

## 6.0 Alternatives

An important aspect of the environmental review process is the identification and assessment of a reasonable range of alternatives that have the potential for avoiding or minimizing the impacts of the Proposed Project while still achieving the project objectives. This section compares the environmental impacts of the proposed project alternatives assessed for the Proposed Project for the California Public Utilities Commission (CPUC) review.

The Proposed Project has the following objectives:

1. Reduce the potential for interruptions in the ability to store gas in the Storage Field, by replacing the obsolete TDC compressor station.
2. Meet the terms of the SA between SoCalGas and parties to Phase I of the 2009 BCAP (D.08-12-020). The SA requires that SoCalGas replace the TDCs and expand the overall injection capacity at the field by approximately 145 million cubic feet per day (MMcfd) in a timely manner.
3. Convert the compression from the Storage Field from natural gas to electric.
4. Design and construct a new electric compressor station and all necessary related infrastructure to increase the injection capacity at the Storage Field by approximately 145 MMcfd.
5. Provide improved vehicle access to the Storage Field by relocating and updating the existing guard house; relocate and update existing office trailers in close proximity to the current TDC station and Storage Field facilities; preserve other on-site facilities and minimize changes to Storage Field facilities where feasible and practicable.
6. Ensure successful conversion to electric compression prior to decommissioning the existing TDCs to minimize the potential for gas supply service interruptions after construction of the Proposed Project.

These proposed project objectives all support the overall need for a reliable, efficient and cost-effective gas supply. The Proposed Project addresses these objectives by 1) designing, constructing and operating a new, higher-capacity gas storage compressor station and 2) powering the new compressor station with electricity as opposed to natural gas and incorporating technologies such as variable frequency drives (VFD) into its design.

## **6.1 Alternatives Evaluated in the PEA**

This section describes a reasonable range of project alternatives that could achieve the designed project objectives. The evaluation addresses the following alternatives:

- No Project Alternative
- Alternate location for the proposed Central Compressor Station
- Alternate compressor drive type
- No guard house relocation alternative
- Alternate location for the proposed SCE Natural Substation
- Alternative SCE 16 kV distribution service to the proposed Central Compressor Station
- Alternate two-line configuration for proposed SCE 66 kV sub-transmission modification

The CPUC Checklist developed for underground gas storage projects includes several components that are not applicable to the Proposed Project, including alternative well-head sites, alternative drilling sites, and alternative pipeline alignments. Alternatives are not included in this analysis for the aforementioned components because they are not part of the Proposed Project design.

### **6.1.1 No Project Alternative**

CEQA Guidelines Section 15126.6 (e) requires consideration of the environmental consequences of the Proposed Project not being constructed. The purpose of describing and analyzing the No Project alternative is to allow a comparison of the impacts of approving the Proposed Project with the impacts of not approving the Proposed Project.

A No Project Alternative would not meet the overall project objective of meeting the SoCalGas-CPUC settlement agreement requiring that the existing Aliso Canyon Gas Storage Facility compressor station be replaced with an upgraded facility, nor would it meet any other Project objective.

If the Proposed Project were not constructed, the existing land uses at the Proposed Project sites would likely remain in their current condition and the present uses would continue. No potentially significant impacts would occur under the No Project alternative.

### **6.1.2 Proposed Central Compressor Station Alternatives**

#### **Alternate Location**

One additional site was assessed to evaluate the impacts and feasibility for placement of the proposed Central Compressor Station in an alternate location.

**Alternate Site Description** – The alternate site would be an in-place replacement of the existing TDC station. The existing TDC station is located within the Plant Station, approximately 1300 feet east of the proposed SCE Natural Substation.

**Alternate Evaluation** – The alternate compressor station location would limit service reliability by removing the existing TDC station from service while testing the reliability of the new equipment. Therefore, the alternate location would not meet one of the primary goals of the Proposed Project which is to increase service reliability. The existing TDC station will remain in place for a minimum of one injection field cycle in order to evaluate the capabilities of the proposed VFD compressors and to provide backup services in cases of VFD failure.

