

SYSTEM IMPACT STUDY & FACILITIES STUDY



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SOUTHERN CALIFORNIA EDISON COMPANY

EXECUTIVE SUMMARY

██████████ applied to Southern California Edison (“SCE”) for Distribution Service under the terms of SCE’s Wholesale Distribution Access Tariff (“WDAT”). SCE performed a combined System Impact Study and Facilities Study as requested by ██████████ for Phase 1 of the project, the interconnection of a new customer-owned substation, tentatively named “West Substation”. The interconnection is located approximately 3.1 miles southwest of SCE’s ██████████ Substation (“██████████ Sub”), in the vicinity of ██████████ served by the ██████████ 66 kV line out of ██████████ Sub. The request is for 25 MVA of load at the new customer-owned West Substation. The initial request is for service to commence by January 1, 2015. As part of Phase 2 of the project, ██████████ proposes looping in customer-owned West Sub, effectively creating the ██████████ 66 kV and the ██████████ 66 kV Lines.

The interconnection of 25 MVA of load at the new customer-owned substation, as part of Phase 1 of the project, would continue to receive interconnection service from SCE’s existing 66 kV electric system on the ██████████ 66 kV out of ██████████ Substation via the existing overhead line service. ██████████ will be responsible for the construction of West Substation, as well as the new 66 kV line interconnecting it to ██████████ Phase 2 of the project entails looping in West Sub, commencing January 2016. ██████████ will be responsible for the construction of the 66 kV line to loop in West Substation.

The purpose of this System Impact Study is to determine the effect of the proposed load increase on the SCE electric system and the portion of SCE’s electric system that is part of the CAISO controlled grid, and to identify in general additional Interconnection Facilities, Electric System Upgrades, additions or modifications, or other facilities required to provide the requested service. The study performed (by SCE’s Distribution Engineering department) examines impacts related to that part of the SCE electric system energized at less than 220 kV.

The SCE Electric System will be impacted by the request to increase the load at the existing interconnection. The impacts will be at the 66 kV electric system voltage level as well as Vista Substation.

Phase 1 of the study was performed for years 2015 through 2016 using projected peak load conditions. Phase 2 of the study was performed for year 2016 to 2023 using projected peak load conditions.

The System Impact Study consisted of a power flow analysis. The analysis was performed to determine whether the energy associated with the West Substation load WDAT can be transmitted from the ISO grid at the 66 kV bus of ██████████ Substation through SCE’s electric system without creating the need for modifications to SCE’s distribution system and/or to the ISO grid. The combined System Impact Study and Facilities Study did not demonstrate any violations or upgrades.

Non-binding order of magnitude cost estimates for the required interconnection facilities and system upgrades are as follows:

Phase 1: Protection Coordination and Settings Changes	\$46.7 K
Phase 2: Protection Coordination and Settings Changes	\$46.7 K
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Total non-binding order of magnitude cost estimate	\$93.4 K

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I. INTRODUCTION

██████████ applied to Southern California Edison ("SCE") for Distribution Service under the terms of SCE's Wholesale Distribution Access Tariff ("WDAT"). SCE performed a combined System Impact Study and Facilities Study as requested by ██████████ for Phase 1 of the project, the interconnection of a new customer-owned substation, tentatively named "West Substation". The interconnection is located approximately 3.1 miles southwest of SCE's ██████████ Substation ██████████ in the vicinity of ██████████ served by the ██████████ 66 kV line out of ██████████ Sub. The request is for 25 MVA of load at the new customer-owned West Substation. The initial request is for service to commence by January 1, 2015. As part of Phase 2 of the project, ██████████ proposes looping in customer-owned West Sub, effectively creating the ██████████ West 66 kV and the ██████████ 66 kV Lines.

The interconnection of 25 MVA of load at the new customer-owned substation, as part of Phase 1 of the project, would continue to receive interconnection service from SCE's existing 66 kV electric system on the ██████████ 66 kV out of ██████████ Substation via the existing overhead line service. ██████████ will be responsible for the construction of West Substation, as well as the new 66 kV line interconnecting it to Agua Mansa Sub. Phase 2 of the project entails looping in West Sub, commencing January 2016. ██████████ will be responsible for the construction of the 66 kV line to loop in West Substation. The following Figures, Figures 1-3, depict the current configuration of ██████████ as well as Phase 1 and 2 of ██████████ proposed project. Note the following:

- ██████████ 66kV Line: SCE owns rack span from ██████████ Substation to pole #6094F. Pole #6094F to ██████████ Substations is ██████████ owned.

