 66 kV Line
- New 220 kV Double Circuit Overhead Line
- New 115 kV Double Circuit Overhead Line
- New 115 kV Single Circuit Overhead Line
- New 115 kV Double Circuit Underground Line
- County Boundary
- City Boundary



Sources: Insignia, 2019; SCE, 2019

4.0 ENVIRONMENTAL IMPACT ASSESSMENT

This section examines the potential environmental impacts of the Alberhill System Project (Proposed Project) and the Alternative 115 Kilovolt (kV) Segment. The analysis of each resource category begins with an examination of the existing physical setting (baseline conditions as determined pursuant to Section 15125(a) of the California Environmental Quality Act [CEQA] Guidelines) that may be affected by the Proposed Project. The effects of the Proposed Project are defined as changes to the environmental setting that are attributable to project construction and operation.

Significance criteria are identified for each environmental issue area. The significance criteria serve as a benchmark for determining if a project would result in a significant adverse environmental impact when evaluated against the baseline. According to the CEQA Guidelines Section 15382, a significant effect on the environment means "...a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the Project..." If significant impacts are identified, feasible Mitigation Measures are formulated to eliminate or reduce the level of the impacts and focus on the protection of sensitive resources.

CEQA Guidelines Section 15126.4(a)(3) states that mitigation measures are not required for effects which are not found to be significant. Therefore, where an impact is less than significant no mitigation measures have been proposed. In addition, compliance with laws, regulations, ordinances, and standards designed to reduce impacts to less than significant levels are not considered mitigation measures under CEQA. Where potentially adverse impacts may occur, SCE has proposed Applicant Proposed Measures (APMs) to minimize the environmental impacts.

The Proponent's Environmental Assessment (PEA) concluded that impacts to air quality would be significant. The Final Environmental Impact Report (FEIR), dated April 2017, concluded there were Significant impacts to Aesthetics, Air Quality, and Noise and Vibration.¹ The FEIR also concluded there were Less than Significant impacts to Agriculture and Forestry Resources; Biological Resources; Cultural Resources; Geology, Soils, and Minerals; Greenhouse Gases; Hazards and Hazardous Materials; Hydrology and Water Quality; Land Use and Planning; Population and Housing; Public Services and Utilities; Recreation; and Transportation. The FEIR supersedes the PEA and based on the FEIR findings, SCE will comply with the Applicant-Proposed Measures and Mitigation Measures included in the FEIR.

Three new system alternatives—San Diego Gas & Electric Company (SDG&E), Southern California Edison (SCE) Orange County, and Mira Loma—as described in Chapter 2, Project Alternatives, have been identified for further evaluation. The subsections that follow provide a comparison between the impacts associated with the Proposed Project as determined by the FEIR and the impacts associated with each of the three new system alternatives. This analysis is intended to supplement, and not replace, the Chapter 4 impact analyses in the September 20,

¹ The FEIR also determined there would be significant cumulative impacts to Aesthetics, Air Quality, and Biological Resources. It also determined there would be a potential for significant cumulative impacts to Cultural Resources if multiple projects were to impact the same known resource.

2009 PEA; therefore, the analysis associated with the Proposed Project and Alternative 115 kV Segment have not been replicated below.

SDG&E SYSTEM ALTERNATIVE

4.1 AESTHETICS

The SDG&E System Alternative is located in Riverside and San Diego counties, as well as within the City of Temecula and the community of Rainbow. The area is characterized by rolling hills and rural residential development. The new substation and portions of all transmission and subtransmission components of this system alternative would be located adjacent to the well-traveled California State Route (SR-) 79. This alternative's components would not represent a significant change in the existing visual quality as SCE currently owns and operates Pauba Substation, approximately 1.8 miles west of the proposed SDG&E System Alternative substation site, and overhead subtransmission line facilities in this area. The system alternative would also include the installation of approximately 6.4 miles of new double-circuit transmission line within undisturbed land in San Diego and Riverside counties. The grading of new, permanent access roads and pads to install and maintain the new facilities would result in permanent visual changes to this undeveloped landscape. While impacts to aesthetics would be significant with the implementation of applicant-proposed and/or mitigation measures, the SDG&E System Alternative would have greater aesthetic impacts than the Proposed Project because it involves the construction of more new transmission line, and associated permanent access roads and pads, within previously undeveloped areas.

4.2 AGRICULTURAL RESOURCES

Similar to the Proposed Project, the SDG&E System Alternative would not cross Unique Farmland, Williamson Act lands, or Farmland of Statewide Importance.² However, the SDG&E System Alternative would require approximately 500 feet of new transmission line and approximately 370 feet of existing subtransmission line to be double-circuited within Prime Farmland. While impacts to agriculture would be less than significant with the implementation of applicant-proposed and/or mitigation measures, the SDG&E System Alternative would have greater agricultural impacts than the Proposed Project because it involves construction within Prime Farmland.

² Prime Farmlands have the optimum combination of physical and chemical conditions that are able to sustain long-term agricultural production. The soil quality, growing season, and moisture supply on Prime Farmlands provide conditions to produce sustained high yields. Prime Farmlands must have been used for irrigated production within four years of the mapping date. Farmlands of Statewide Importance are similar to Prime Farmlands; however, these farmlands have minor shortcomings, such as a higher slope or decreased ability to store soil moisture. Similar to Prime Farmlands, Farmlands of Statewide Importance must have been used for irrigated production within four years of the mapping date. Unique Farmlands have lower-quality soils and are used for the production of California's leading agricultural products. Unique Farmlands are typically irrigated but may also include non-irrigated vineyards or orchards found in certain climatic zones. Unique Farmlands must have been cropped within four years of the mapping date.

4.3 AIR QUALITY

The SDG&E System Alternative would utilize similar construction methods, equipment, and crew sizes as the Proposed Project. As a result, the SDG&E System Alternative and the Proposed Project would result in similar daily criteria air pollutant emissions from the use of off-road equipment and on-road vehicles. The SDG&E System Alternative would require the installation of a new, double-circuit transmission line across approximately 6.4 miles of undisturbed, rugged terrain, while the Proposed Project would require approximately 3 miles of new single-circuit transmission line in similar conditions. Construction in this type of terrain would require significant grading to establish access roads and permanent pads to operate and maintain these facilities. When compared to the Proposed Project, the increased grading associated with the SDG&E System Alternative will result in increased fugitive dust emissions and more impacts to air quality during construction. The increased length of new transmission and subtransmission lines associated with the SDG&E System Alternative will lead to an increase in criteria air pollutants during operation and maintenance from heavy vehicle use. Fugitive dust emissions during operation and maintenance will also be higher than the Proposed Project due to the additional unpaved vehicle travel required to access the transmission facilities. While impacts to air quality would be significant with the implementation of applicant-proposed and/or mitigation measures, the SDG&E System Alternative would have greater air quality impacts than the Proposed Project because it involves more grading to establish permanent access to the transmission line and requires a larger increase in operation and maintenance activities over what SCE currently conducts in the area.