### **Alternate Compressor Drive Type**

As an alternative to VFD motor-driven compressors, turbine driven compressors were evaluated to determine the feasibility and overall environmental impacts of an alternative compressor drive type.

**Alternate Turbine-driven Compressor Description** – The alternate turbine-driven compressors would be similar to the existing TDC configuration, but with larger capacity. The turbines would combust natural gas in order to drive the compressors and would be located within the Plant Station.

**Alternate Evaluation** – The alternative of using turbine-driven compressors in the proposed Central Compressor Station has roughly equivalent environmental impacts for the Proposed Project. Although this alternative eliminates a number of impacts relative to the installation and modification of electrical service, combustion emissions from the gas turbines, which do not occur with the Proposed Project, would be emitted throughout the operating life of the proposed Central Compressor Station. Moreover, major source air permits would be required for the new combustion turbines. Due to a current moratorium on such new permits within the South Coast Air Quality Management District it is unknown when or if these permits could actually be obtained; but for purposes of evaluating the alternative it is assumed that the permits could be obtained. The turbine-driven compressors were not chosen for the Proposed Project due to environmental/permit concerns, Selective Catalytic Reduction (SCR)/Continuous Emissions Monitoring requirements, operability and reliability issues, operation and maintenance costs, large plot size, lengthy start/stop cycling time, and start-up and shut-down procedures. Motor drives were chosen for the Proposed Project due to the existing electrical service that traverses the Storage Field property, reduced air quality permitting requirements, no SCR requirements and higher reliability and availability.

### **6.1.3 No Guard House Relocation Alternative**

#### **No Relocation Alternative**

The current location of the guard house was evaluated to determine the overall transportation and congestion impacts of not relocating the facility 500 feet north of the Storage Field entrance.

**Alternate Description** – The guard house is currently located at the base of the Storage Field entrance near the intersection of Limekiln Canyon Road and Sesnon Boulevard.

**Alternate Evaluation** - The proximity of the guard house to Sesnon Boulevard creates excessive traffic congestion at the facility entrance and on Sesnon Boulevard during regular operations and construction activities. The "no relocation" alternative was not chosen because it does not relieve congestion or increase traffic flow for the facility during heavy traffic periods and creates future congestion issues during construction of the Proposed Project.

#### **6.1.4 Proposed SCE Natural Substation Alternatives**

##### **Alternate Location**

One additional site was evaluated to assess the environmental and economic impacts of placement of the proposed SCE Natural Substation in an alternate location.

**Alternate Location Description** – The alternate location would be a previously disturbed location approximately 900 feet east of the Plant Station adjacent to an existing gravity feed water tower.

**Alternate Evaluation** – The alternate substation location would include widening the existing access road to allow for construction vehicle access and material delivery, excavation and grading of the entire site, and relocating the existing water tank to provide adequate space for the substation, perimeter fencing, and site access. The alternative substation location has similar environmental impacts as that of the Proposed Project; however, the hilltop access to the proposed location would not be accessible by the existing roadway for transportation of the transformers. Similarly, transportation of the transformers via helicopter would be prohibitive due to weight restrictions. A suitable hilltop location for the substation, that would allow the existing water tank to remain a gravity feed, was not identified at the proposed alternate location. In addition, the proposed alternate location is in close proximity to the proposed Central Compressor station and would interfere with emergency water and fire services. Therefore, the final design and engineering evaluation determined the alternate location to be unsuitable for the proposed SCE Natural Substation.

#### **6.1.5 Alternative Electrical Service**

##### **Alternate Distribution Service**

An alternative to the proposed SCE 66 kV sub-transmission modification, proposed to service the new VFD compressors, is the use of a modified SCE 16 kV distribution circuit, known as the Gavin Circuit.