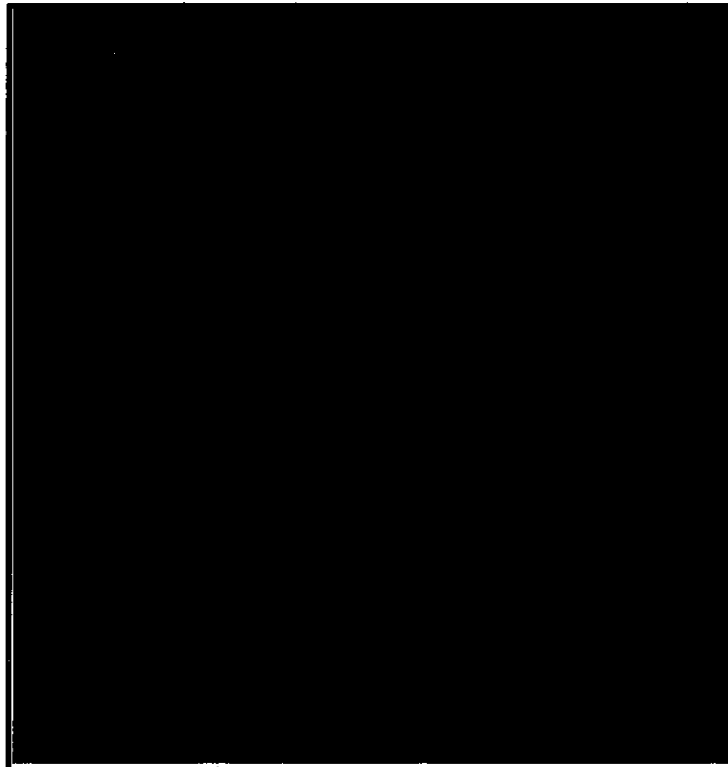


Figure 1 Current configuration of the 66 kV Service to ██████████

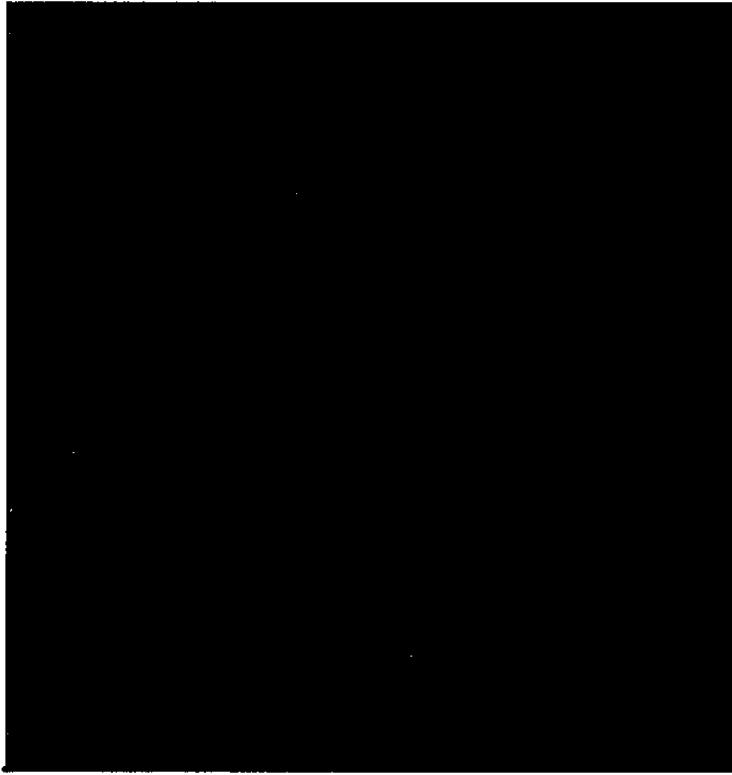


Figure 2 Proposed interconnection of West Substation as part of Phase 1.

