

Appendix C
Alternatives Screening Report

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Alternatives Screening Report

Southern California Gas Company (the applicant) provides natural gas to approximately six million customers in Southern California and operates four storage fields to meet customer demand. With an inventory of approximately 165 billion cubic feet (cf), the Aliso Canyon Natural Gas Storage Field (storage field) (Figures 1 and 2) is the applicant’s largest underground natural gas storage field and one of the largest in the United States. The storage field has a withdrawal capacity of up to 1.875 billion cf per day and an injection capacity of up to 300 million cf per day. Injection at the storage field is provided by three gas turbine–driven compressors, which are powered by natural gas.

On September 28, 2009, the applicant filed an application (A.09-09-020) and Proponent’s Environmental Assessment (PEA) with the California Public Utilities Commission (CPUC) to amend its Certificate of Public Convenience and Necessity for the construction and operation of the Aliso Canyon Turbine Replacement Project (the proposed project). The application was deemed complete on March 24, 2010.

As the lead agency, the CPUC will prepare an Environmental Impact Report (EIR) to evaluate the proposed project in accordance with the criteria, standards, and procedures of the California Environmental Quality Act (CEQA) (Public Resources Code Sections 2100 et. seq. and California Administrative Code Sections 15000 et. seq.). This report describes the alternatives screening analysis that was conducted to determine the range of alternatives to carry forward for analysis in the EIR. It documents the criteria that were used to evaluate and select alternatives for further analysis, including their feasibility, the extent to which they would meet most of the basic objectives of the proposed project, and their potential to avoid or substantially lessen any of the significant effects of the proposed project.

Some of the alternatives reviewed in this report were presented in the PEA and others were identified by the CPUC Energy Division as a result of the agency’s independent review. The alternatives screening process identified and evaluated 11 potential alternatives to the proposed project, including the No Project Alternative. The alternatives considered during screening included alternative system designs and technologies, alternate sites for the proposed Central Compressor Station and Natural Substation, electrical and telecommunications line routing alternatives, and a Non-wires Alternative.

1.0 Alternatives Screening Methodology

The screening of alternatives to the proposed project was completed by:

- Determining the proposed project objectives;
- Compiling a preliminary list of potentially significant effects of the proposed project;
- Generating a broad list of potential alternatives that may avoid or reduce the potentially significant effects of the proposed project;
- Clarifying the description of each potential alternative to allow for comparison; and
- Evaluating each alternative pursuant to CEQA Guidelines Section 15126.6 and reducing the number of alternatives to a *reasonable range* for full analysis in the EIR (see also Section 1.4 of this report, “Reasonable Range of Alternatives”).

CEQA Guidelines Section 15126.6 states that “an EIR shall describe a range of reasonable alternatives to the project, or to 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, and

1 evaluate the comparative merits of the alternatives.” Accordingly, each alternative on the broad list of
2 alternatives was evaluated against the following criteria:

- 3
- 4 I. Does the alternative meet most of the basic objectives of the proposed project?
- 5 II. Is the alternative potentially feasible?
- 6 III. Does the alternative avoid or substantially lessen any significant effects of the proposed project?
- 7

8 **1.1 Basic Objectives of the Proposed Project**

9

10 The applicant is required to implement the proposed project to meet the terms of Phase 1 of the
11 Settlement Agreement (CPUC 2009) between the applicant and parties to the 2009 Biennial Cost
12 Allocation Proceeding approved by the CPUC. The Settlement Agreement requires that the applicant
13 increase the overall injection capacity at the field by approximately 145 million cf per day.

14

15 The proposed project would replace the existing gas turbine–driven compressors with new electric-driven,
16 variable speed compressors that would be capable of increasing the storage field’s natural gas injection
17 capacity from approximately 300 million cf per day to approximately 450 million cf per day. The storage
18 field’s withdrawal capacity would not change.

19

20 The proposed compressors would also improve natural gas service reliability and efficiency. The gas
21 turbine–driven compressors were installed in 1971. The electric-driven, variable speed compressors
22 would alter compressor speed as gas pressure ratios and flow rates change more precisely than the gas
23 turbines. Hence, the proposed compressors would be capable of better matching operating pressures at the
24 storage field. The proposed compressors would also be more energy efficient and would require less
25 maintenance.

26

27 The two basic objectives of the proposed project are to:

- 28
- 29 1. Comply with the terms of the Settlement Agreement implemented by CPUC decision A.08-02-
30 001; and
- 31 2. Maintain or improve the reliability and efficiency of storage field operations.
- 32

33 These two basic objectives are described in more detail in Section 2.0 of this report.

34 **1.2 Feasibility**

35

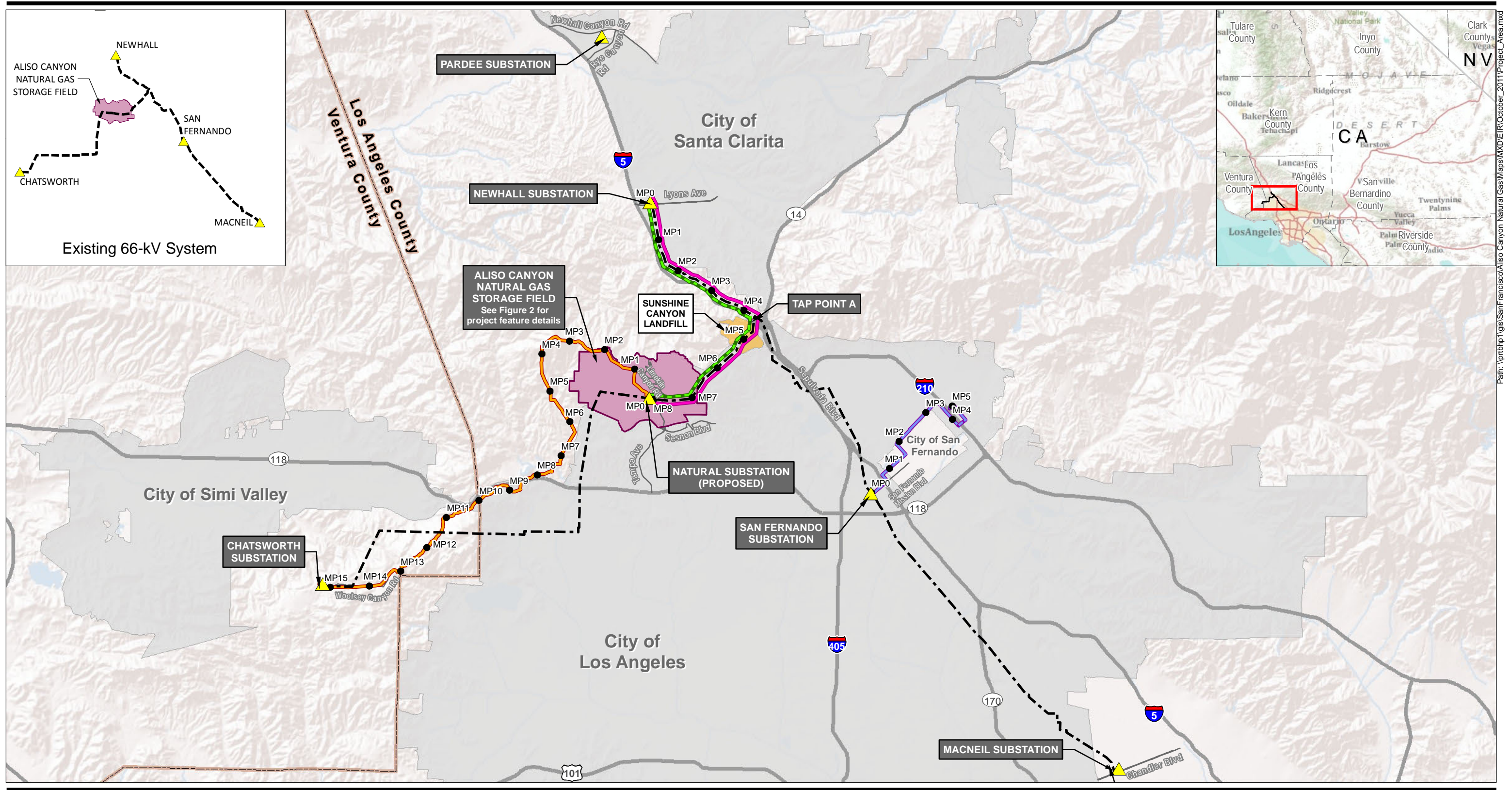
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37 For the purposes of this screening report, economic, legal, social, and technological factors were taken
38 into account to the degree possible prior to conducting a full analysis in the EIR. Feasibility is defined in
39 the CEQA Guidelines, Section 15364, as follows:

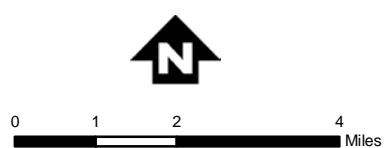
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41 *“Feasible” means capable of being accomplished in a successful manner within a reasonable*
42 *period of time, taking into account economic, environmental, legal, social, and technological*
43 *factors.*

44



- Milepost (MP)
- ⚡ 66-Kv Subtransmission Line Reconductoring Route (Proposed)
- Telecommunications Route #1
- Telecommunications Route #2
- Telecommunications Route #3
- - - Existing 66kV Sub Transmission Line