4.4 BIOLOGICAL RESOURCES

The Proposed Project and the SDG&E System Alternative would cross suitable habitat for multiple special-status species, sensitive natural habitats, wildlife migratory corridors, and jurisdictional water features. The SDG&E System Alternative would require the installation of a new, double-circuit transmission line across approximately 6.4 miles of undisturbed, rugged terrain, while the Proposed Project would require approximately 3 miles of new single-circuit transmission line in similar conditions. Construction in this type of terrain would require significant grading and vegetation clearing to establish access roads and permanent pads to install and maintain these facilities. The increased grading associated with the SDG&E System Alternative's transmission line construction will result in a greater disturbance to biological resources, including special-status species habitat and sensitive natural communities. These activities would also increase the potential for direct take of special-status species. The remainder of the SDG&E System Alternative would occur along existing roadways, similar to the Proposed Project. The substations associated with the SDG&E System Alternative and the Proposed Project would require similar levels of grading to prepare the site for use. While impacts to biological resources would be less than significant with the implementation of applicant-proposed and/or mitigation measures, the SDG&E System Alternative would have greater biological resource impacts than the Proposed Project because it involves more construction in potentially sensitive habitat.

4.5 CULTURAL RESOURCES

The SDG&E System Alternative would require the installation of a new, double-circuit transmission line across approximately 6.4 miles of undisturbed, rugged terrain, while the Proposed Project would require approximately 3 miles of new single-circuit transmission line in similar conditions. Construction in this type of terrain would require significant grading and vegetation clearing to establish access roads and permanent pads to install and maintain these facilities. The remainder of the SDG&E System Alternative would occur along existing roadways, similar to the Proposed Project. The substations associated with the SDG&E System Alternative and the Proposed Project would require similar levels of grading to prepare the site for use.

The additional ground disturbance associated with the SDG&E System Alternative would increase the possibility of disturbing surface and subsurface cultural and paleontological resources. In addition, approximately 5 miles of the SDG&E System Alternative cross the Pechanga Reservation, resulting in the increased possibility of impacting a Traditional Cultural Property or Tribal Cultural Resource. While impacts to cultural resources would be less than significant with the implementation of applicant-proposed and/or mitigation measures, the SDG&E System Alternative would likely have greater cultural resource impacts than the Proposed Project because it involves more ground disturbance in previously undisturbed areas and construction within the Pechanga Reservation.

4.6 GEOLOGY AND SOILS

The SDG&E System Alternative would be located in a similar geologic setting to the Proposed Project and would involve the installation of similar structures. The new substation, portions of the transmission line, portions of the subtransmission lines, and the double-circuiting of existing subtransmission lines would be located within 1 mile of known earthquake faults. The SDG&E System Alternative, like the Proposed Project, is not located in the vicinity of historic landslides or on unstable geologic units. A Stormwater Pollution Prevention Plan (SWPPP) and proper engineering practices would be implemented for both the SDG&E System Alternative and the Proposed Project. As a result, the SDG&E System Alternative would have similar impacts to geology and soils as the Proposed Project. Based on the information SCE has analyzed, impacts to geology and soils would be less than significant.

4.7 HAZARDS AND HAZARDOUS MATERIALS

The majority of the SDG&E System Alternative (approximately 16.7 miles of transmission and subtransmission line and the new substation) would be constructed within a California Public Utilities Commission (CPUC) Tier 3 (i.e., extreme) fire threat area. Portions of the Proposed Project (approximately 12 miles of transmission and subtransmission line and the new Alberhill Substation) would also be constructed in high-fire-threat areas. Similar measures would be implemented for both the SDG&E System Alternative and the Proposed Project to reduce the risk of wildfire during construction, operation, and maintenance. In order to evaluate the risk of wildfire, SCE utilized its Multi-Attribute Risk Score (MARS) model from the Risk Assessment and Mitigation Phase (RAMP) proceeding to determine the relative contribution that each of the system alternatives would make to increase the overall wildfire risk profile of SCE's system. The

SDG&E System Alternative and the Proposed Project would result in similar increases to the wildfire risk profile if implemented. Similar to the Proposed Project, measures would be implemented for the SDG&E System Alternative to reduce the risk of transport, use, or disposal of hazardous materials and the release of hazardous materials, substances, or waste. Similar to the Proposed Project, off-road equipment and on-road vehicle use are anticipated to be the dominant noise sources during construction; therefore, noise from local airports would not pose a hazard for construction personnel. In addition, neither the SDG&E System Alternative nor the Proposed Project would involve construction on a site known to have hazardous waste or contamination. As a result, the SDG&E System Alternative would have similar impacts to hazards and hazardous materials when compared to the Proposed Project. Based on the information SCE has analyzed, impacts would be less than significant with the implementation of applicant-proposed and/or mitigation measures.

4.8 HYDROLOGY AND WATER QUALITY

The SDG&E System Alternative would be constructed using similar construction techniques to the Proposed Project; however, it would be located in an area that has more topographic variation and undeveloped areas than the Proposed Project. This topographic variation will result in a higher potential to affect water quality in the area due to the grading associated with the construction of new, permanent access roads and pads to install and maintain the transmission facilities. Further, the increased construction in undeveloped areas is likely to result in the direct impact of more jurisdictional water features when compared to the Proposed Project. Similar to the Proposed Project, the SDG&E System Alternative would implement measures to reduce the potential for impacts to water quality and changes in drainage patterns. Both the SDG&E System Alternative and Proposed Project would involve the construction of a new substation. These substations would be of similar size and introduce a similar amount of new impermeable surfaces. The installation of new overhead transmission and subtransmission facilities would result in minimal increases in impermeable surfaces; therefore, both would lead to similar levels of increased runoff. While impacts would be less than significant with the implementation of applicant-proposed and/or mitigation measures, the SDG&E System Alternative would have greater hydrology and water quality impacts than the Proposed Project because it involves more grading in undeveloped areas and is likely to impact more jurisdictional water features.

4.9 LAND USE AND PLANNING

The SDG&E System Alternative would be located in unincorporated portions of San Diego and Riverside counties, the City of Temecula, and the community of Rainbow and would cross the Pechanga Reservation. Similar to the Proposed Project, the new substation would be constructed in a primarily undeveloped area; therefore, it would not divide an established community. In addition, the overhead transmission and subtransmission lines associated with the SDG&E System Alternative and Proposed Project would not impair movement or otherwise physically divide communities. Lastly, the SDG&E System Alternative and Proposed Project would participate in one or more Habitat Conservation Plans and/or Natural Community Conservation Plans. As a result, similar to the Proposed Project and based on the information SCE has analyzed, the SDG&E System Alternative would have less-than-significant impacts on land use and planning with the implementation of applicant-proposed and/or mitigation measures.