**Alternate Description** -The Storage Field currently receives electrical service through the existing SCE Gavin Circuit. The alignment originates at the Newhall Substation and is part of SCE's distribution infrastructure traversing a variety of city streets and rights-of-way where it serves SoCalGas at the Ward Substation on the SoCalGas property.

**Alternate Evaluation** - As an alternative to modifying the existing SCE 66 kV sub-transmission circuit that traverses SoCalGas's property from the Newhall Substation and constructing the proposed SCE Natural Substation at the end of the Chatsworth Tap running from the San Fernando Substation, up to 51 MVA of base power could be delivered by installing three new 16 kV distribution circuits from the Newhall

Substation to the proposed Central Compressor Station location. Adding these three new 16 kV distribution circuits would involve the following:

- Extending the 66 kV rack and adding a new 66 kV bank breaker, adding two 56 MVA, 66/16 kV transformer, two 4.8 MVAR, 16 kV capacitor banks, extending the 16 kV switchrack, and installing a 16 kV bank breaker, and three new 16 kV line breakers and other equipment installed at the Newhall Substation in order to carry the three new circuits;
- From the Newhall Substation, install a new duct bank consisting of six 5" conduits fully encased in 3" of concrete and six runs of three single conductor 1000 kcmil AL Jacketed Concentric Neutral (JCN) cable, related underground structures, switches, splices, etc., underground south along Wiley Canyon Road, beneath the I-5 freeway and along The Old Road;
- The three new circuits would rise up poles located on the Old Road, east of the 5 FWY and terminate to three new overhead circuits consisting of three 653.9 ACSR conductors each. These three new circuits were proposed to follow the path of the existing Gavin 16 kV distribution circuit and would run long a series of new rebuilt aboveground power poles or on a new set of poles immediately adjacent to the existing Gavin 16 kV circuit pole line, south into Newhall Canyon;
- Replace all the distribution poles along the existing 16 kV Gavin circuit alignment which runs west from the I-5 corridor to the Storage Facility, in order to handle the three new 16 kV circuits; and
- Dip underground and install the same underground infrastructure as mentioned above into a new 16 kV customer switchgear line to be operated in a Self Restoring Loop Configuration. (Each of the three new 16 kV distribution circuits would be metered individually and totalized and would be paralleled through the customer switchgear.) This would replace the existing 16 kV SoCalGas Metered Service.
- Upgrade the existing SoCalGas 16 kV facilities within the Storage Field in order to handle the three new 16 kV circuits; and from there connect the service to the proposed Central Compressor Station.

Compared to the Proposed Project, this alternative would eliminate all proposed modifications along the 66 kV alignment, including the work at the Newhall, Chatsworth, and San Fernando Substations; and eliminates the requirement to construct the proposed SCE Natural substation at the Aliso Canyon facility. However, the available short circuit duty from the 16 kV design is roughly one fifteenth the available short circuit duty studied in the original 66 kV Method of Service Study. This will create significant engineering challenges to start the three new compressor motors while operating within SCE's maximum allowable flicker criteria. Also, this design can support a maximum load of 51 MVA, which may not be enough to accommodate the entire SoCalGas Load, and will allow no room for any possible future load growth. It is estimated that multiple 16 kV capacitor units would need to be installed and operated within the maximum allowable flicker criteria, which in turn, would result in a very complex system to regulate voltage under a vast range of load conditions. Lastly, this design presents significant operational issues for SCE. This alternative would not improve reliability, one of the Proposed Project objectives. Therefore, this alternative was not chosen for the Proposed Project.

### **Alternate Two-Line 66 kV Sub-transmission Modification**

An alternative two-line configuration was evaluated for the interconnection of the proposed SCE 66 kV sub-transmission modification and proposed SCE Natural Substation.