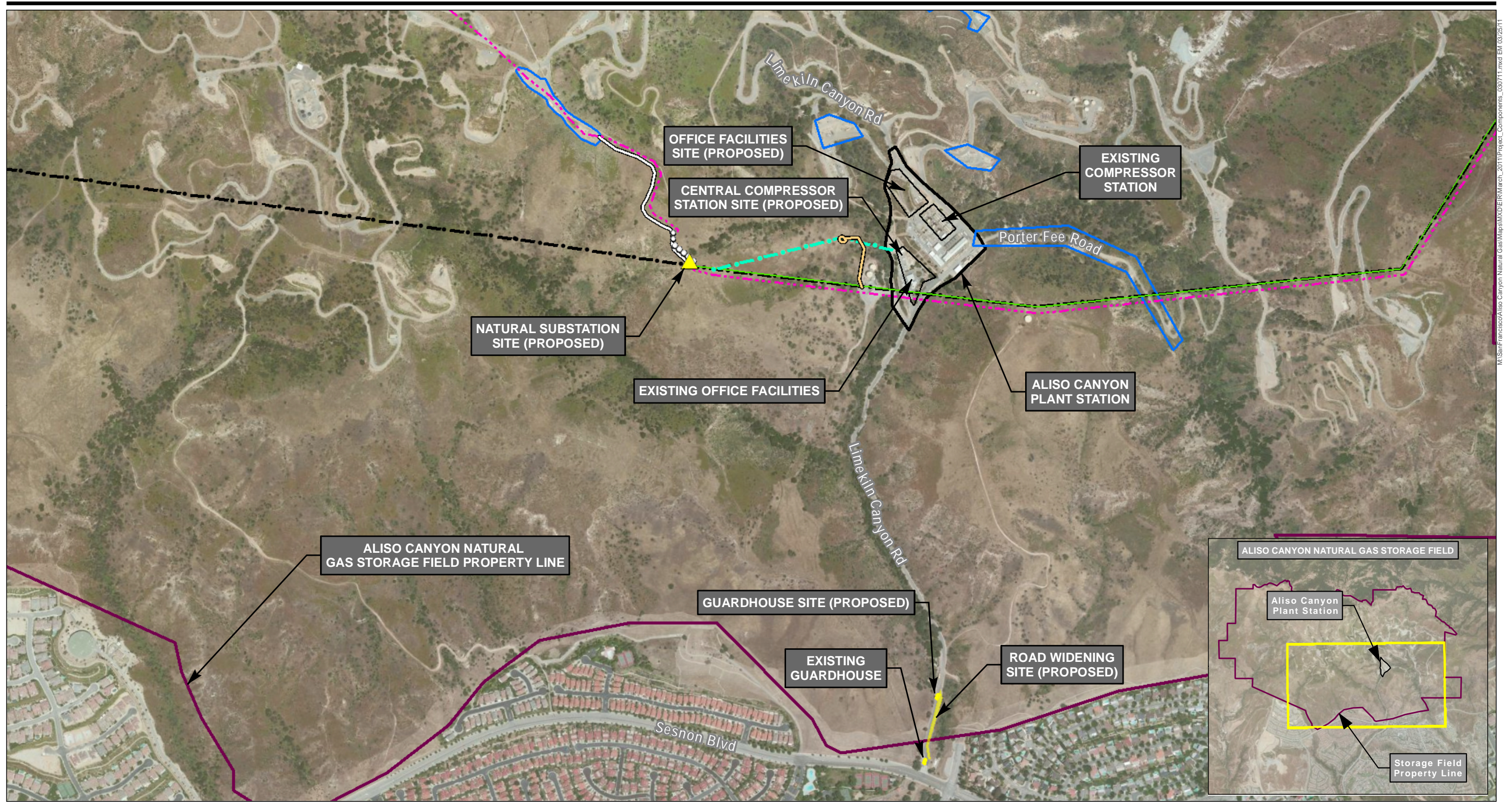


Note: Where subtransmission lines and telecommunications routes are parallel, they are shown offset for graphical purposes only. The lines would be co-located overhead on the same structures.









Figure 1
Proposed Project Area

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-  66-kV Subtransmission Line Reconductoring Route (Proposed)
-  Existing SCE 66-kV Subtransmission Line
-  Overhead Fiber Optic Cable (Proposed)
-  12-kV Plant Power Line (Proposed)
-  Underground Fiber Optic Cable (Proposed)
-  Access Road (Proposed)
-  Road Upgrade for Use as Haul Road (Proposed)
-  Staging Area (Proposed)



Note: Where subtransmission lines and telecommunications routes are parallel, they are shown offset for graphical purposes only. The lines would be co-located overhead on the same structures.

Figure 2-2
**Components of the
Proposed Project at the Storage Field**

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The CEQA Guidelines, Section 15126.6(f)1, further discuss feasibility with respect to alternatives:

Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent).

Although economic viability may be used as a factor in determining the feasibility of an alternative, the CEQA Guidelines do require consideration of alternatives capable of eliminating or reducing significant environmental effects even if they “would be more costly” (Section 15126.6[b]). This report does not make an in-depth evaluation of relative economic factors or costs of alternatives. Furthermore, the CPUC’s proceedings for the applicant’s Certificate of Public Convenience and Necessity may separately and specifically consider cost issues as they pertain to economic viability.

1.3 Potentially Significant Effects

Table 1 provides a summary of potentially significant effects from construction and operation of the proposed project. The term *potential* is used because at the time that this report was prepared, results from the analysis of the effects of the proposed project were still preliminary. The analysis of effects of the proposed project will be completed for inclusion in the EIR.

Table 1 Summary of Potentially Significant Effects of the Proposed Project

Resource Area	Potential Effects ¹	Cause	Construction/ Operations
Air Quality	<ul style="list-style-type: none"> Violate any air quality standard or contribute substantially to an existing or projected air quality violation; or Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors). 	<ul style="list-style-type: none"> Ozone precursors from the combustion of fuel by construction equipment and vehicles Region is classified nonattainment (extreme) for ozone² 	Construction
Biological Resources	<ul style="list-style-type: none"> Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service; or Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service. 	<ul style="list-style-type: none"> Impacts to coastal California gnatcatcher³ (Figure 3) Impacts to coastal California gnatcatcher critical habitat (Coastal, Venturan, Diegan, and Riversidean Sage Scrub) 	Construction and Operations

Table 1 Summary of Potentially Significant Effects of the Proposed Project

Resource Area	Potential Effects ¹	Cause	Construction/ Operations
Cultural Resources	<ul style="list-style-type: none"> • Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5; • Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5; • Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or • Disturb any human remains, including those interred outside of formal cemeteries. 	<ul style="list-style-type: none"> • Cultural resources could be disturbed along the 66-kV subtransmission line and telecommunications line routes.⁴ 	Construction
Noise	<ul style="list-style-type: none"> • Exposure of people to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. 	<ul style="list-style-type: none"> • Subtransmission line reconductoring and fiber optic cable installation routes would be located within 100 feet of a number of sensitive receptors. 	Construction
Hazards and Hazardous Materials	<ul style="list-style-type: none"> • Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. 	<ul style="list-style-type: none"> • The storage field and proposed subtransmission reconductoring and telecommunications line routes are located within a Very High Fire Hazard Severity Zone (CAL FIRE 2007). 	Construction and Operations

Key:

kV = kilovolt

Notes:

¹ The statements of potential effects are listed as written in Appendix G of the CEQA Guidelines.

² If the National Ambient Air Quality Standards or California Ambient Air Quality Standards are exceeded for a pollutant, then the region is designated as “nonattainment” for that pollutant. Nonattainment areas can be further classified based on the severity of the exceedance of the relevant standard.

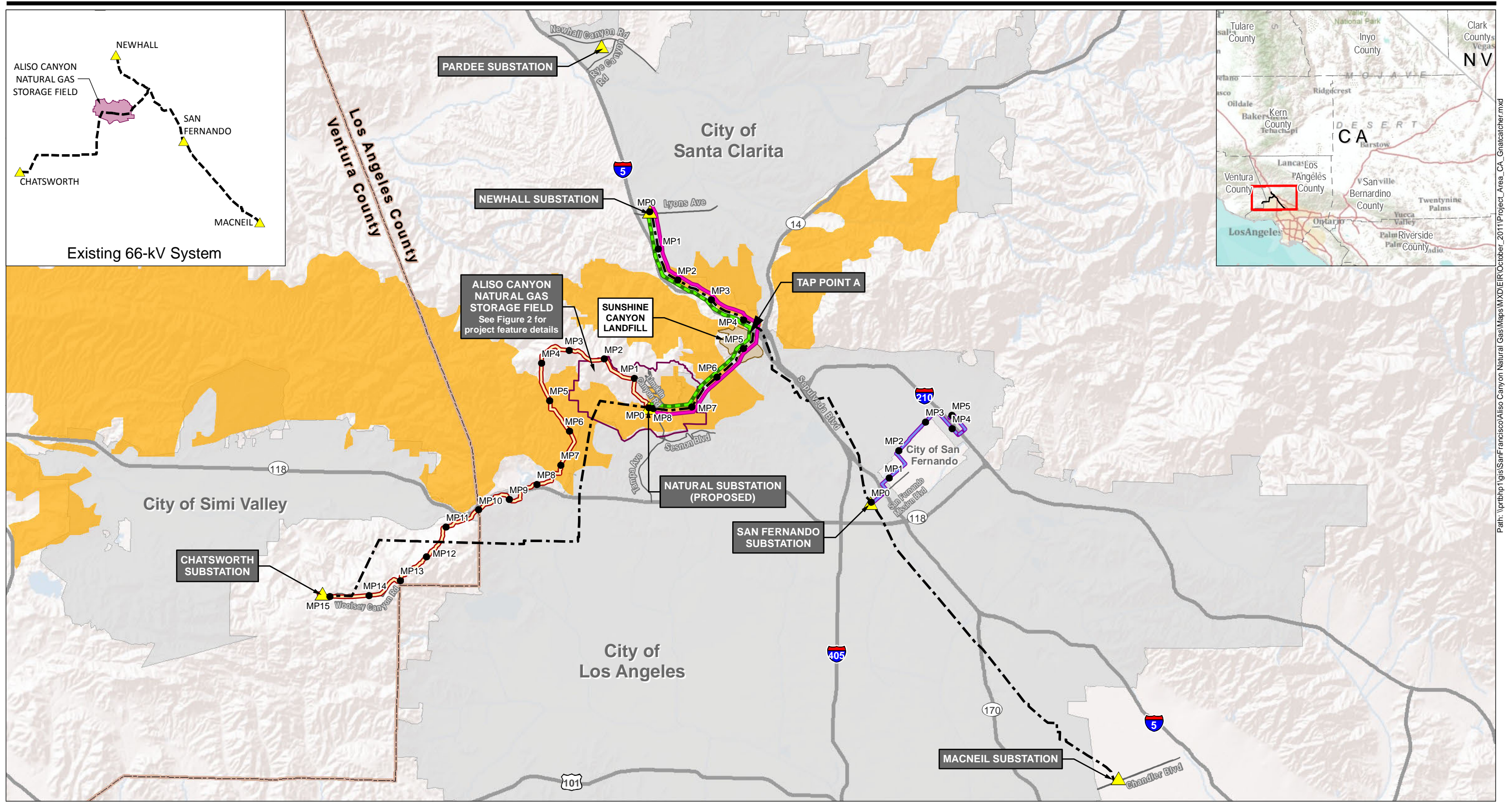
³ The California gnatcatcher is listed threatened under the federal Endangered Species Act and is a species of special concern in California.

⁴ No cultural resources survey data were provided by the applicant for the 66-kV subtransmission line routes. A records search indicated that previously recorded cultural resources are located along Telecommunications Route #2.

1.4 Reasonable Range of Alternatives

The range of alternatives required in an EIR is determined by the “rule of reason.” Neither the EIR nor this alternatives screening report will consider every conceivable alternative to a project. To determine a reasonable range of alternatives for consideration in the EIR, the CEQA Guidelines, Section 15126.6(f), provide the following guidance:

The range of alternatives required in an EIR is governed by a “rule of reason” that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project. The range of feasible alternatives shall be selected and discussed in a manner to foster meaningful public participation and informed decision making.



- Milepost (MP)
- 66-Kv Subtransmission Line Reconductoring Route (Proposed)
- Telecommunications Route #1
- Telecommunications Route #2
- Telecommunications Route #3
- Existing 66kV Sub Transmission Line
- 🦋 Coastal California Gnatcatcher Critical Habitat

Note: Where subtransmission lines and telecommunications routes are parallel, they are shown offset for graphical purposes only. The lines would be co-located overhead on the same structures.