4.10 MINERAL RESOURCES

The Proposed Project is partially located within an identified Mineral Resource Zone (MRZ)-3 zone and would result in the potential loss of exploration and utilization of potentially occurring mineral resources due to the installation of new facilities. The SDG&E System Alternative is not located within a known MRZ and therefore would not impact known mineral resources. As a result, and based on the information SCE has analyzed, there would be no impact; the SDG&E System Alternative would have less impact to mineral resources than the Proposed Project.

4.11 NOISE

The SDG&E System Alternative is located in an area characterized by rolling hills and rural residential development. The majority of the new transmission line construction would occur within undeveloped areas, while the majority of subtransmission line construction would occur along existing roadways, including SR-79. The SDG&E System Alternative and the Proposed Project would utilize similar construction techniques; therefore, noise levels during construction of the transmission and subtransmission lines would be similar. In addition, the operation and maintenance practices of (and therefore the noise from) these facilities would be similar for the SDG&E System Alternative and the Proposed Project. The new substation would be bounded by existing residences to the west, while Alberhill Substation would be surrounded by undeveloped uses. While impacts to noise would be significant with the implementation of applicant-proposed and/or mitigation measures, the SDG&E System Alternative would have greater noise impacts than the Proposed Project because the construction and operation and maintenance of the substation would be located closer proximity to sensitive receptors.

4.12 POPULATION AND HOUSING

Similar to the Proposed Project, the SDG&E System Alternative would rely on a primarily local workforce and would not induce population growth. Neither the Proposed Project nor the SDG&E System Alternative would displace substantial numbers of existing housing units or people, and no new housing would need to be constructed. As a result, similar to the Proposed Project and based on the information SCE has analyzed, the SDG&E System Alternative would have less-than-significant impacts on population and housing.

4.13 PUBLIC SERVICES

The majority of the SDG&E System Alternative (approximately 16.7 miles of transmission and subtransmission line and the new substation) would be constructed in CPUC Tier 3 (i.e., extreme) fire threat areas. Portions of the Proposed Project (approximately 12 miles of transmission and subtransmission line and the new Alberhill Substation) would also be constructed in high-fire-threat areas. Similar measures would be implemented for both the SDG&E System Alternative and the Proposed Project to reduce the risk of wildfire during construction, operation, and maintenance and the measures would not require the expansion of fire protection services. In addition, the majority of the transmission line construction would occur off of public roadways, reducing the potential impact on government agency response times. Neither the SDG&E System Alternative nor the Proposed Project would be likely to require the use of law enforcement agencies, nor would either induce population growth

requiring the construction of additional governmental or public facilities. As a result, similar to the Proposed Project and based on the information SCE has analyzed, impacts to public services would be less than significant with the implementation of applicant-proposed and/or mitigation measures.

4.14 RECREATION

The SDG&E System Alternative is not anticipated to require the closure of any existing parks or other recreational facilities nor involve the construction or expansion of existing recreational facilities. If construction crews from the local workforce are not used, similar to the Proposed Project, there is the potential for an increase the use of recreational facilities. The Proposed Project would require the temporary closure of one existing park during conductor stringing. As a result, the SDG&E System Alternative would have less impacts to recreation than the Proposed Project. Based on the information SCE has analyzed, impacts from the SDG&E System Alternative would be less than significant with the implementation of applicant-proposed and/or mitigation measures.

4.15 TRANSPORTATION AND TRAFFIC

The SDG&E System Alternative would involve construction of approximately 10.3 miles of transmission and subtransmission line along existing roadways, including SR-79. This is less than the 17.5 miles of subtransmission line construction along existing roadways associated with the Proposed Project. While the SDG&E System Alternative and Proposed Project are anticipated to use similar construction techniques, which would likely require temporary lane and/or road closures, the reduced length of construction along existing roadways is likely to result in less congestion during construction. Similar operation and maintenance activities would be utilized for the SDG&E System Alternative and the Proposed Project; therefore, these impacts would be similar. Similar to the Proposed Project, the SDG&E System Alternative is not anticipated to increase hazards, result in inadequate emergency access, result in inadequate parking, or conflict with alternative transportation. As a result, the SDG&E System Alternative would have less impact on transportation and traffic than the Proposed Project. Based on the information SCE has analyzed, impacts would be less than significant with the implementation of applicant-proposed and/or mitigation measures.

4.16 UTILITIES AND SERVICE SYSTEMS

The SDG&E System Alternative and the Proposed Project would have similar grading requirements for substation construction. The Proposed Project and alternative would also have similar landfill, solid waste, and water treatment requirements. As a result, the SDG&E System Alternative would have similar impacts to utilities and service systems to the Proposed Project. Based on the information SCE has analyzed, impacts to utilities and service systems would be less than significant.

SCE ORANGE COUNTY SYSTEM ALTERNATIVE

4.1 AESTHETICS

The SCE Orange County System Alternative is located in Riverside, San Diego, and Orange counties within the cities of Murrieta, Wildomar, and San Clemente. The northeastern portion of this system alternative is characterized by urban development, while the remainder is characterized by undisturbed steep hills and terrain. The new subtransmission lines would be constructed mainly along city streets in urbanized areas and would not represent a significant change in visual quality. The new substation would be located in a rural residential area. The new transmission line would cross approximately 22.6 miles of undeveloped land in Riverside, San Diego, and Orange counties, including portions of the Cleveland National Forest (CNF), which is under the jurisdiction of the United States Forest Service, and the Santa Rosa Plateau Ecological Reserve, which is under the jurisdiction of the California Department of Fish and Wildlife. The transmission line would be visible from public vantage points, including recreational trails, within the CNF and reserve. The grading of new permanent access roads and pads to install and maintain the new facilities would result in permanent visual changes to this undeveloped landscape. While impacts to aesthetics would be significant with the implementation of applicant-proposed and/or mitigation measures, the SCE Orange County System Alternative would have greater aesthetic impacts than the Proposed Project because it involves the construction of more new transmission line, and associated permanent access roads and pads, within previously undeveloped and recreational areas.

4.2 AGRICULTURAL RESOURCES

Similar to the Proposed Project, the Orange County System Alternative would not cross Prime Farmland, Farmland of Statewide Importance, or Williamson Act lands.² However, approximately 0.3 mile of new 220 kV transmission line would be constructed within areas designated as Unique Farmland. While impacts to agriculture would be less than significant with the implementation of applicant-proposed and/or mitigation measures, the SCE Orange County System Alternative would have greater agricultural impacts than the Proposed Project because it involves construction within Unique Farmland.