**Alternate Description** - The existing SCE 66 kV sub-transmission system includes two source lines, the Chatsworth-MacNeil-Newhall-San Fernando line and the MacNeil-Newhall-San Fernando line. The alternate two-line configuration would re-construct only the Chatsworth-MacNeil-Newhall-San Fernando line and not the MacNeil-Newhall-San Fernando line. The SCE Chatsworth-MacNeil-Newhall-San Fernando line would not be modified at the Chatsworth Tap and constructed to the proposed SCE Natural Substation,.

**Alternate Evaluation** – The alternate two-line configuration limits the assurance of successful operation and utility services provided by the proposed SCE Natural Substation because only one line would interconnect the substation to the 66 kV sub-transmission system. The proposed SCE 66 kV sub-transmission modification includes construction of an additional line interconnecting the proposed SCE Natural Substation to the modified SCE Chatsworth-MacNeil-Newhall-San Fernando line. The additional line provides increased reliability and service capabilities during unplanned activity including power surges or failures; therefore, the alternate two-line configuration would not be a feasible option for the Proposed Project. This alternative would not improve reliability, one of the Proposed Project objectives. Therefore, this alternative was not chosen for the Proposed Project.

## **6.1 Alternatives Evaluation**

Table 6-1 summarizes the differences in potential environmental impacts for the alternatives relative to the Proposed Project. Due to the lack of significant impacts, the No Project alternative is not included in the table.

In conclusion, the alternative compressor station location, alternate substation location, and alternate two-line configuration have similar impacts as that of the Proposed Project. The alternative of using gas-driven compressors results in significantly greater air quality impacts due to the combustion of natural gas. The no guard house relocation results in slightly higher air quality and transportation impacts. This is primarily due to increased congestion resulting from the existing limited egress and ingress capacity at the Storage Field entrance. Lastly, the impacts of adding three additional 16 kV distribution circuits along the route of the Gavin 16 kV instead of modifying the existing 66 kV results in somewhat greater potential impact than the Proposed Project. This is primarily due to the need for the 16 kV circuits to be constructed across several sensitive habitat areas and view sheds that lie to the north and northeast of the Aliso Canyon facility. All of the alternatives evaluated in this PEA, with the exception of the no project alternative, the alternate two-line configuration, and the alternate 16 kV distribution service, satisfy the project objectives. These alternatives were not chosen for the Proposed Project based on the evaluation presented above.

Table 6.2 Evaluation of Alternative Impacts

Resource Area	Proposed Project (PP) Impact	Alternate Compressor Station Location	Turbine-Driven Compressors	Alternate No Guard House Relocation	Alternate SCE Natural Substation Location	Alternate 16 kV Distribution	Alternate Two-line Configuration
Aesthetics	Less Than Significant	Similar to the PP	Less than the PP	Similar to the PP	Similar to the PP	More than the PP	Similar to the PP
Agriculture Resources	No Impact	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP
Air Quality	Less than Significant	Similar to the PP	More than the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP
Biological Resources	Less Than Significant	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Less than the PP	Similar to the PP
Cultural Resources	Less than Significant	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP
Geology and Soils	Less Than Significant	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP
Hazards and Hazardous Materials	Less Than Significant	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP
Hydrology and Water Quality	Less Than Significant	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP
Land Use and Planning	Less Than Significant	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP
Mineral Resources	No Impact	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP
Noise	Less Than Significant	Similar to the PP	Similar to the PP	More than the PP	Similar to the PP	Similar to the PP	Similar to the PP

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Population and Housing	No Impact	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP
Public Services	No Impact	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP
Recreation	Less Than Significant	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP
Transportation and Traffic	Less Than Significant	Similar to the PP	Similar to the PP	More than the PP	Similar to the PP	More than the PP	Similar to the PP
Utilities and Service Systems	No Impact	Similar to the PP	Similar to the PP	Similar to the PP	More than the PP	Similar to the PP	Similar to the PP
Cumulative Impacts	Less Than Significant	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP
Growth Inducing Impacts	Less Than Significant	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP