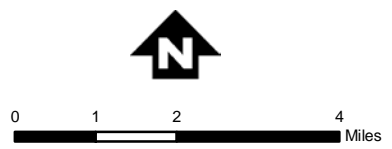


Figure 3
Coastal California Gnatcatcher Critical Habitat

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1 The potentially significant effects listed in Table 1 were used as a basis for screening alternatives from the
2 broad list into a reasonable range. In addition, each alternative’s feasibility and ability to meet the basic
3 objectives of the proposed project are considered during screening.
4

5 **1.5 Alternatives to Transmission Facilities (Non-wires Alternatives)**

6
7 Pursuant to California Public Utilities Code Section 1002.3, the CPUC must “consider cost-effective
8 alternatives to transmission facilities that meet the need for an efficient, reliable, and affordable supply of
9 electricity, including, but not limited to, demand-side alternatives” While not required under Section
10 1002.3 to be considered as part of the EIR, the CPUC typically does perform this analysis as part of the
11 environmental review of projects proposing electric transmission facilities requiring a Certificate of
12 Public Convenience and Necessity. Alternatives to transmission facilities are sometimes referred to as
13 “Non-wires Alternatives.”
14

15 An alternative to the construction of new or modified transmission facilities is considered in this report.
16 Alternatives to transmission facilities include methods for meeting project objectives that do not require
17 new or upgraded transmission facilities. In this report, the alternative considered would include the
18 installation of new gas turbine–driven compressors (Design Alternative) instead of electric-driven
19 compressors.
20

21 **1.6 No Project Alternative**

22
23 CEQA requires that EIRs consider a No Project Alternative (CEQA Guidelines Section 15126.6[e]);
24 describing and analyzing a No Project Alternative allows decision-makers to compare the effects of
25 approving the proposed project with the effects of not approving it. For the purpose of this report, it is
26 assumed that the No Project Alternative will be retained for analysis the EIR. Full analysis of the No
27 Project Alternative will be included in the EIR.
28

29 **1.7 Public Scoping**

30
31 A Notice of Preparation of an EIR was circulated on October 21, 2010, which opened a 30-day public
32 comment period that extended from October 21 through November 20, 2010. Public scoping meetings
33 were held on November 4, 2010, at the Porter Valley Country Club in Porter Ranch, California, and
34 November 5, 2010, at Wiley Canyon Elementary School in Newhall, California. The purpose of the
35 comment period and scoping meeting was to gather feedback on the scope and content of the EIR,
36 including the range of alternatives to be evaluated.
37

38 Seventeen written comments were received during the comment period from the United States Fish and
39 Wildlife Service, California Department of Fish and Game, California State Office of Planning and
40 Research, Native American Heritage Commission, South Coast Air Quality Management District,
41 Division of Oil Gas and Geothermal Resources, and 11 individuals. Twenty-two people attended the two
42 public scoping meetings. Comments received during the scoping period addressing alternatives included
43 requests (1) that the applicant install transmission lines to be reconducted underground to avoid fire
44 danger and visual impacts, and (2) that the applicant consider/explain whether transmission lines and pole
45 structures could be located away from the back yards of residential properties; and (3) that the CEQA
46 document include a range of alternatives that otherwise minimize impacts to sensitive biological
47 resources (E & E 2010).
48
49
50

1 Although comments regarding aesthetic effects related to the proposed 66-kV subtransmission lines were
2 received during the public scoping period, alternatives that could reduce potentially adverse effects on
3 visual resources are not considered in this report because the proposed project was not anticipated to
4 result in significant effects on aesthetics and visual resources.

5
6 Comments from the County of Los Angeles Department of Public Works noted that the proposed project
7 would be constructed in a Very High Fire Hazard Severity Zone (CAL FIRE 2007). It is assumed in this
8 report that by eliminating or reducing the amount of transmission line construction, overall increase in fire
9 risk represented by the proposed project would be reduced. The Design Alternative (Alternate
10 Compressor Drive Type), Electrical Alternative A (220-kV Alternative), and Siting Alternative C
11 (Natural Substation Constructed at Water Tower Site) are considered in this report. These alternatives
12 would eliminate or reduce the need for new or modified transmission facilities

13
14 To reduce potentially significant adverse effects on critical California gnatcatcher habitat (Figure 3), the
15 Design Alternative (Alternate Compressor Drive Type), Electrical Alternative A (220-kV Alternative),
16 Siting Alternative A (Central Compressor Station at Proposed Office Facilities Site), Siting Alternative B
17 (Central Compressor Station at Existing Compressor Station Site), and Routing Alternative B
18 (Telecommunications Route Along 66-kV Line from Chatsworth Substation) are considered in this report.
19 Under these alternatives, construction within critical habitat for coastal California gnatcatcher would be
20 reduced.

22 **2.0 Discussion of Objectives**

23
24 The two basic objectives of the proposed project are presented in Section 1.1. Further information and
25 context regarding project objectives was provided in the PEA, in applicant responses to CPUC data gap
26 requests, and during discussions with the applicant. The additional information is discussed in this section
27 as it relates to the evaluation of the ability of each alternative to meet the objectives presented in Section
28 3.0, “Description and Comparison of Alternatives.”

30 **Objective 1**

31 The first basic objective of the proposed project is to comply with the terms of the Settlement Agreement
32 implemented by CPUC decision A.08-02-001. To meet this objective, the applicant would, as soon as
33 possible:

- 35 a. Replace the three existing LM-1500 gas turbine–driven compressors used to compress up to 300
36 million cf per day of natural gas for injection into the storage field; and
- 37 b. Expand overall injection capacity at the storage field by approximately 145 million cf per day.

39 **Objective 2**

40 The second basic objective is to maintain or improve the reliability and efficiency of storage field
41 operations. To meet this objective, the applicant would:

- 43 a. Ensure successful conversion to the replacement compression system prior to decommissioning
44 the LM-1500 gas turbine–driven compressors;
- 45 b. Install the replacement compression system in proximity to the existing compressor station and
46 operations facility/control center;
- 47 c. Substantially reduce air emissions from operation of the three existing gas turbine–driven
48 compressors; and

- 1 d. Improve access onto the storage field from Sesnon Boulevard for existing operations vehicles,
2 and facilitate vehicle entry for construction of the proposed project.
3

4 **3.0 Description of the Proposed Project**

5
6 The applicant would construct the proposed project in unincorporated and incorporated areas of Los
7 Angeles and Ventura Counties, California (Figure 1). New and modified Southern California Edison
8 (SCE) electric service facilities would be required to provide power for the proposed project (estimated at
9 up to 50 megawatts by SCE). Because the improvements that would be carried out by SCE would be
10 required to serve the proposed project, SCE's improvements are considered part of the proposed project
11 and are subject to the same level of CEQA review as the other project components.
12

13 As part of the proposed project, the applicant would construct and operate at the storage field the
14 following:
15

- 16 • Central Compressor Station (28,000 square feet) (Figure 2) with three new electric-driven,
17 variable-speed compressors and pipelines to connect the station to existing facilities;
- 18 • 12-kV Plant Power Line (1,200 feet long) to supply the Central Compressor Station with power;¹
- 19 • Main office (6,000 square feet) and crew-shift (1,600 square feet) buildings; and
- 20 • Guardhouse (164 square feet) on a widened segment of the existing entry road (6,000 square feet)
21 into the storage field.²
22

23 The applicant would decommission and remove the:
24

- 25 • Existing compressor station and its three gas turbine-driven compressors; and
- 26 • Existing main office and crew-shift buildings.
27

28 To provide power to the proposed electric-driven, variable-speed compressors, SCE would:
29

- 30 • Construct and operate a 56 megavolt ampere (MVA), 66/12-kV substation (the proposed Natural
31 Substation; 46,500 square feet) on the storage field site;³ and
- 32 • Reconductor and replace towers and poles along segments of SCE's Chatsworth-MacNeil-
33 Newhall-San Fernando 66-kV Subtransmission Line and MacNeil-Newhall-San Fernando 66-
34 kV Subtransmission Line (total of 8 miles) in the proposed project area.
35

36 To allow for remote monitoring and operation of the proposed electrical facilities, SCE would:
37

- 38 • Install equipment at SCE's Newhall, Chatsworth, and San Fernando Substations in the proposed
39 project area; and
- 40 • Install new fiber optic telecommunications cable (28 miles) in the proposed project area.

¹ Metered service from SCE's 16-kV Gavin Distribution Line, which currently provides electrical power to the storage field, would be addressed in accordance with SCE tariff rules.

² The existing guardhouse at the storage field would not be removed as part of the proposed project.

³ The initial build of the proposed Natural Substation would include the installation of two 28 MVA, 66/12-kV transformers. Space would be available for the installation of up to two additional 28 MVA transformers (for a total of 112 MVA), if needed in the future.

1
2 In addition, the applicant would apply to the CPUC to enlarge SCE's existing easement on the storage
3 field site, which would be necessary for SCE to construct and operate the proposed Natural Substation.
4 SCE's Northern Transmission/Substation Regional Facility at Pardee Substation in Santa Clarita would
5 be used as the primary staging area for the 66-kV subtransmission line reconductoring and
6 telecommunications cable installation activities.

7
8 Construction of the proposed project would take approximately 22 months.

9 10 **Setting and Location**

11 The existing storage field includes a guardhouse at the entrance to the storage field at Tampa
12 Avenue/Limekiln Canyon Road and Sesnon Boulevard. The private entry road leads to the Aliso Canyon
13 Plant Station (Plant Station). The Plant Station includes an existing compressor station with three gas
14 turbine-driven compressors, an operations facility/control center, a main office building, a crew-shift
15 building, and injection and withdrawal pipelines. The Plant Station is located approximately 0.8 miles
16 north of Sesnon Boulevard on elevated terrain within Aliso Canyon and is surrounded by hills. A single-
17 circuit 16-kV distribution line provides electrical power to storage field facilities. A single-circuit 66-kV
18 subtransmission line crosses the southern half of the storage field through an easement granted to SCE by
19 the applicant.

20
21 The storage field, which is owned and operated by the applicant, has been in continuous operation since
22 the 1970s. The field allows the applicant to purchase natural gas during periods of low demand (generally
23 at lower prices) and store it for withdrawal during periods of high demand. The intent of the storage-
24 withdrawal dynamic is to provide its customers with lower-cost natural gas supplies and services.

25
26 The storage field is located approximately 20 miles north of downtown Los Angeles. It is situated within
27 the topographic feature of Aliso Canyon in the Santa Susana Mountains. Most of the storage field site is
28 located in unincorporated Los Angeles County, but the southernmost and easternmost parts of the field
29 are located in the City of Los Angeles, and its address, 12801 Tampa Avenue, is within the City of Los
30 Angeles. South of the storage field site are the communities (each within the City of Los Angeles) of
31 Porter Ranch, Granada Hills, Chatsworth, and Northridge.

32
33 Within the storage field property boundary, the proposed project would comprise several construction
34 sites, including the:

- 35
- 36 • Aliso Canyon Plant Station site;
- 37 • New guardhouse site and road-widening area;
- 38 • 12-kV Plant Power Line route;
- 39 • Proposed Natural Substation site; and
- 40 • 66-kV Segment C reconductoring route (Figure 4).

41 42 **Storage Field Operations and Technical Details**

43 At the storage field, natural gas is compressed and injected through injection wells into an underground
44 storage zone during periods of low demand (generally in the summer season) and withdrawn during
45 periods of peak demand (generally in the winter season). The depth of the storage zone ranges from 7,100
46 feet to 9,400 feet below surface level. The average depth of the wells is approximately 8,500 feet.
47 Although well sizes vary, most of the wells have a 7-inch or 9-5/8-inch production casing. The maximum
48 withdrawal rate of a well can be up to 80 million cubic feet per day at peak field inventory and pressure.

1
2 The volume of daily, weekly, and monthly injections and withdrawals varies with customer demand and
3 is subject to the volume, suitability of gas quality for delivery, and injection capabilities of the field.
4 Water, sediment, liquid hydrocarbons, and other chemicals are removed from the gas when it is
5 withdrawn from storage.

6
7 The storage field includes 116 withdrawal/injection wells and two observation wells. The existing
8 withdrawal, injection, and observation wells would not be affected by construction of the proposed
9 project, nor would new wells be constructed as part of the proposed project. Additionally, there are no
10 abandoned wells on the proposed project site, and no well abandonments are planned as part of the
11 proposed project.

12 13 **Proposed Project Area**

14 The proposed project area includes the 3,600-acre storage field in the County of Los Angeles. It also
15 includes the segments of the 66-kV subtransmission lines to be recondored and fiber optic cable
16 installations within the storage field property boundary, in the Cities of Los Angeles and Santa Clarita,
17 and in unincorporated areas in the Counties of Los Angeles and Ventura, California (Figure 1). The
18 proposed project area also includes SCE's Chatsworth Substation in unincorporated Ventura County,⁴
19 Newhall Substation in the community of Newhall in the City of Santa Clarita, and San Fernando
20 Substation in the community of Mission Hills in the City of Los Angeles. The fiber optic cable
21 installations would also cross the City of Simi Valley and community of Simi Hills in the County of
22 Ventura; City of San Fernando in the County of Los Angeles; and the community of Sylmar in the City of
23 Los Angeles. The primary construction staging area for recondoring activities would be located at
24 SCE's Pardee Substation, in the City of Santa Clarita.

25

⁴ The Chatsworth Substation is located on SCE property within the larger Boeing Rocketdyne Santa Susana complex.

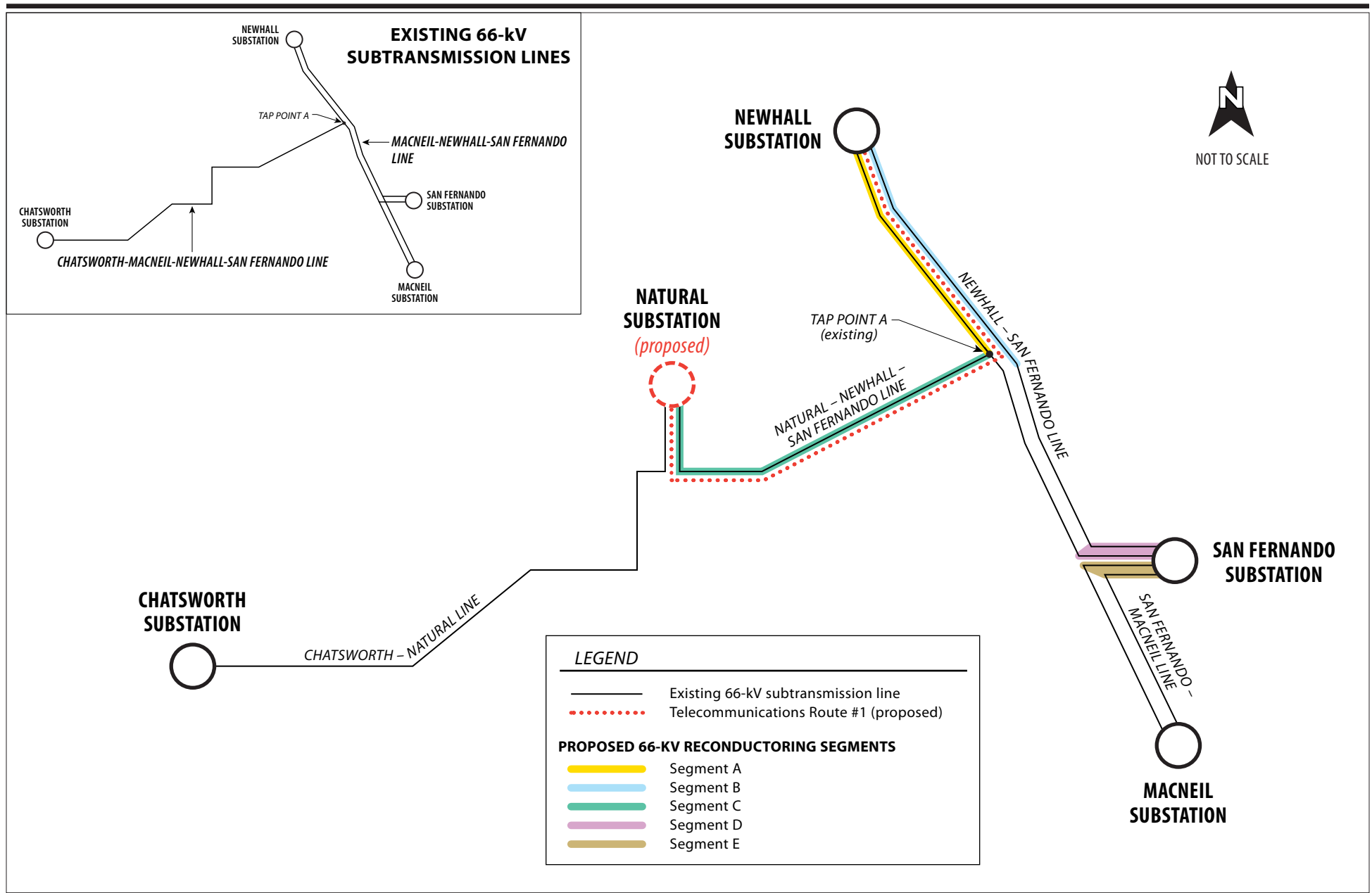


Figure 2-6
**Existing 66-kV Subtransmission Lines, 66-kV Reconductoring Segments,
 and Telecommunications Route #1**

Reconductoring and Telecommunications Route Locations

Reconductoring and fiber optic cable installations along SCE's 66-kV Segments A, B, and C (Figure 4) would occur within SCE's right-of-way (ROW) on the storage field site, in the Cities of Los Angeles and Santa Clarita, and in unincorporated Los Angeles County (Figure 1). Segments A and B form an existing double-circuit 66-kV line from Newhall Substation that would be reconducted and remain a double-circuit line.⁵ Segment A, from Tap Point A to the proposed Natural Substation, is a single-circuit line that would be reconducted. New fiber optic cable would also be installed on Segments A, B, and C (Telecommunications Route #1).

Segments A and B would be located within the community of Newhall in the City of Santa Clarita. The community of Newhall extends south through parts of unincorporated Los Angeles County. The southwest section of Segment C would be on the storage field site. The northeast section of Segment C would cross the Sunshine Canyon Landfill and unincorporated areas of Los Angeles County.

Fiber optic cable installation from Chatsworth Substation northeast to the proposed Natural Substation would begin in the Simi Hills area of unincorporated southeastern Ventura County (Telecommunications Route #2) (Figure 5). The fiber optic cable would cross into the southeast corner of the City of Simi Valley, the northwest border of the City of Los Angeles, and then unincorporated western Los Angeles County. Within unincorporated Los Angeles County, it would traverse north onto the storage field site to the proposed Natural Substation.

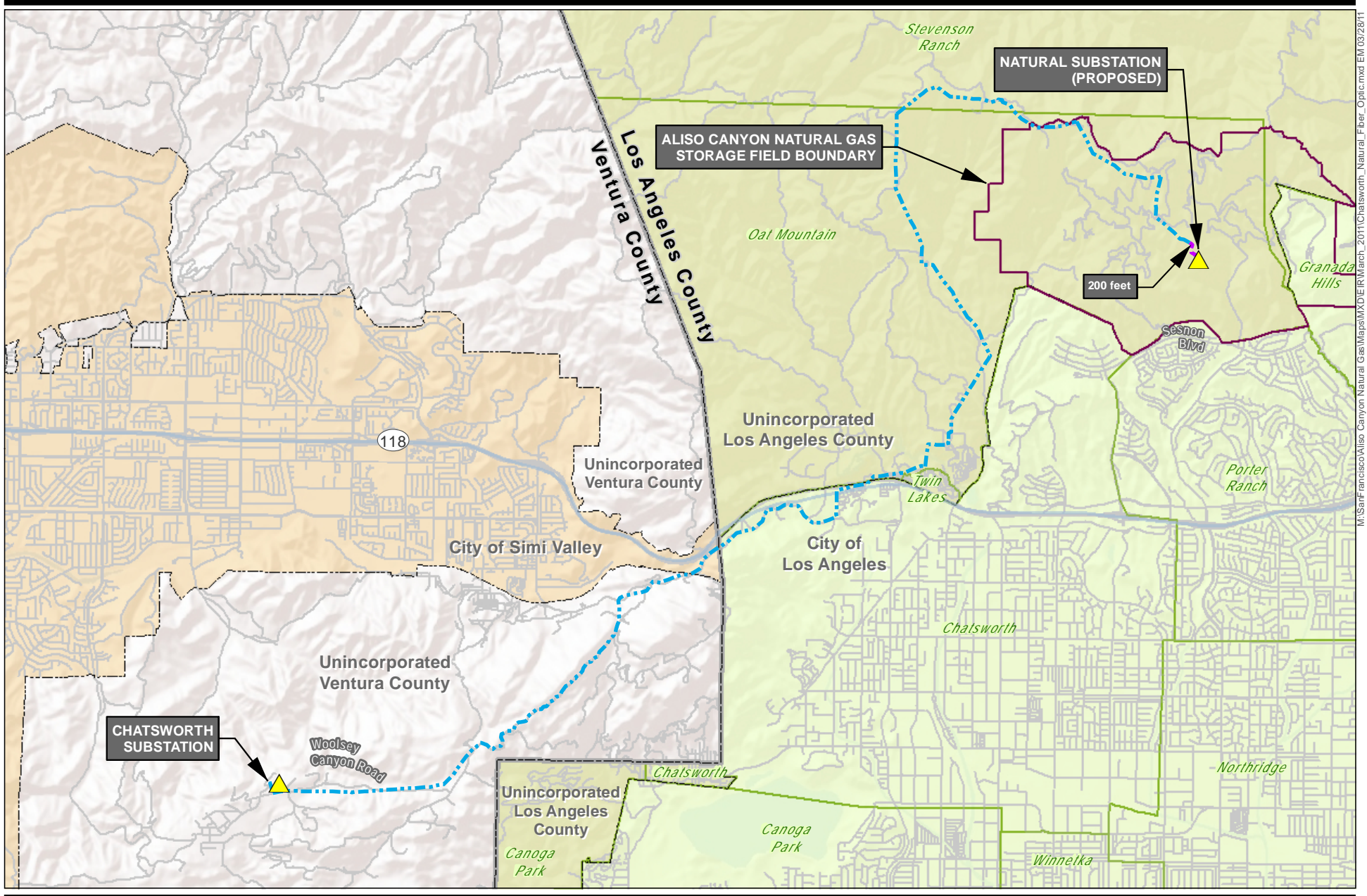
Reconductoring of SCE's double-circuit 66-kV Segments D and E would occur in the community of Mission Hills in the City of Los Angeles. The fiber optic cable installation route from San Fernando Substation to a fiber optic connection point within the ROW of an existing SCE 220-kV subtransmission line corridor would traverse east from the community of Mission Hills in the City of Los Angeles, into the City of San Fernando, and then into the community of Sylmar in the City of Los Angeles (Telecommunications Route #3) (Figure 6).