4.3 AIR QUALITY

The SCE Orange County System Alternative would utilize similar construction methods, equipment, and crew sizes as the Proposed Project. As a result, the SCE Orange County System Alternative and the Proposed Project would result in similar daily criteria air pollutant emissions from the use of off-road equipment and on-road vehicles. The SCE Orange County System Alternative would require the installation of a new, double-circuit transmission line across approximately 22.6 miles of undisturbed, rugged terrain while the Proposed Project would require approximately 3 miles of new single-circuit transmission line in similar conditions. Construction in this type of terrain would require significant grading to establish access roads and permanent pads to install and maintain these facilities. When compared to the Proposed Project, the increased grading associated with the SCE Orange County System Alternative will result in increased fugitive dust emissions and more impacts to air quality during construction. The increased length of new transmission and subtransmission lines associated with the SCE

Orange County System Alternative will lead to an increase in criteria air pollutants during operation and maintenance from heavy vehicle use. Fugitive dust emissions during operation and maintenance will also be higher than the Proposed Project due to the additional unpaved vehicle travel required to access the transmission facilities. While impacts to air quality would be significant with the implementation of applicant-proposed and/or mitigation measures, the SCE Orange County System Alternative would have greater air quality impacts than the Proposed Project because it involves more grading to establish permanent access to the transmission line and requires a larger increase in operation and maintenance activities over what SCE currently conducts in the area.

4.4 BIOLOGICAL RESOURCES

The Proposed Project and the SCE Orange County System Alternative would cross suitable habitat for multiple special-status species, sensitive natural habitats, wildlife migratory corridors, and jurisdictional water features. The SCE Orange County System Alternative would require the installation of a new, double-circuit transmission line across approximately 22.6 miles of undisturbed, rugged terrain, while the Proposed Project would require approximately 3 miles of new single-circuit transmission line in similar conditions. Construction in this type of terrain would require significant grading and vegetation clearing to establish access roads and permanent pads to operate and maintain these facilities. The increased grading associated with the SCE Orange County System Alternative's transmission line construction will result in a greater disturbance to biological resources, including special-status species habitat and sensitive natural communities. These activities would also increase the potential for direct take of special-status species. The remainder of the SCE Orange County System Alternative would occur along existing roadways, similar to the Proposed Project. The substations associated with the SCE Orange County System Alternative and the Proposed Project would require similar levels of grading to prepare the site for use. While impacts to biological resources would be less than significant with the implementation of applicant-proposed and/or mitigation measures, the SCE Orange County System Alternative would have greater biological resource impacts than the Proposed Project because it involves more construction in potentially sensitive habitat.

4.5 CULTURAL RESOURCES

The SCE Orange County System Alternative would require the installation of a new, double-circuit transmission line across approximately 22.6 miles of undisturbed, rugged terrain, while the Proposed Project would require approximately 3 miles of new single-circuit transmission line in similar conditions. Construction in this type of terrain would require significant grading and vegetation clearing to establish access roads and permanent pads to operate and maintain these facilities. The remainder of the SCE Orange County System Alternative would occur along existing roadways, similar to the Proposed Project. The substations associated with the SCE Orange County System Alternative and the Proposed Project would require similar levels of grading to prepare the site for use.

The additional ground disturbance associated with the SCE Orange County System Alternative would increase the possibility of disturbing surface and subsurface cultural and paleontological resources. While impacts to cultural resources would be less than significant with the implementation of applicant-proposed and/or mitigation measures, the SCE Orange County

System Alternative would likely have greater cultural resource impacts than the Proposed Project because it involves more ground disturbance in previously undisturbed areas.

4.6 GEOLOGY AND SOILS

The SCE Orange County System Alternative would be located in a similar geologic setting to the Proposed Project and would involve the installation of similar structures. The new substation, portions of the transmission line, and portions of the subtransmission lines would be located within 1 mile of known earthquake faults. The SCE Orange County System Alternative, like the Proposed Project, is not located in the vicinity of historic landslides or on unstable geologic units. A SWPPP and proper engineering practices would be implemented for both the SCE Orange County System Alternative and the Proposed Project. As a result, the SCE Orange County System Alternative would have similar impacts to geology and soils as the Proposed Project. Based on the information SCE has analyzed, impacts to geology and soils would be less than significant.

4.7 HAZARDS AND HAZARDOUS MATERIALS

The majority of the SCE Orange County System Alternative (approximately 22 miles of transmission line) would be constructed within a CPUC Tier 3 (i.e., extreme) fire threat area. Portions of the Proposed Project (approximately 12 miles of transmission and subtransmission line and the new Alberhill Substation) would also be constructed in high-fire-threat areas. Similar measures would be implemented for both the SCE Orange County System Alternative and the Proposed Project to reduce the risk of wildfire during construction, operation, and maintenance. In order to evaluate the risk of wildfire, SCE utilized its MARS model from the RAMP proceeding to determine the relative contribution that each of the system alternatives would make to increase the overall wildfire risk profile of SCE's system. The SCE Orange County System Alternative would cause a greater increase in wildfire risk profile than the Proposed Project if implemented. Similar to the Proposed Project, measures would be implemented for the SCE Orange County System Alternative to reduce the risk of transport, use, or disposal of hazardous materials and the release of hazardous materials, substances, or waste. Similar to the Proposed Project, off-road equipment and on-road vehicle use are anticipated to be the dominant noise sources during construction; therefore, noise from local airports would not pose a hazard for construction personnel. In addition, neither the SCE Orange County System Alternative nor Proposed Project would involve construction on a site known to have hazardous waste or contamination. While impacts to hazards and hazardous materials would be less than significant with the implementation of applicant-proposed and/or mitigation measures, the SCE Orange County System Alternative would have greater hazard and hazardous material impacts than the Proposed Project because it involves the construction and operation and maintenance of more new facilities within a CPUC Tier 3 fire threat area.

4.8 HYDROLOGY AND WATER QUALITY

The SCE Orange County System Alternative would be constructed with similar construction techniques to the Proposed Project; however, it would be located in an area that has more topographic variation and undeveloped areas than the Proposed Project. This topographic variation will result in a higher potential to affect water quality in the area due to the grading

associated with the construction of new, permanent access roads and pads to install and maintain the transmission facilities. Further, the increased construction in undeveloped areas is likely to result in the direct impact of more jurisdictional water features when compared to the Proposed Project. Similar to the Proposed Project, the SCE Orange County System Alternative would implement measures to reduce the potential for impacts to water quality and changes in drainage patterns. Both the SCE Orange County System Alternative and Proposed Project would involve the construction of a new substation. These substations would be of similar size and introduce a similar amount of new impermeable surfaces. The installation of new overhead transmission and subtransmission facilities would result in minimal increases in impermeable surfaces; therefore, both would lead to similar levels of increased runoff. While impacts would be less than significant with the implementation of applicant-proposed and/or mitigation measures, the SCE Orange County System Alternative would have greater hydrology and water quality impacts than the Proposed Project because it involves more grading in undeveloped areas and is likely to impact more jurisdictional water features.