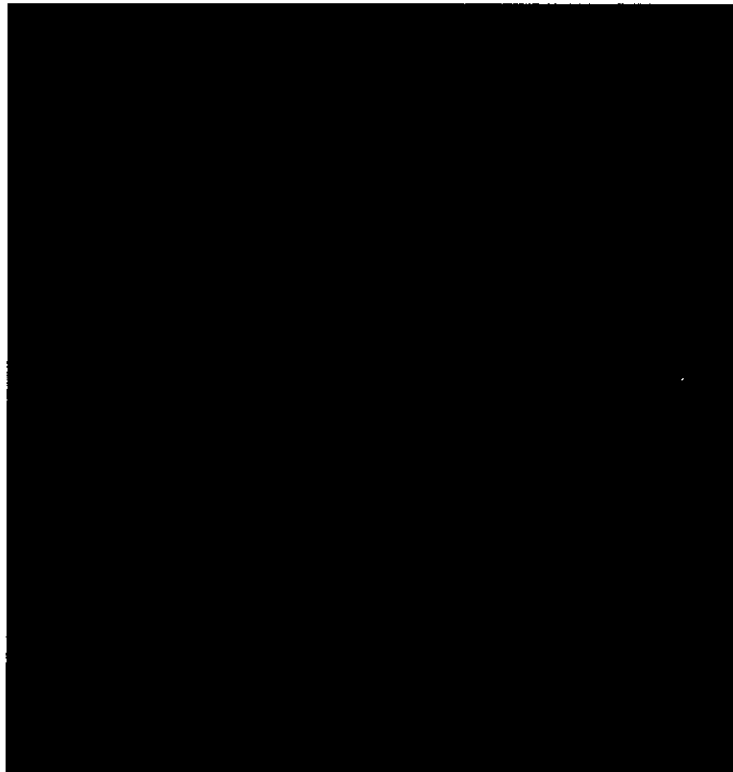


Figure 3 Proposed interconnection of West Substation as part of Phase 2.

The purpose of this System Impact Study is to determine the impact of the proposed load addition on the SCE electric system and to identify additional Interconnection Facilities, Upgrades, additions or modifications, or other facilities required to provide the requested service. This study was performed for year 2015 through 2023 projected peak load conditions.

II. SYSTEM IMPACT STUDY CONDITIONS & METHODOLOGY

Planning Criteria

The thermal rating of any conductor, connector, or apparatus should not exceed 100% of its normal rated capacity with all facilities in service (base case).

The thermal rating of any conductor, connector, or apparatus should not exceed 100% of its emergency rated capacity under single loss of line ("N-1") conditions.

Circuit voltage profiles should be maintained to comply within CPUC's Rule 2 requirements and ANSI C84.1 Range A requirements.

System Conditions

The power factor for the load was assumed to be within WDAT requirements of 0.95 lagging or leading. Furthermore, the expectation is that power factor correction equipment is to be furnished by [REDACTED] to maintain adequate power factor within these limits.

Projected peak loading on the 66kV electric system as detailed in the SCE 2014 - 2023 Distribution Substation Plan/Transmission Substation Plan was used.

Distributed generators connected to the SCE system were assumed offline for the purposes of this study.

System Protection Considerations

Lines interconnected to SCE substations must be arranged to allow for no more than three metered terminals.

III. SYSTEM IMPACT STUDY RESULTS

Line Thermal Loading

The 66kV Electric System serving [REDACTED] is not projected to be thermally overloaded due to the addition of 25 MVA of load.

Substation Thermal Loading

The substation transformer banks at [REDACTED] 220/66kV Substation are not projected to be overloaded as a result of the 25 MVA load increase by the [REDACTED] for the study period.

System Protection Requirements

West Substation cannot be tapped to the existing [REDACTED] line at any time. [REDACTED] must obtain approval from SCE of the proposed protection scheme on the new lines interconnected to SCE substations (e.g., [REDACTED] Sub). [REDACTED] will also be responsible for all telecommunication requirements at the new customer-owned West Substation including diverse fiber optics into the new customer-owned substation.

IV. GENERAL DESCRIPTION OF IDENTIFIED UPGRADES

System Upgrades

n/a

Interconnection Facilities

n/a

Customer Equipment

At West Substation, [REDACTED] will be required to install a [REDACTED] that matches the make and model of the [REDACTED] currently installed at [REDACTED] Substation. The [REDACTED] and all telecommunication requirements at West Substation including diverse fiber optics into the new customer-owned substation will be provided by [REDACTED]. The relay settings are subject to SCE approval prior to setting and certified timed trip testing report results using primary injection will need to be provided to SCE to verify relay and circuit breaker performance prior to energizing the service.

V. DETAILED DESCRIPTION OF IDENTIFIED UPGRADES

N/A

VI. NON-BINDING ORDER OF MAGNITUDE COST ESTIMATE

Non-binding order of magnitude cost estimates for the required interconnection facilities and system upgrades are as follows:

Phase 1: Protection Coordination and Settings Changes	\$46.7 K
Phase 2: Protection Coordination and Settings Changes	\$46.7 K
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Total non-binding order of magnitude cost estimate	\$93.4 K

VII. SUMMARY

The combined System Impact Study and Facilities Study did not demonstrate any violations or upgrades.

1. As detailed in the System Protection Requirements section, [REDACTED] may not tap West Substation to the existing [REDACTED] line at any time.
2. [REDACTED] must obtain approval from SCE of the proposed protection scheme on the new lines interconnected to SCE substations (e.g., [REDACTED] Sub).
3. [REDACTED] will be required to install at West Substation a [REDACTED] that matches the make and model of the [REDACTED] currently installed at [REDACTED] Substation. [REDACTED] will also be responsible for all telecommunication requirements at the new customer-owned West Substation including diverse fiber optics into the new substation.
4. At the conclusion of the protection settings review, SCE and the [REDACTED] will be required to submit letters of agreement between the two utilities.