4.0 Description and Comparison of Alternatives to the Proposed Project

The comparison of alternatives presented in this section focuses on the alternatives that would: (1) be feasible; (2) attain the basic objectives of the proposed project as discussed in Section 2.0 of this report; and (3) avoid or substantially lessen any of the potentially significant effects of the proposed project (Table 1). This section is organized according to the following categories of alternatives:

- Design Alternative (Non-wires Alternative);
- Electrical Alternatives;
- Siting Alternatives; and
- Routing Alternatives.

⁵ Segments A and B form a double-circuit, alternating-current subtransmission line with six conductors (three conductors on each side of each structure supporting the line). Each set of three conductors forms one *circuit*.



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- - - Proposed Overhead Fiber Optic Cable/
Underground in Existing Conduit
- - - Proposed Underground Fiber
Optic Cable in New Conduit

Figure 2-7
**Telecommunications Route #2:
 Chatsworth Substation to Proposed Natural Substation**





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-  Proposed Overhead Fiber Optic Cable
-  Proposed Underground Fiber Optic Cable in New Conduit (feet)

Figure 2-8
**Telecommunications Route #3: San Fernando Substation to
 Fiber Optic Connection Point**

0 0.25 0.5



1 **Design and Electrical Alternatives**

2 ***Proposed System***

3 The proposed system is described in Section 3.0 of this report. The proposed Central Compressor Station
4 would include three electric-driven, variable-speed compressors. A new substation and associated
5 powerlines would be required to power the compressors, and new telecommunications lines would be
6 required for remote monitoring and operation of the electrical facilities. The proposed system is feasible
7 and would meet the applicant's basic objectives, but potentially significant effects on air quality,
8 biological resources, cultural resources, and from noise could occur. Fire risk (hazards) could also
9 increase (Tables 1 and 2).

10
11 ***Design Alternative (Alternate Compressor Drive Type)***

12 For this alternative, which was proposed in the PEA, new gas turbine-driven compressors with greater
13 capacity than the existing gas turbine-driven compressors would be installed in the proposed Central
14 Compressor Station instead of electric-driven, variable-speed compressors. The gas turbine-driven
15 compressors would combust natural gas for power rather than use electricity. The proposed Natural
16 Substation, 66-kV subtransmission line reconductoring, and telecommunications line installations would
17 not be required. Access to the storage field from Sesnon Boulevard would be improved, and the main
18 office and crew-shift buildings would be constructed as proposed.

19
20 Under this alternative, potentially significant effects on coastal California gnatcatcher critical habitat
21 would be reduced in relation to the proposed project, because subtransmission line reconductoring,
22 Natural Substation construction, and telecommunications line installations would not be required (Figure
23 3). Cultural resources that may be present along the 66-kV subtransmission line and Telecommunication
24 Route #2 would not be disturbed nor would sensitive noise receptors. Fire risk related to construction of
25 the electrical facilities would also be reduced because the proposed electrical and telecommunications
26 facilities would not be required under this alternative.

27
28 The installation of new gas turbine-driven compressors may not, however, substantially reduce the
29 quantity of air emissions currently generated by operation of the three existing gas turbine-driven
30 compressors (an element proposed by the applicant to achieve Objective #2). Additionally, while fugitive
31 dust and emissions from vehicles and equipment during construction would be reduced under this
32 alternative because some of the electrical facility project components would not be constructed, long-term
33 operational emissions would likely be greater than those from the proposed electric-driven, variable-speed
34 compressors.

35
36 The applicant has indicated that the plot size of the Central Compressor Station would be larger because
37 of the Selective Catalytic Reduction system (3,000 square feet) and ammonia storage (two 10,000 gallon
38 ammonia tanks) required to meet emissions requirements. Installation costs would be up to 20 percent
39 higher due to the emissions control system, and maintenance costs would be higher because a gas-driven
40 system would deteriorate faster than an electric-driven system (SoCalGas 2011).

41
42 The Design Alternative would meet the basic objectives of the proposed project, is potentially feasible,
43 and would avoid or substantially reduce potentially significant effects (Table 2). Therefore, it was
44 retained for further consideration in the EIR. The Design Alternative also serves as a Non-wires
45 Alternative pursuant to California Public Utilities Code Section 1002.3 (see Section 1.5, above). Under
46 System Alternative A, no new or modified transmission facilities would be required, and a new substation
47 would not be constructed. Given that Design Alternative A was retained for further consideration in the
48 EIR (Table 2), a Non-wires Alternative has also been retained for further consideration in the EIR.
49

Table 2 Design and Electrical Alternatives

Alternatives	Carried Forward	In PEA	Air	Bio	Cul	Haz	Noise	Obj. #1	Obj. #2	Feasible	Advantages	Disadvantages	Notes
Proposed System	Yes	Yes	S	S	S	S	S	Yes	Yes	Yes	<ul style="list-style-type: none"> Meets the basic objectives Substantially reduces air emissions from operation of the existing gas turbine-driven compressors 	<ul style="list-style-type: none"> Potential for significant environmental effects with regard to multiple resource areas (air quality, biological resources, cultural resources, noise, construction fire hazards) 	
Design Alternative (Alternate Compressor Drive Type)	Yes	Yes	S	S-	N	S-	N	Yes	Yes	Yes	<ul style="list-style-type: none"> Meets the basic objectives Avoids or reduces potentially significant effects on biological resources (critical habitat), cultural resources (Telecom Route #2 and 66-kV lines), fire risk, and sensitive noise receptors 	<ul style="list-style-type: none"> Increases long-term operational air emissions Increased maintenance and repair requirements 	<ul style="list-style-type: none"> Central Compressor Station plot size larger because of the Selective Catalytic Reduction system (3,000 square feet) and ammonia storage (two 10,000 gallon ammonia tanks) required to meet emissions requirements Increased installation cost due to the emissions control system
Electrical Alternative A (220-kV Alternative)	No	No	S	S-	S	S	S-	Yes	No	Yes ¹	<ul style="list-style-type: none"> Reduces potentially significant effects on biological resources (critical habitat) and sensitive noise receptors 	<ul style="list-style-type: none"> Does not meet Objective #2 	
Electrical Alternative B (New 16-kV Lines)	No	Yes	S-	S	S-	S	S-	Yes	No	No	<ul style="list-style-type: none"> Reduces potentially significant effects (air quality, cultural resources, and noise) 	<ul style="list-style-type: none"> Does not meet Objective #2 Infeasible because of insufficient short circuit duty, harmonics and flicker issues, and inability to reliably power the proposed compressors 	

Acronyms and Abbreviations:

Air = Air quality
 Bio = Biological Resources
 Cul = Cultural Resources
 Haz = Hazards
 PEA = Proponent's Environmental Assessment
 ROW = right-of-way

Key:

S = Potentially significant effect
 S- = Reduced effect expected
 S+ = Increased effect expected
 N = No effect or less than significant effect expected

Note:

¹ With only one 220-kV transmission line ROW to serve the storage field's compressors, in the event of an electrical outage due to an event along the new 220-kV ROW, natural gas services would be disrupted. Although this alternative is potentially feasible, a disruption of natural gas service at the storage field could have a wide-ranging and substantial impact on energy services in the region.

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Electrical Alternative A (220-kV Alternative)

For this alternative, a new 220-kV transmission line would be installed from either the Sylmar Substation or from a loop-in connection along the existing Pardee–Sylmar 220-kV transmission line (Figure 7). The line would extend from Sylmar Substation or the loop-in point along an expanded 66-kV ROW to a new 220/12-kV substation that would be constructed at the storage field. A new telecommunications line would be routed overhead from Sylmar Substation or the loop-in point to the new substation on the new 220-kV structures.

Under this alternative, proposed 66-kV Segments A and B would not be modified (Figure 4) and Telecommunications Route #3 would not be installed (Figure 6). Proposed 66-kV Segment C may be modified to allow for construction of the new 220-kV transmission line. New telecommunications line may still be installed along Telecommunications Route #2 but would extend to the nearest point of connection to SCE’s 220-kV telecommunications system and may not interconnect with the telecommunications system at Chatsworth Substation. The Central Compressor Station, 12-kV Plant Power Line, main office and crew-shift buildings, guardhouse, entry road, and other components of the proposed project at the storage field site would still be constructed and operated as proposed.

Under this alternative, potentially significant effects on coastal California gnatcatcher critical habitat would be reduced in relation to the proposed project, because the 220-kV transmission line route would traverse fewer miles of its habitat than 66-kV Segments A and B (Figure 3). In addition, sensitive noise receptors along 66-kV Segments A and B and Telecommunications Route #3 would not be disturbed. Effects on air quality, cultural resources, and related to fire risk (hazards) would be similar to those of the proposed project (Table 1).

The basic objectives of the proposed project, however, would not be met under this alternative. With only one 220-kV transmission line ROW to serve the storage field’s compressors, in the event of an electrical outage due to an event along the new 220-kV ROW, natural gas services would be disrupted. Under the proposed project, a 66-kV subtransmission line would extend from Chatsworth Substation to the proposed Natural Substation, and a second 66-kV subtransmission line would extend to the proposed Natural Substation from Newhall and San Fernando Substations. The proposed electrical system would still operate even if a disruption along one of the two 66-kV ROWs resulted in an electrical outage. Hence, under Electrical Alternative A, the reliability of storage field operations would be reduced and Objective #2 would not be met.

Under this alternative, the risk of disruption to natural gas services from one of the largest underground natural gas storage fields in the United States would increase. For this reason, the CPUC has determined that this alternative could be infeasible pursuant to Section 15364 of the CEQA Guidelines—“ ‘Feasible’ means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.” A disruption of natural gas service at the storage field could have a wide-ranging and substantial impact on energy services in the region, which could indicate that this alternative is infeasible. Therefore, because Electrical Alternative A would not meet both of the basic objectives of the proposed project and could be infeasible, it was eliminated and will not be carried forward for further consideration in the EIR.