4.9 LAND USE AND PLANNING

The SCE Orange County System Alternative would be located in unincorporated portions of Orange, San Diego, and Riverside counties, and the cities of Murrieta and Wildomar. Similar to the Proposed Project, the new substation would be constructed in a primarily undeveloped area; therefore, it would not divide an established community. In addition, the overhead transmission and subtransmission lines associated with the SCE Orange County System Alternative and Proposed Project would not impair movement or otherwise physically divide communities. The SCE Orange County System Alternative would involve the construction of a new, double-circuit transmission line across approximately 5.5 miles of the CNF and approximately 4.7 miles of the Santa Rosa Plateau Ecological Reserve. Though these existing land uses promote open space, utility uses are typically allowed. Lastly, the SDG&E System Alternative and Proposed Project would participate in one or more Habitat Conservation Plans and/or Natural Community Conservation Plans. As a result, similar to the Proposed Project and based on the information SCE has analyzed, the SCE Orange County System Alternative would have less-than-significant impacts on land use and planning with the implementation of applicant-proposed and/or mitigation measures.

4.10 MINERAL RESOURCES

The Proposed Project is partially located within an identified MRZ-3 zone and would result in the potential loss of exploration and utilization of potentially occurring mineral resources due to the installation of new facilities. The SCE Orange County System Alternative is not located within a known MRZ and therefore would not impact known mineral resources. As a result, and based on the information SCE has analyzed, there would be no impact; the Orange County System Alternative would have less impact to mineral resources when compared to the Proposed Project.

4.11 NOISE

The northeastern portion of the SCE Orange County System Alternative is characterized by urban development and the remainder is characterized by undisturbed steep hills and terrain. The

majority of the new transmission line construction would occur within undeveloped areas where limited noise sensitive receptors would be present. Similar to the Proposed Project, the majority of the subtransmission line construction would occur along existing roadways and in developed areas. The SCE Orange County System Alternative and Proposed Project would also utilize similar construction techniques; therefore, noise levels during construction of the transmission and subtransmission lines would be similar. In addition, the operation and maintenance practices of (and therefore the noise from) these facilities would be similar for the SCE Orange County System Alternative and the Proposed Project. The new substation would have existing residences approximately 0.25 mile to the northeast, while Alberhill Substation would be surrounded by undeveloped uses. While impacts to noise would be significant with the implementation of applicant-proposed and/or mitigation measures, the SCE Orange County System Alternative would have greater noise impacts than the Proposed Project because the construction and operation and maintenance of the substation would be located closer proximity to sensitive receptors.

4.12 POPULATION AND HOUSING

Similar to the Proposed Project, the SCE Orange County System Alternative would rely on a primarily local workforce and would not induce population growth. Neither the Proposed Project nor the SCE Orange County System Alternative would displace substantial numbers of existing housing units or people, and no new housing would need to be constructed. As a result, similar to the Proposed Project and based on the information SCE has analyzed, the SCE Orange System Alternative would have less-than-significant impacts on population and housing.

4.13 PUBLIC SERVICES

The majority of the SCE Orange County System Alternative (approximately 22 miles of transmission line) would be constructed in CPUC Tier 3 (i.e., extreme) fire threat areas. Portions of the Proposed Project (approximately 12 miles of transmission and subtransmission line and the new Alberhill Substation) would also be constructed in high-fire-threat areas. Similar measures would be implemented for both the SCE Orange County System Alternative and the Proposed Project to reduce the risk of wildfire during construction, operation, and maintenance and the measures would not require the expansion of fire protection services. In addition, the majority of the transmission line construction would occur off of public roadways, reducing the potential impact on government agency response times. Neither the SCE Orange County System Alternative nor the Proposed Project would be likely to require the use of law enforcement agencies, nor would either induce population growth requiring the construction of additional governmental or public facilities. As a result, similar to the Proposed Project and based on the information SCE has analyzed, impacts to public services would be less than significant with the implementation of applicant-proposed and/or mitigation measures.

4.14 RECREATION

The SCE Orange County System Alternative would cross the Santa Rosa Plateau Ecological Reserve, which includes multi-use trails for recreational activities. Construction of the new transmission line would result in temporary access restrictions or a partial closure of the reserve and some of the associated trails. The Proposed Project would also require the temporary closure

of one existing park during conductor stringing. If construction crews from the local workforce are not used, similar to the Proposed Project, there is the potential for an increase the use of recreational facilities. Neither the Proposed Project nor the SCE Orange County System Alternative would involve the construction or expansion of existing recreational facilities. As a result, similar to the Proposed Project and based on the information SCE has analyzed, impacts to recreation would be less than significant with the implementation of applicant-proposed and/or mitigation measures.

4.15 TRANSPORTATION AND TRAFFIC

The SCE Orange County System Alternative would involve construction of approximately 7.6 miles of subtransmission line along existing roadways. This is less than the 17.5 miles of subtransmission line construction along existing roadways associated with the Proposed Project. While the SCE Orange County System Alternative and Proposed Project are anticipated to use similar construction techniques, which would likely require temporary lane and/or road closures, the reduced length of construction along existing roadways is likely to result in less congestion during construction. Similar operation and maintenance activities would be utilized for the SCE Orange County System Alternative and the Proposed Project; therefore, these impacts would be similar. Similar to the Proposed Project, the SCE Orange County System Alternative is not anticipated to increase hazards, result in inadequate emergency access, result in inadequate parking, or conflict with alternative transportation. As a result, the SCE Orange County System Alternative would have less impact on transportation and traffic than the Proposed Project. Based on the information SCE has analyzed, impacts would be less than significant with the implementation of applicant-proposed and/or mitigation measures.

4.16 UTILITIES AND SERVICE SYSTEMS

The SCE Orange County System Alternative and the Proposed Project would have similar grading requirements for substation construction. The Proposed Project and alternative would also have similar landfill, solid waste, and water treatment requirements. As a result, the SCE Orange County System Alternative would have similar impacts to utilities and service systems to the Proposed Project. Based on the information SCE has analyzed, impacts to utilities and service systems would be less than significant.

MIRA LOMA SYSTEM ALTERNATIVE

4.1 AESTHETICS

The Mira Loma System Alternative is located in unincorporated portions of Riverside County as well as in the cities of Ontario, Norco, and Corona. The system alternative is located in areas primarily characterized as developed, including residential, commercial, and industrial areas. The new substation would be visible from residential areas; however, it would be located on a parcel that currently contains an existing SCE transmission corridor. It will also be adjacent to SCE's existing Mira Loma Substation. The proposed Alberhill Substation would be located in a more rural setting where it would be visible to motorists utilizing Interstate 15. The new subtransmission line portion of the system alternative between this new substation and Ivy Glen Substation would extend approximately 21.6 miles along existing roadways. Similar to the

Proposed Project, portions of the new subtransmission line would be constructed in areas where SCE owns and operates existing overhead transmission and subtransmission line facilities. Due to the relatively developed nature of this route, the new subtransmission line would represent an incremental change in the existing visual character. In addition, the short new subtransmission line near Fogarty Substation would be built adjacent to an existing overhead subtransmission line, representing an incremental change in visual character. While this system alternative involves more new subtransmission line construction than the Proposed Project, the Mira Loma System Alternative would result in similar impacts to the Proposed Project due to its location in a previously developed area. Based on the information SCE has analyzed, impacts to aesthetics would be significant with the implementation of applicant-proposed and/or mitigation measures.

4.2 AGRICULTURAL RESOURCES

Similar to the Proposed Project, the Mira Loma System Alternative would not cross Unique Farmland, Williamson Act land, or Farmland of Statewide Importance.² However, approximately 0.5 mile of new, double-circuit subtransmission line would be constructed within Prime Farmland. While impacts to agriculture would be less than significant with the implementation of applicant-proposed and/or mitigation measures, the Mira Loma System Alternative would have greater agricultural impacts than the Proposed Project because it involves construction within Prime Farmland.

4.3 AIR QUALITY

The Mira Loma System Alternative would utilize similar construction methods, equipment, and crew sizes as the Proposed Project. As a result, the Mira Loma System Alternative and the Proposed Project would result in similar daily criteria air pollutant emissions from the use of off-road equipment and on-road vehicles. Both the Mira Loma System Alternative and the Proposed Project have existing access along the majority of their transmission and subtransmission routes; therefore, grading to establish access roads and permanent pads to install and maintain these facilities would be considered similar. As a result, the Mira Loma System Alternative's impacts to air quality would be similar to those associated with the Proposed Project. Based on the information SCE has analyzed, impacts to air quality would be significant with the implementation of applicant-proposed and/or mitigation measures.

4.4 BIOLOGICAL RESOURCES

The Mira Loma System Alternative's subtransmission line components would primarily be constructed adjacent to existing roadways, limiting the need for grading to establish access and permanent pads to operate and maintain these facilities. Similarly, the Proposed Project's subtransmission line components would primarily consist of construction along existing roadways or where SCE has already established permanent access. The Mira Loma System Alternative would require the construction of new, double-circuit subtransmission line across the Santa Ana River, where special-status species are known to occur. The substations associated with the Mira Loma System Alternative and the Proposed Project would require similar levels of grading to prepare the site for use. Due to the similar levels of ground disturbance and the limited special-status species habitat along the Mira Loma System Alternative route, this alternative and the Proposed Project would have similar impacts to biological resources. Based on the

information SCE has analyzed, impacts to biological resources would be less than significant with the implementation of applicant-proposed and/or mitigation measures.

4.5 CULTURAL RESOURCES

The Mira Loma System Alternative's subtransmission line components would primarily be constructed adjacent to existing roadways, limiting the need for grading to establish access and permanent pads to operate and maintain these facilities. Similarly, the Proposed Project's subtransmission line components would primarily consist of construction along existing roadways or where SCE has already established permanent access. The substations associated with the Mira Loma System Alternative and the Proposed Project would require similar levels of grading to prepare the site for use. Because surface and subsurface cultural and paleontological resources are most likely to be disturbed during ground-disturbing activities, the Mira Loma System Alternative and the Proposed Project would likely have similar impacts to cultural resources. Based on the information SCE has analyzed, impacts to cultural resources would be less than significant with the implementation of applicant-proposed and/or mitigation measures.

4.6 GEOLOGY AND SOILS

The Mira Loma System Alternative would be located in a similar geologic setting to the Proposed Project and would involve the installation of similar structures. The Mira Loma System Alternative would not be located within 1 mile of known earthquake faults, nor in the vicinity of historic landslide or unstable geologic units. A SWPPP and proper engineering practices would be implemented for both the Mira Loma System Alternative and the Proposed Project. As a result, the Mira Loma System Alternative would have similar impacts to geology and soils as the Proposed Project. Based on the information SCE has analyzed, impacts to geology and soils would be less than significant.

4.7 HAZARDS AND HAZARDOUS MATERIALS

The Mira Loma System Alternative would be constructed within developed areas or areas of low fire threat. In contrast, the Proposed Project would be constructed in high-fire-threat areas. Similar measures would be implemented for both the Mira Loma System Alternative and the Proposed Project to reduce the risk of wildfire during construction, operation, and maintenance. In order to evaluate the risk of wildfire, SCE utilized its MARS model from the RAMP proceeding to determine the relative contribution that each of the system alternatives would make to increase the overall wildfire risk profile of SCE's system. The Mira Loma System Alternative would result in a smaller increase to in wildfire risk profile than the Proposed Project if implemented. Similar to the Proposed Project, measures would be implemented for the Mira Loma System Alternative to reduce the risk of transport, use, or disposal of hazardous materials and the release of hazardous materials, substances, or waste. Similar to the Proposed Project, off-road equipment and on-road vehicle use are anticipated to be the dominant noise sources during construction; therefore, noise from local airports would not pose a hazard for construction personnel. In addition, neither the Mira Loma System Alternative nor Proposed Project would involve construction on a site known to have hazardous waste or contamination. As a result of the reduced impact on the MARS baseline, the Mira Loma System Alternative would have less impacts to hazards and hazardous materials when compared to the Proposed Project. Based on

the information SCE has analyzed, impacts would be less than significant with the implementation of applicant-proposed and/or mitigation measures.

4.8 HYDROLOGY AND WATER QUALITY

The Mira Loma System Alternative would be constructed with similar construction techniques to the Proposed Project and would be also be located primarily along existing roadways. Because the new subtransmission line would be installed primarily in developed areas, limited grading (and thus, limited impacts to jurisdictional water features) would be anticipated. Similar to the Proposed Project, the SCE Mira Loma System Alternative would implement measures to reduce the potential for impacts to water quality and changes in drainage patterns. Both the Mira Loma System Alternative and the Proposed Project would involve the construction of a new substation. These substations would be of similar size and introduce a similar amount of new impermeable surfaces. The installation of new overhead subtransmission facilities would result in minimal increases in impermeable surfaces; therefore, both would lead to similar levels of increased runoff. Due to the limited grading and anticipated impacts to potentially jurisdictional water features, the Mira Loma System Alternative would result in similar impacts to hydrology and water quality as the Proposed Project. Based on the information SCE has analyzed, impacts would be less than significant with the implementation of applicant-proposed and/or mitigation measures.

4.9 LAND USE AND PLANNING

The Mira Loma System Alternative would be located in unincorporated portions of Riverside County and in the cities of Ontario, Norco, and Corona. The new substation would be constructed in an area surrounded by industrial uses and undeveloped land that is zoned for residential uses, but that is vacant. Similar to the Proposed Project, construction of the substation would not divide an established community. In addition, the overhead transmission and subtransmission lines associated with the Mira Loma System Alternative and Proposed Project would not impair movement or otherwise physically divide communities. The Mira Loma System Alternative substation would be constructed within the Rich-Haven Specific Plan area in a location that is planned for single-family residential housing. The area includes existing SCE utility corridors and is adjacent to SCE's existing Mira Loma Substation. Lastly, the SDG&E System Alternative and Proposed Project would participate in one or more Habitat Conservation Plans and/or Natural Community Conservation Plans. While impacts to land use and planning would be less than significant with the implementation of applicant-proposed and/or mitigation measures, the Mira Loma System Alternative would have greater land use and planning impacts than the Proposed Project because construction of the substation would conflict with an existing specific plan.