1 **Electrical Alternative B (New 16-kV Lines)**

2 The storage field currently receives electrical service from SCE's 16-kV Gavin Distribution Line. The
3 line originates at Newhall Substation and traverses south and then southwest to where it crosses the
4 northeast corner of the storage field (Figure 7). For this alternative, which was presented by the applicant
5 in the PEA, 66-kV Segments A, B, C, D, and E would not be reconducted and new structures would not
6 be installed. The proposed Natural Substation and Telecommunications Routes #1, #2, and #3 would also
7 not be constructed. Instead, SCE's existing 16-kV distribution line would be reconducted, new
8 structures would be installed, and two additional 16-kV lines with 653.9 aluminum steel-reinforced
9 conductor would be installed. The new lines would be capable of providing up to 51 MVA of electrical
10 power to the storage field. SCE's existing Ward Substation, which is located in the northeast part of the
11 storage field, in proximity to the 16-kV Gavin Distribution Line, would be upgraded to accept the
12 additional two 16-kV lines.

13
14 In addition, the existing 66-kV and 16-kV switchracks at Newhall Substation would be extended, 66-kV
15 and 16-kV circuit breaker banks and 16-kV capacitor banks added, two 56 MVA, 66/16-kV transformers
16 installed, and additional equipment installed at the substation to allow for construction of the three new
17 16-kV lines. New underground conduit would be installed in proximity to Newhall Substation if needed
18 to accommodate the new 16-kV lines. The new lines would be installed along Wiley Canyon Road, south
19 of Newhall Substation, in new underground conduit or on new or replaced structures before crossing
20 Interstate 5 to the Old Road.

21
22 The new lines would be installed on new or replaced structures located along the Old Road, which runs
23 north-south adjacent to Interstate 5, following the alignment of the existing 16-kV Gavin Distribution
24 Line south into Newhall Canyon and then southwest onto the storage field. All of the existing structures
25 supporting the 16-kV Gavin Distribution Line west of the Old Road and into the storage field would be
26 replaced.

27
28 Under this alternative, impacts related to air quality would be reduced in relation to the proposed project
29 because the proposed Natural Substation would not be constructed. Potentially significant effects on
30 biological resources and related to fire risk would be similar to the proposed project (Table 1). Potentially
31 significant effects related to cultural resources and sensitive noise receptors along the proposed
32 telecommunications routes would be avoided, but these effects would be similar to the proposed project
33 along the 66-kV subtransmission line routes.

34
35 Although the alternative would result in avoidance or reduction of potentially significant effects in
36 relation to the proposed project, this alternative would not meet Objective #2, and would be
37 technologically infeasible. The 16-kV lines would be incapable of reliably powering the proposed
38 electric-driven compressors because they would only have the capacity to support a maximum load of 51
39 MVA rather than the proposed 56 MVA. According to SCE, the available short-circuit duty from the 16-
40 kV lines would be approximately one-fifteenth the available short-circuit duty of the proposed 66-kV
41 subtransmission lines. Voltage flicker and harmonic distortion issues—both of which typically result from
42 poor power quality due to variations in voltage, current, or frequency—may also occur because 51 MVA
43 may not be sufficient to power the proposed electric-driven, variable-speed compressors. Because the
44 alternative would not meet Objective #2 (the reliability of storage field operations would not be
45 maintained or improved) and because this alternative would be technologically infeasible, it was
46 eliminated and will not be carried forward for further consideration in the EIR.

1 **Siting Alternatives**

2 ***Proposed Sites (Central Compressor Station and Natural Substation)***

3 The proposed Central Compressor Station (28,000 square feet) and Natural Substation (46,500 square
4 feet) are described briefly in Section 3.0 of this report. In addition, for the analysis presented in this
5 section, it should be noted that the Central Compressor Station would be constructed in an area that
6 includes the existing main office and crew-shift buildings and parking within the footprint of the Plant
7 Station site (Figure 2). The main office and crew-shift buildings would be removed to allow for
8 construction of the Central Compressor Station. Both the proposed Central Compressor Station and
9 Natural Substation sites are feasible locations that would meet the basic objectives of the proposed
10 project, but these proposed project components may result in significant effects on air quality and
11 biological resources and related to fire risk (hazards). Potentially significant effects related to cultural
12 resources and sensitive noise receptors would not be anticipated from the construction of these project
13 components (Tables 1 and 3).

14
15 ***Siting Alternative A (Central Compressor Station at Proposed Office Facilities Site)***

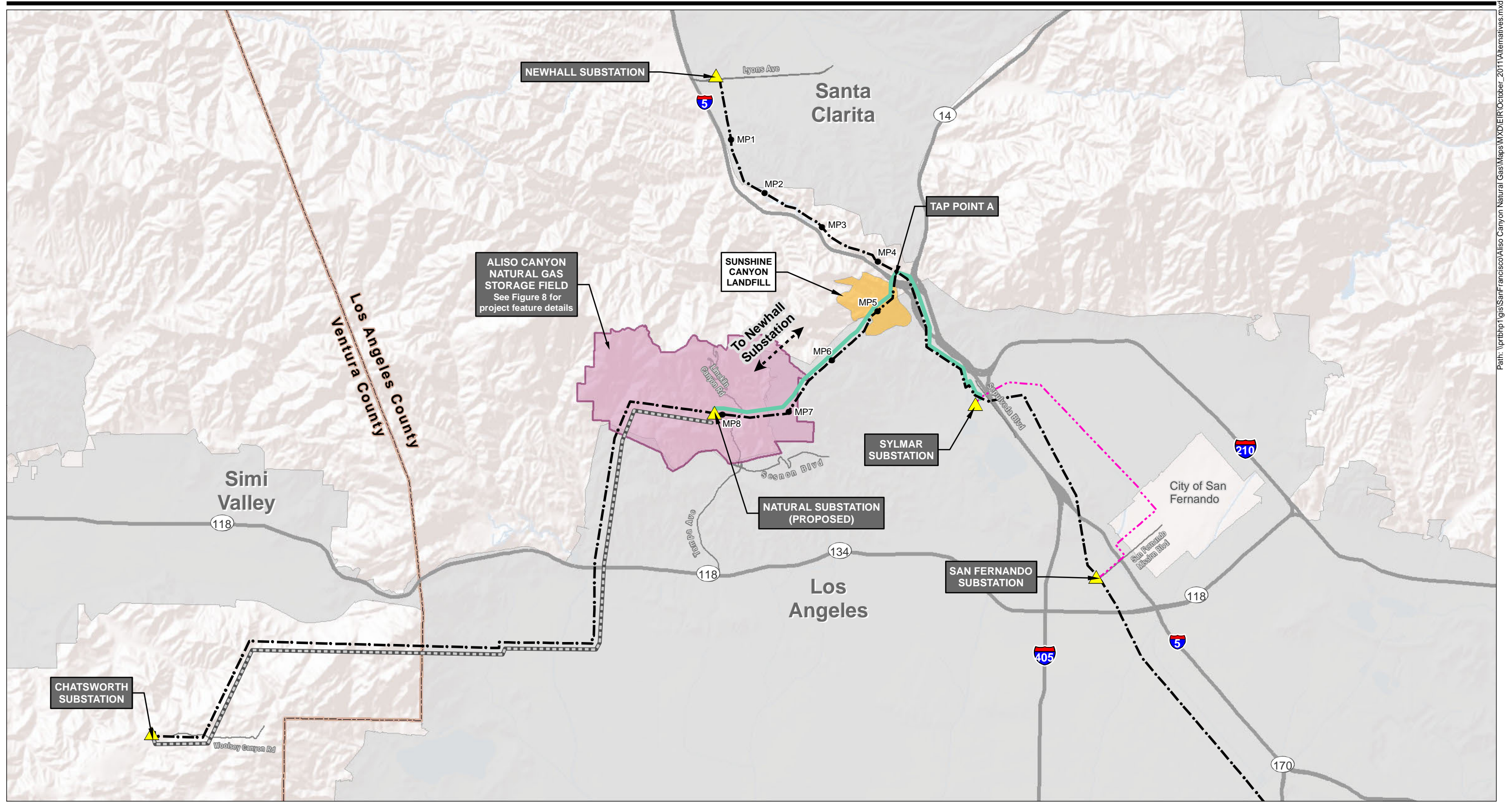
16 Under this alternative, the Central Compressor Station would be constructed at the site proposed for the
17 new office facilities and parking (Figures 8 and 9). The new office facilities would include a main office
18 building (6,000 square feet) and crew-shift building (1,600 square feet). Total land disturbance would be
19 approximately 1.4 acres (61,000 square feet) for the Central Compressor Station and 1.3 acres (56,600
20 square feet) for the office facilities and adjacent parking area. Under this alternative, the parking area
21 would not be moved and the new office facilities would be constructed where the existing facilities are
22 located. All other components of the proposed project would be constructed as proposed.






23
24 Although this alternative would meet the basic objectives of the proposed project, the applicant has
25 indicated that space for construction of the Central Compressor Station is not available at the proposed
26 office facilities and parking site because of physical limitations: the site is constrained by an adjacent
27 pipeline and road (Figure 9). Additionally, because of the steep terrain, a substantial amount of fill
28 material would be required to be imported to create a level surface on which the Central Compressor
29 Station could be built. From an operational standpoint, this alternative would be more challenging for the
30 applicant because the existing office facilities would need to be removed before the new office facilities
31 could be built. The applicant would be required to relocate the current office facilities to a temporary
32 location or identify other temporary office facilities for use until the new facilities are operational.

33
34 Effects related to biological resources, cultural resources, fire risk (hazards), and from noise would be
35 similar to the proposed Central Compressor Station site, but potentially significant effects on air quality
36 could be increased in relation to the proposed project because of the additional fill that would be required
37 for this alternative (Tables 1 and 3). Therefore, because this alternative may be infeasible (insufficient
38 space) and would not avoid or reduce a potentially significant impact, it was eliminated and will not be
39 carried forward for further consideration in the EIR.

40
41 ***Siting Alternative B (Central Compressor Station at Existing Compressor Station Site)***

42 This alternative, which was proposed in the PEA, would locate the proposed Central Compressor Station
43 at the site of the existing compressor station (Figure 8). The new Central Compressor Station would not
44 be constructed. As the existing gas turbine-driven compressors are removed, the new electric-driven
45 compressors would be installed. This alternative would require the proposed 12-kV Plant Power Line to
46 be increased in length by approximately 350 feet. All other components of the proposed project would be
47 constructed as proposed.



-  Existing SCE 66-kV Subtransmission Line
-  220-kV Transmission Line from Sylmar Substation or Tap the Pardee-Sylmar 220-kV Transmission Line (Alternative)
-  Telecommunications Route from Sylmar Substation (Alternative)
-  Telecommunications Route from Chatsworth Substation on Existing 66-kV Subtransmission Line (Alternative)
-  Approximate Location of Existing 16-kV Gavin Line

Note: Where subtransmission lines and telecommunications routes are parallel, they are shown offset for graphical purposes only. The lines would be co-located overhead on the same structures.