4.10 MINERAL RESOURCES

The Proposed Project is partially located within an identified MRZ-3 zone and would result in the potential loss of exploration and utilization of potentially occurring mineral resources due to the installation of new facilities. The Mira Loma System Alternative is not located within a known MRZ and therefore would not impact known mineral resources. As a result, and based on

the information SCE has analyzed, there would be no impact; the Mira Loma System Alternative would have less impact to mineral resources when compared to the Proposed Project.

4.11 NOISE

The Mira Loma System Alternative is primarily characterized as developed, including residential, commercial, and industrial areas. The new transmission line and the majority of the new subtransmission line would be constructed in developed or residential areas. As a result, these facilities would be located in close proximity to multiple sensitive noise receptors. While the Mira Loma System Alternative and Proposed Project would utilize similar construction, operation, and maintenance techniques, the Mira Loma System Alternative's proximity to a greater number of sensitive noise receptors would lead to more impacts than the Proposed Project. The new substation would be located in a primarily industrial area with limited sensitive noise receptors; therefore, the noise impacts associated with the construction, operation, and maintenance of this substation would be similar to those associated with Alberhill Substation. While impacts to noise would be significant with the implementation of applicant-proposed and/or mitigation measures, the Mira Loma System Alternative would have greater impacts to noise when compared to the Proposed Project because it involves construction in closer proximity to more sensitive noise receptors.

4.12 POPULATION AND HOUSING

Similar to the Proposed Project, the Mira Loma System Alternative would rely on a primarily local workforce and would not induce population growth. Neither the Proposed Project nor the Mira Loma System Alternative would displace substantial numbers of existing housing units or people, and no new housing would need to be constructed. As a result, similar to the Proposed Project and based on the information SCE has analyzed, the Mira Loma System Alternative would have less-than-significant impacts on population and housing.

4.13 PUBLIC SERVICES

The Mira Loma System Alternative would be constructed within developed areas or areas of low fire threat. In contrast, the Proposed Project would be constructed in high-fire-threat areas. Similar measures would be implemented for both the Mira Loma System Alternative and the Proposed Project to reduce the risk of wildfire during construction, operation, and maintenance and the measures would not require the expansion of fire protection services. The majority of the subtransmission line construction for the Mira Loma System Alternative would occur in more densely populated areas than the Proposed Project. Work along these existing public roadways would likely require temporary lane and/or road closure and would have the potential to increase government agency response times. Neither the Mira Loma System Alternative nor the Proposed Project would be likely to require the use of law enforcement agencies, nor would either induce population growth requiring the construction of additional governmental or public facilities. While impacts to public services would be less than significant with the implementation of applicant-proposed and/or mitigation measures, the Mira Loma System Alternative would have greater public service impacts than the Proposed Project because it involves more construction along roadways in densely populated areas, likely leading to increased agency response times.

4.14 RECREATION

Similar to the Proposed Project, the Mira Loma System Alternative may require the temporary closure of existing parks and other recreational facilities located adjacent to the subtransmission line. If construction crews from the local workforce are not used, similar to the Proposed Project, there is the potential for an increase the use of recreational facilities. The Proposed Project and Mira Loma System Alternative would not involve the construction or expansion of existing recreational facilities. As a result, similar to the Proposed Project and based on the information SCE has analyzed, the Mira Loma System Alternative would have less-than-significant impacts on recreation with the implementation of applicant-proposed and/or mitigation measures.

4.15 TRANSPORTATION AND TRAFFIC

The Mira Loma System Alternative would involve construction of approximately 21.6 miles of subtransmission line along existing roadways. This is greater than the 17.5 miles of subtransmission line construction along existing roadways associated with the Proposed Project. While the Mira Loma System Alternative and Proposed Project are anticipated to use similar construction techniques, which would likely require temporary lane and/or road closures, the increased length of construction along existing roadways is likely to result in an increase in congestion during construction. Similar operation and maintenance activities would be utilized for the Mira Loma System Alternative and the Proposed Project; therefore, these impacts would be similar. Similar to the Proposed Project, the Mira Loma System Alternative is not anticipated to increase hazards, result in inadequate emergency access, result in inadequate parking, or conflict with alternative transportation. While impacts would be less than significant with the implementation of applicant-proposed and/or mitigation measures, the Mira Loma System Alternative would have greater transportation and traffic impacts than the Proposed Project because it involves more construction along roadways in densely populated areas, likely leading to increased congestion.

4.16 UTILITIES AND SERVICE SYSTEMS

The Mira Loma System Alternative and the Proposed Project would have similar grading requirements for substation construction. The Proposed Project and alternative would also have similar landfill, solid waste, and water treatment requirements. As a result, the Mira Loma System Alternative would have similar impacts to utilities and service systems to the Proposed Project. Based on the information SCE has analyzed, impacts to utilities and service systems would be less than significant.

5.0 COMPARISON OF ALTERNATIVES

This section compares the environmental impacts of the alternatives. California Environmental Quality Act (CEQA) Guidelines (Section 15126.6(d)) require that an environmental impact report include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the Alberhill System Project (ASP or Proposed Project).

The Basic Objectives, developed in Section 1.3, are as follows:

- Serve current and long-term projected electrical demand requirements in the Electrical Needs Area
- Increase system operational flexibility and maintain system reliability by creating system ties that establish the ability to transfer substations from the current Valley South 115 Kilovolt (kV) System
- Transfer a sufficient amount of load off of the Valley South 115 kV System to maintain a positive reserve capacity on the Valley South 115 kV System through the 10-year planning horizon
- Provide safe and reliable electrical service consistent with Southern California Edison's (SCE's) Transmission Planning Criteria and Guidelines
- Increase electrical system reliability by constructing a project in a location suitable to serve the Electrical Needs Area
- Meet project need while minimizing environmental impacts
- Meet project need in a cost-effective manner

These objectives guide in developing a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives. All of the alternatives evaluated in here and in Chapter 4 of this second amendment to the Proponent's Environmental Assessment (PEA), with the exception of the No Project Alternative, satisfy the project objectives.

General Order No. 131-D requires that an Application for a Certificate of Public Convenience and Necessity include the “[r]easons for adoption of the route selected, including comparison with alternative routes, including the advantages and disadvantages of each.”