Figure 7
Alternatives to the Proposed Project

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Table 3 Siting Alternatives

Alternatives	Carried Forward	In PEA	Air	Bio	Cul	Haz	Noise	Obj. #1	Obj. #2	Feasible	Advantages	Disadvantages	Notes
Proposed Sites (Central Compressor Station and Natural Substation)	Yes	Yes	S	S	N	S	N	Yes	Yes	Yes	<ul style="list-style-type: none"> Meets the basic objectives 	<ul style="list-style-type: none"> Potential for significant environmental effects related to air quality, biological resources (critical habitat), and fire risk (hazards) 	
Siting Alternative A (Central Compressor Station at Proposed Office Facilities Site)	No	No	S +	S	N	S	N	Yes	Yes	No	<ul style="list-style-type: none"> Meets the basic objectives 	<ul style="list-style-type: none"> Would not be feasible (insufficient space for the Central Compressor Station) Would not avoid or reduce a potentially significant impact Potential increase in significant environmental effects on air quality (substantial amount of additional fill would be required to level the terrain) 	
Siting Alternative B (Central Compressor Station at Existing Compressor Station Site)	No	Yes	S -	S -	N	S	N	No	No	No	<ul style="list-style-type: none"> Would result in reduced potentially significant effects on air quality (reduce grading) and biological resources (critical habitat) 	<ul style="list-style-type: none"> Would not meet both of the basic objectives Potentially infeasible because of increased risk of disruption to natural gas services to the greater Los Angeles region 	<ul style="list-style-type: none"> Break in service could occur during compressor replacement process New electric-driven compressors would not be sufficiently tested prior to removing gas turbine-driven compressors from service
Siting Alternative C (Natural Substation Constructed at Water Tower Site)	No	Yes	S	S	N	S	N	Yes	Yes	Yes	<ul style="list-style-type: none"> Meets the basic objectives 	<ul style="list-style-type: none"> Would not avoid or reduce a potentially significant impact 	

Acronyms and Abbreviations:

Air = Air quality

Bio = Biological Resources

Cul = Cultural Resources

Haz = Hazards

PEA = Proponent's Environmental Assessment

Key:

S = Potentially significant effect

S - = Reduced effect expected

S + = Increased effect expected

N = No effect or less than significant effect expected

1 Under this alternative, effects on air quality would be reduced in relation to the proposed project because
2 grading would not be required, and effects on biological resources would be reduced in relation to the
3 proposed project because a smaller area of critical habitat would be disturbed. Effects related to cultural
4 resources, fire risk (hazards), and from noise would be similar to those associated with the proposed
5 Central Compressor Station site (Tables 1 and 3).
6

7 This alternative, however, would not meet Objective #2 (maintain or improve the reliability and
8 efficiency of storage field operations), because a break in natural gas service could occur. The gas
9 turbine-driven compressors would be taken offline before fully testing the new electric-driven
10 compressors. Under the proposed project, the applicant would test the electric-driven compressors for a
11 complete *field cycle* prior to removing the gas turbine-driven compressors from service.⁶ In addition, this
12 alternative may not meet Objective #1, compliance with the Settlement Agreement, because of the
13 potential for a break in service as the gas-turbine compressors are replaced or during testing of the
14 proposed electric-driven compressors.
15

16 Under this alternative, the risk of disruption to natural gas services from one of the largest underground
17 natural gas storage fields in the United States would increase. For this reason, the CPUC has determined
18 that this alternative could have a wide-ranging and substantial impact on energy services in the region,
19 likely rendering this alternative infeasible in terms of social factors. Therefore, because this alternative
20 would not meet most of the basic objectives of the proposed project and is likely to be infeasible, it was
21 eliminated and will not be carried forward for further consideration in the EIR.
22

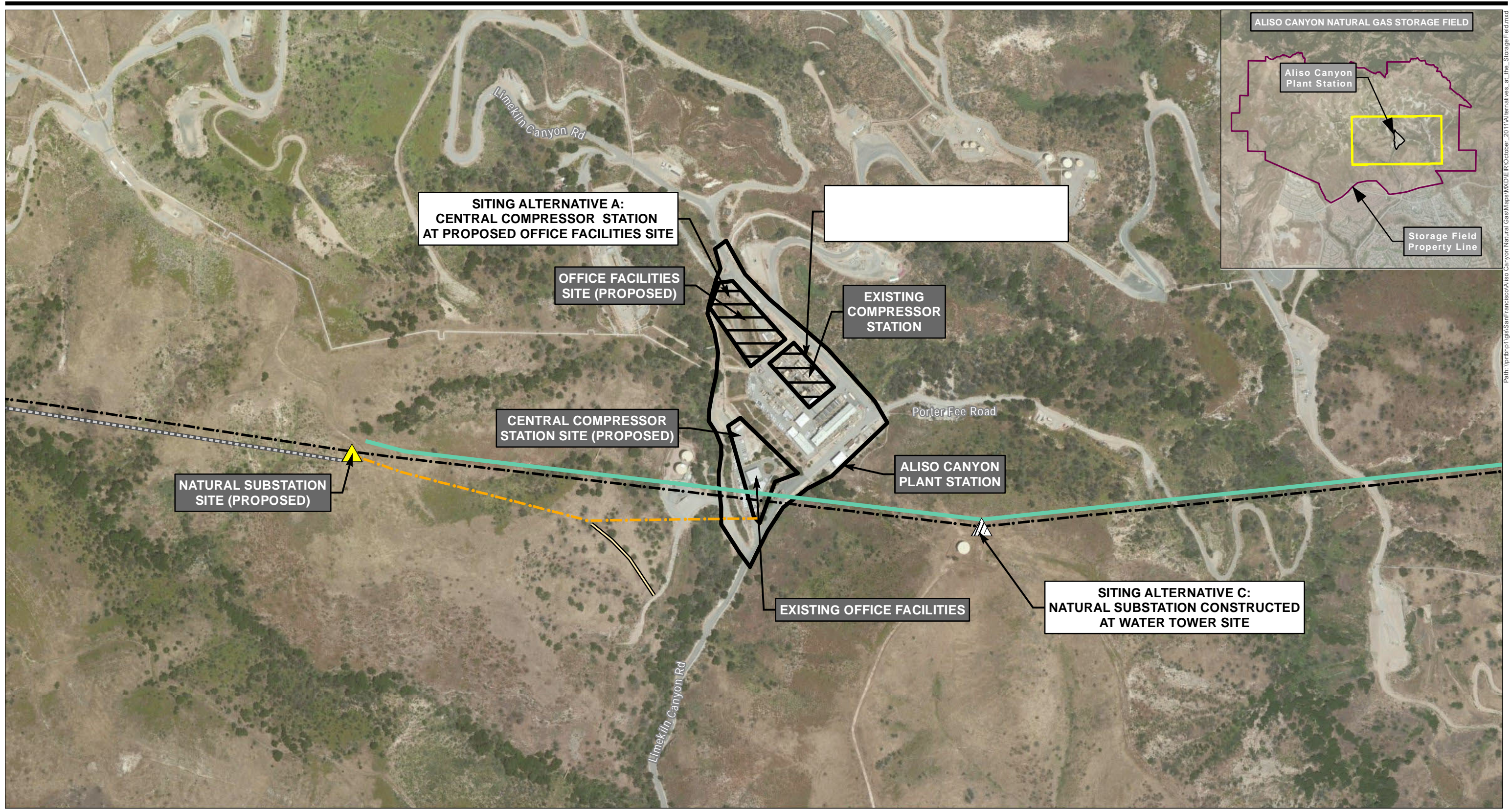
23 ***Siting Alternative C (Natural Substation Constructed at Water Tower Site)***

24 Under this alternative, which was presented by the applicant in the PEA, the proposed Natural Substation
25 would be constructed at the site of the storage field's existing water tower (Figure 8). One fewer structure
26 from the existing 66-kV subtransmission line would also need to be replaced. The applicant would be
27 required to relocate the water tower, and the Los Angeles Department of Water and Power water pipelines
28 that feed the tower would also need to be relocated. In addition, a gas pipeline located in proximity to the
29 water tower may also need to be relocated. The length of the 12-kV Plant Power Line would be 100 feet
30 shorter than under the proposed project. All other components of the proposed project would be
31 constructed as proposed.
32

33 The applicant has indicated that, for this alternative, they would be required to widen and improve the
34 existing access road to the water tower site, to allow for construction vehicle access, material delivery,
35 and delivery of the transformers. The applicant has also indicated that the site may need to be terraced to
36 accommodate construction of the substation, requiring an increase in cut and fill. In some areas, the
37 terrain is steeper than at the proposed substation site.
38

39 Under this alternative, potentially significant effects on air quality and biological resources would be
40 similar to or greater than those of the proposed project. Effects related to cultural resources, fire risk
41 (hazards), and from noise would likely be similar to those associated with the proposed Natural
42 Substation site (Tables 1 and 3). Although this alternative is potentially feasible and would meet the basic
43 objectives of the proposed project, it would not avoid or reduce a potentially significant effect, and
44 therefore, it was eliminated and will not be carried forward for further consideration in the EIR.
45

⁶ A complete field cycle typically lasts 12 months and includes one injection season of six months (typically April through September) and one withdrawal season of six months (typically October through March).



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-  Existing SCE 66-kV Subtransmission Line
-  Access Road
-  Siting Alternative
-  Siting Alternative



-  Existing SCE 66-kV Subtransmission Line
-  Access Road



Figure 8
Alternatives to the Proposed Project at the Storage Field

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Figure 9
Proposed Office Facility Site

1
2 **Routing Alternatives**

3 ***Proposed Routes (66-kV Segments A through E, Telecommunications Routes #1, #2, and***
4 ***#3, and 12-kV Plant Power Line)***

5 The proposed 66-kV Segments (Figure 4), Telecommunications Routes (Figures 4, 5, and 6), and 12-kV
6 Plant Power Line (Figure 2) are described in Section 3.0 of this report. The proposed 66-kV segments and
7 telecommunications routes are feasible and would meet the applicant's basic objectives, but potentially
8 significant effects related to air quality, biological resources, cultural resources, fire risk (hazards) and
9 from noise could occur (Tables 1, 4, 5, and 6).

10
11 ***Routing Alternative A (Telecommunications: Sylmar Substation to San Fernando***
12 ***Substation)***

13 Under this alternative, proposed Telecommunications Route #3 (Figures 1 and 6) would be routed instead
14 from Sylmar Substation to San Fernando Substation (Figure 7). For both the proposed and alternative
15 routes, new fiber optic cable would be installed primarily overhead on existing SCE and Los Angeles
16 Department of Water and Power electrical distribution line structures. Both routes would be
17 approximately 5 miles long. The proposed route would require approximately 1,200 feet of new
18 underground conduit, and the alternative would require approximately 1,300 feet of new underground
19 conduit. The two routes are identical for the final 1.25 miles into San Fernando Substation (Figures 1 and
20 7). This alternative was proposed by SCE in response to a request by the CPUC for more specific
21 information about the telecommunication line routes required for the proposed project. SCE revised their
22 proposed telecommunications route from the San Fernando substation, and submitted
23 Telecommunications Route #3 (San Fernando Substation to Fiber Optic Connection Point) as the
24 proposed route, and the CPUC chose to consider the original route as an alternative (Routing Alternative
25 A).