As described in Chapter 4, Environmental Impact Assessment, with the implementation of Applicant Proposed Measures, the Proposed Project would have a potentially significant impact to air quality. All other impacts from construction and operation of the Proposed Project were anticipated to be less than significant. The Final Environmental Impact Report (FEIR), dated April 2017, supersedes the PEA and concluded there were Significant impacts to Aesthetics, Air

5.0 COMPARISON OF ALTERNATIVES

Quality, and Noise and Vibration.¹ The FEIR also concluded there were Less than Significant impacts to Agriculture and Forestry Resources; Biological Resources; Cultural Resources; Geology, Soils, and Minerals; Greenhouse Gases; Hazards and Hazardous Materials; Hydrology and Water Quality; Land Use and Planning; Population and Housing; Public Services and Utilities; Recreation; and Transportation.

As discussed in Chapter 2, Project Alternatives, both the Proposed Project and the Alternative 115 kV Segment have the ability to serve the Alberhill System Project. However, the new 115 kV subtransmission line associated with the Proposed Project would be built along paved roads, facilitating access for construction and maintenance, minimizing environmental impacts. The Alternative 115 kV Segment would require construction on unpaved roads in hilly terrain along a route that is slightly longer in length. This would require more earthwork and dust control during construction.

Chapter 2, Project Alternatives also provides a detailed description of three additional System Alternatives—San Diego Gas & Electric Company (SDG&E), SCE Orange County, and Mira Loma—that have been developed to meet the ASP’s Project Objectives.

The SDG&E system alternative would be located in unincorporated portions of San Diego and Riverside counties, the City of Temecula, and the community of Rainbow. Similar to the Proposed Project, a new, approximately 15-acre substation would be constructed on undeveloped land. This system alternative would involve the construction approximately 6.4 miles of new, double-circuit transmission line within previously undisturbed, hilly terrain. This portion of the SDG&E system alternative would require new, permanent access roads and pads for installation and operation and maintenance of the transmission facilities. This would require more earthwork and dust control during construction. This component of the system alternative would also cross the Pechanga Reservation. The remainder of the system alternative would primarily be constructed along existing roadways, similar to the Proposed Project.

The SCE Orange County system alternative would be located in unincorporated portions of Orange, San Diego, and Riverside counties, the cities of Murrieta and Wildomar. Similar to the Proposed Project, a new, approximately 15-acre substation would be constructed on undeveloped land. This system alternative would also involve the construction of approximately 22.6 miles of new, double-circuit transmission line within previously undisturbed, hilly terrain. This portion of the SCE Orange County system alternative would require new, permanent access roads and pads for installation and operation and maintenance of the transmission facilities. This would require more earthwork and dust control during construction. This component system alternative would also cross Cleveland National Forest, under the jurisdiction of the United States Forest Service, and the Santa Rosa Plateau Ecological Reserve, under the jurisdiction of the California Department of Fish and Wildlife. The remainder of the system alternative would generally be constructed adjacent to existing roadways in developed areas, similar to the Proposed Project.

¹ The FEIR also determined there would be significant cumulative impacts to Aesthetics, Air Quality, and Biological Resources. It also determined there would be a potential for significant cumulative impacts to Cultural Resources if multiple projects were to impact the same known resource.

The Mira Loma system alternative would be located in unincorporated portions of Riverside County, and the cities of Ontario, Norco, and Corona. Similar to the Proposed Project, a new, approximately 15-acre substation would be constructed on undeveloped land. This system alternative involves approximately 21.6 miles of new, double-circuit subtransmission line construction primarily adjacent to existing roads in developed areas. An additional, approximately 0.6-mile segment of new subtransmission line would be constructed adjacent to an existing subtransmission line near SCE's Fogarty Substation. As a result, limited earth work and grading would be associated with this system alternative.

Table 5.1, Comparison of Alternatives, compares the environmental impact of the Proposed Project, the Alternative 115 kV Segment, and the three additional System Alternatives by CEQA resource category.

5.0 COMPARISON OF ALTERNATIVES

Table 5.1 Comparison of Alternatives

Section	Proposed Project (PEA)	Proposed Project (FEIR)	Alternative 115 kV Segment	SDG&E System Alternative	SCE Orange County System Alternative	Mira Loma System Alternative
Aesthetics	Less than significant	Significant	Similar to the Proposed Project	More than the Proposed Project	More than the Proposed Project	Similar to the Proposed Project
Agricultural Resources	Less than significant	Less than significant	Similar to the Proposed Project	More than the Proposed Project	More than the Proposed Project	More than the Proposed Project
Air Quality	Significant	Significant	More than the Proposed Project	More than the Proposed Project	More than the Proposed Project	Similar to the Proposed Project
Biological Resources	Less than significant	Less than significant with mitigation	Similar to the Proposed Project	More than the Proposed Project	More than the Proposed Project	Similar to the Proposed Project
Cultural Resources	Less than significant	Less than significant with mitigation	Similar to the Proposed Project	More than the Proposed Project	More than the proposed Project	Similar to the Proposed Project
Geology and Soils	Less than significant	Less than significant	More than the Proposed Project	Similar to the Proposed Project	Similar to the Proposed Project	Similar to the Proposed Project
Hazards and Hazardous Materials	Less than significant	Less than significant with mitigation	More than the Proposed Project	Similar to the Proposed Project	More than the Proposed Project	Less than the Proposed Project
Hydrology and Water Quality	Less than significant	Less than significant with mitigation	More than the Proposed Project	More than the Proposed Project	More than the Proposed Project	Similar to the Proposed Project
Land Use and Planning	No Impact	Less than significant with mitigation	Same as the Proposed Project	Similar to the Proposed Project	Similar to the Proposed Project	More than the Proposed Project
Mineral Resources	Less than significant	Less than significant	Similar to the Proposed Project	Less than the Proposed Project	Less than the Proposed Project	Less than the Proposed Project

Section	Proposed Project (PEA)	Proposed Project (FEIR)	Alternative 115 kV Segment	SDG&E System Alternative	SCE Orange County System Alternative	Mira Loma System Alternative
Noise	Less than significant	Significant	More than the Proposed Project	More than the Proposed Project	More than the Proposed Project	More than the Proposed Project
Population and Housing	No Impact	Less than significant	Same as the Proposed Project	Same as the Proposed Project	Same as the Proposed Project	Same as the Proposed Project
Public Services	Less than significant	Less than significant with mitigation	Similar to the Proposed Project	Similar to the Proposed Project	Similar to the Proposed Project	More than the Proposed Project
Recreation	No Impact	Less than significant	Same as the Proposed Project	Less than the Proposed Project	Similar to the Proposed Project	Similar to the Proposed Project
Transportation and Traffic	Less than significant	Less than significant with mitigation	Similar to the Proposed Project	Less than the Proposed Project	Less than the Proposed Project	More than the Proposed Project
Utilities and Service Systems	Less than significant	Less than significant	Similar to the Proposed Project	Similar to the Proposed Project	Similar to the Proposed Project	Similar to the Proposed Project