26
27 Both the proposed and alternative route would be feasible and meet the basic objectives of the proposed
28 project, but potentially significant effects from noise may occur in proximity to each area that requires
29 trenching along each route. For the alternative route, trenching to install new underground conduit under
30 Interstate 5, east from Sylmar Substation (approximately 1,000 feet), would not take place near sensitive
31 receptors. The remaining 300 feet of trenching for the alternative route would occur in the same locations
32 as for the proposed route. Effects on air quality would be similar to the proposed telecommunications
33 route. Potentially significant effects related to biological resources, cultural resources, and fire risk
34 (hazards) are not anticipated for either route (Tables 1 and 4). Therefore, because potentially significant
35 noise effects would impact fewer sensitive receptors, the alternative route was retained for further
36 consideration in the EIR.

37
38 ***Routing Alternative B (Telecommunications: Existing 66-kV Line from Chatsworth***
39 ***Substation)***

40 Under this alternative, proposed Telecommunications Route #2 (Figures 1 and 5) would be routed from
41 Chatsworth Substation to the proposed Natural Substation along an existing SCE 66-kV subtransmission
42 line (Figures 7 and 8). For the proposed route (approximately 15 miles long), new fiber optic cable would
43 be installed primarily overhead on existing SCE distribution line structures. For the alternative route
44 (approximately 13 miles long), new fiber optic cable would be installed primarily overhead on existing
45 SCE 66-kV subtransmission line structures. Both routes would require trenching of approximately 200
46 feet of new underground conduit to enter the proposed Natural Substation.

1

Table 4 Routing Alternative A

Alternatives	Carried Forward	In PEA	Air	Bio	Cul	Haz	Noise	Obj. #1	Obj. #2	Feasible	Advantages	Disadvantages	Notes
Proposed Route (Telecom Route #3)	Yes	Yes	S	N	N	N	S	Yes	Yes	Yes	<ul style="list-style-type: none"> Meets the basic objectives 	<ul style="list-style-type: none"> Potential for significant environmental effects on air quality and from noise 	
Routing Alternative A (Telecom: Sylmar Substation to San Fernando Substation)	Yes	No (see "Notes" column)	S	N	N	N	S-	Yes	Yes	Yes	<ul style="list-style-type: none"> Meets the basic objectives Would reduce potentially significant effects from noise (trenching would occur near fewer sensitive receptors) 	<ul style="list-style-type: none"> Potential for significant environmental effects on air quality 	<ul style="list-style-type: none"> Alternative proposed by SCE in response to a request by the CPUC for further information about the telecommunications line routes

Acronyms and Abbreviations:

Air = Air quality
 Bio = Biological Resources
 CPUC = CA Public Utilities Commission
 Cul = Cultural Resources
 Haz = Hazards
 PEA = Proponent's Environmental Assessment
 SCE = Southern California Edison

Key:

S = Potentially significant effect
 S- = Reduced effect expected
 S+ = Increased effect expected
 N = No effect or less than significant effect expected

Table 5 Routing Alternative B

Alternatives	Carried Forward	In PEA	Air	Bio	Cul	Haz	Noise	Obj. #1	Obj. #2	Feasible	Advantages	Disadvantages	Notes
Proposed Route (Telecom Route #2)	Yes	Yes	S	S	S	S	S	Yes	Yes	Yes	<ul style="list-style-type: none"> Meets the basic objectives 	<ul style="list-style-type: none"> Potential for significant environmental effects with regard to multiple resource areas (air quality, biological resources, cultural resources, noise, and hazards) 	
Routing Alternative B (Telecom: Existing 66-kV Line from Chatsworth Substation)	No	No	S +	S +	S	S	S	Yes	Yes	No	<ul style="list-style-type: none"> Meets the basic objectives 	<ul style="list-style-type: none"> Potential for significant environmental effects with regard to multiple resource areas (air quality, biological resources, cultural resources, noise, and hazards) Effects on air quality and biological resources (coastal California gnatcatcher critical habitat) would increase The existing structures would not support the addition of a new fiber optic line; new structures would be required 	<ul style="list-style-type: none"> Line sag between structures would be too great; new intermediate structures would be required between the existing structures or new taller structures would need to be installed Upper cross members of the existing lattice steel structures not designed to support additional lines from above

Acronyms and Abbreviations:

Air = Air quality
 Bio = Biological Resources
 Cul = Cultural Resources
 Haz = Hazards
 PEA = Proponent's Environmental Assessment

Key:

S = Potentially significant effect
 S - = Reduced effect expected
 S + = Increased effect expected
 N = No effect or less than significant effect expected

Table 6 Routing Alternatives C and D

Alternatives	Carried Forward	In PEA	Air	Bio	Cul	Haz	Noise	Obj. #1	Obj. #2	Feasible	Advantages	Disadvantages	Notes
Proposed Route (12-kV Plant Power Line)	Yes	Yes	S	S	N	S	N	Yes	Yes	Yes	<ul style="list-style-type: none"> Meets the basic objectives 	<ul style="list-style-type: none"> Potential for significant environmental effects on air quality, biological resources (critical habitat), and fire risk (hazards) 	
Routing Alternative C (Southern 12-kV Plant Power Line Route)	No	Yes	S +	S +	N	S	N	Yes	Yes	Yes	<ul style="list-style-type: none"> Meets the basic objectives 	<ul style="list-style-type: none"> Would not avoid or reduce a potentially significant impact Effects on air quality and biological resources (coastal California gnatcatcher critical habitat) would increase 	<ul style="list-style-type: none"> Would be approximately 600 feet longer than the proposed route
Routing Alternative D (Underground installation of the 12-kV Plant Power Line)	No	Yes	S +	S +	N	S	N	Yes	Yes	Yes	<ul style="list-style-type: none"> Meets the basic objectives 	<ul style="list-style-type: none"> Would not avoid or reduce a potentially significant impact Effects on air quality and biological resources (coastal California gnatcatcher critical habitat) would increase 	<ul style="list-style-type: none"> Engineering challenges and constraints due to slope and presence of rock along the route

Acronyms and Abbreviations:

Air = Air quality

Bio = Biological Resources

Cul = Cultural Resources

Haz = Hazards

PEA = Proponent's Environmental Assessment

Key:

S = Potentially significant effect

S - = Reduced effect expected

S + = Increased effect expected

N = No effect or less than significant effect expected

1 Both of the routes would meet the basic objectives of the proposed project, but the applicant has indicated
2 that it would not be feasible to install a new fiber optic line on the existing 66-kV subtransmission line
3 structures. The existing lattice steel structures are not tall enough to accommodate an additional, new
4 fiber optic line (this is known as an “underbuild”). The midpoint sag of the line would be too low to meet
5 engineering specifications; thus, intermediate structures would be required to be installed where midpoint
6 sag would be too great. Additionally, the upper cross members of the existing lattice steel structures were
7 not designed to support additional lines, and the structures were not designed to support the tension
8 created from the weight of a new fiber optic line.
9

10 Both the proposed and alternative routes traverse coastal California gnatcatcher critical habitat (Figure 3).
11 The benefit of this alternative would be a reduction in effects on coastal California gnatcatcher critical
12 habitat in relation to the proposed project (the alternative route is approximately 2 miles shorter), but it is
13 likely that overall effects on biological resources would actually be greater because of the number of new
14 or replaced structures that would be required. Effects on air quality would likely be greater as well
15 because emissions and fugitive dust from additional vehicles that would be required to install the
16 additional or replaced structures would be greater. Effects from noise and related to cultural resources and
17 fire risk (hazards) would be similar to the proposed telecommunications route (Table 1). Therefore,
18 because it would not be feasible to use the existing structures to support this alternative and a potentially
19 significant effect would not be avoided or reduced, this alternative was eliminated and will not be carried
20 forward for further consideration in the EIR (Table 5).
21

22 ***Routing Alternative C (Southern 12-kV Plant Power Line Route)***

23 The proposed 12-kV Plant Power Line route would be approximately 1,200 feet long (Figure 2). Routing
24 Alternative C, an alternative location for the Plant Power Line route, would be approximately 1,800 feet
25 long (Figure 8). This alternative was presented by the applicant in the PEA as the originally proposed 12-
26 kV Plant Power Line route. The applicant revised the location of the proposed route during the EIR
27 preparation process, and the CPUC chose to consider the original route as an alternative.
28

29 Both the proposed and alternative Plant Power Line routes would be constructed within coastal California
30 gnatcatcher critical habitat (Figure 3). Effects on air quality and biological resources would likely be
31 greater for the alternative route in relation to the proposed project because it would be approximately 600
32 feet longer. More habitat could be disturbed, and fugitive dust and construction vehicle and equipment
33 emissions would be greater. Effects from noise and related to cultural resources and fire risk (hazards)
34 would be similar to the proposed project route (Table 1).
35

36 Although this alternative would be feasible and meet the basic objectives of the proposed project, a
37 potentially significant adverse effect would not be avoided or reduced, and therefore, it was eliminated
38 and will not be carried forward for further consideration in the EIR (Table 6).
39

40 ***Routing Alternative D (Underground the 12-kV Plant Power Line)***

41 An underground route for the 12-kV Plant Power Line, an alternative that was presented by the applicant
42 in the PEA, would require approximately 1,200 feet of trenching. For this alternative, conductor would be
43 installed in underground conduit terminating in manholes. In order to determine trench size,
44 configuration, encasement, and backfill, a geotechnical survey and civil engineering study would be
45 required, due to the degree of slope and the presence of rock along the route from the proposed Central
46 Compressor Station site to the proposed Natural Substation site. Permanent truck access and workspace
47 around the manholes would be required for conductor installation and replacement as needed for
48 maintenance purposes. Retaining walls would be required to prevent erosion from covering manhole
49 covers and workspaces.
50

1 Effects on air quality and biological resources would likely increase under this alternative in relation to
2 the proposed project. More land would be disturbed because of the trenching required to install
3 underground conduit, and more coastal California gnatcatcher critical habitat would be affected (Figure
4 3). Effects from noise and related to cultural resources and fire risk (hazards) would be similar to the
5 proposed project route (Table 1).
6

7 Although this alternative would be feasible and meet the basic objectives of the proposed project, a
8 potentially significant adverse effect would not be avoided or reduced, and therefore, it was eliminated
9 and will not be carried forward for further consideration in the EIR (Table 6).
10

11 **5.0 Alternatives Retained for Analysis in the EIR**

12
13 Based on the analysis presented in this report, the proposed project and the following three alternatives
14 have been retained for further consideration in the EIR:
15

- 16 • Design Alternative (Alternate Compressor Drive Type, a Non-wires Alternative);
- 17 • Routing Alternative A (Telecommunications: Sylmar Substation to San Fernando Substation);
18 and
- 19 • No Project Alternative.
20

21 **References**

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