[redacted]

FEASIBILITY STUDY

September 09, 2005

Prepared by:

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EDISON
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EXECUTIVE SUMMARY

[redacted] applied to Southern California Edison ("SCE") for distribution service under the terms of SCE's Wholesale Distribution Access Tariff ("WDAT"). [redacted] will own and operate a 49.9 MW generating facility [redacted] to be interconnected at a new interconnection facility [redacted] to be constructed by SCE. [redacted] will be served by tapping off SCE's existing Saugus-Lockheed 66kV line, forming new Saugus-Lockheed-Angeles 66kV line. Distribution service pursuant to the WDAT is proposed to be from [redacted] to the California Independent System Operator ("ISO") grid at SCE's 230 kV Pardee Substation. The proposed in-service date of the [redacted] is June 1, 2006.

The [redacted] is a generation system consisting o[redacted] LM6000 gas turbine. As requested by [redacted] SCE performed a Feasibility Study to identify the general electrical system impacts of the [redacted] possible mitigation measures to maintain conformance with SCE, ISO, or other applicable reliability planning criteria, and non-binding order of magnitude cost estimates for these mitigation measures.

The Feasibility Study consisted of a power flow analysis and a three-phase short circuit duty analysis to determine whether the energy associated with the [redacted] can be transmitted through SCE's distribution system to the ISO grid at Pardee Substation, without creating the need for modifications to SCE's distribution system and/or the ISO grid. The study showed that, with the [redacted] on-line:

- The Project does not contribute significantly to overloading or voltage deviation problems on the sub-transmission system under base case (normal) and N-1 conditions.
- The power flow study results show that the Project does not contribute significantly to overloading or voltage deviation problems on the transmission system under base case (normal) conditions, or the tested single and double contingencies.
- The data provided by [redacted] was used to study the Project's three-phase Short Circuit Duty (SCD) contribution. Three phase short-circuit duties increased by 0.1kA or more at [redacted] 230kV substations, [redacted] 66kV substations, [redacted] 16kV substations, and [redacted] 13.8kV substations. However, the Project's incremental contribution to increased SCD did not trigger the need for facility upgrades, as determined in this Feasibility Study.

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

[redacted] interconnection facility	$1.40M
Protection Upgrades*	$0.20M
RTU at [redacted]	$0.10M
66 kV system line upgrades	$0.30M
Total non-binding order of magnitude cost estimate	$2.00M

Note: The above costs do not include the 35% ITCC tax. The 66 kV system line upgrades do not include any 131D costs.

*Pending Protection Engineering Review
Additional system studies (i.e., single line-to-ground short circuit duty, transient stability, post-transient stability) will be performed and refined cost estimates will be developed in a subsequent System Impact Study and/or Facilities Study if requested by the customer.

CONTENTS

[redacted]

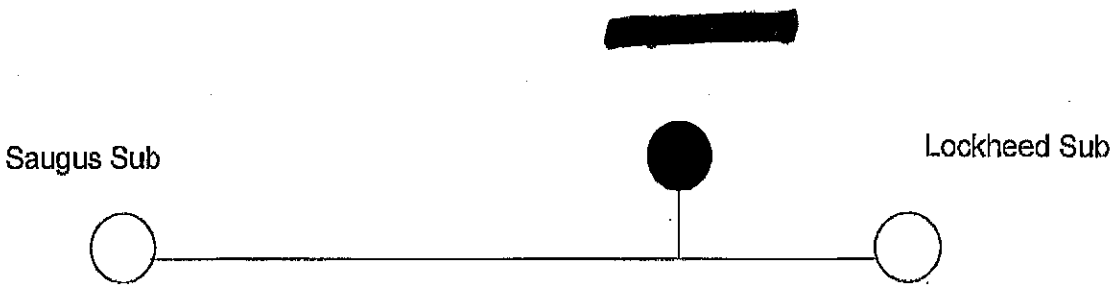
FEASIBILITY STUDY

September 9, 2005

1. INTRODUCTION

[redacted] applied to Southern California Edison ("SCE") for distribution service under the terms of SCE's Wholesale Distribution Access Tariff ("WDAT"). [redacted] will own and operate a 49.9 MW generating facility ("[redacted]") to be interconnected at a new interconnection facility [redacted] to be constructed by SCE. [redacted] will be served by tapping SCE's existing Saugus-Lockheed, forming new Saugus-Lockheed-Angeles 66kV line (See Figure 1 below).

Figure 1 - Proposed 66 kV Method of Service to [redacted]



Distribution service pursuant to the WDAT is proposed to be from [redacted] to the California Independent System Operator ("ISO") grid at SCE's 230 kV Pardee Substation. The proposed in-service date of the [redacted] is June 1, 2006.

The [redacted] is a generation plant consisting of [redacted] which has a net generation export of 49.9 MW. As requested by [redacted] SCE performed a Feasibility Study to identify the general electrical system impacts of the [redacted], possible mitigation measures to maintain conformance with SCE, ISO, or other applicable reliability planning criteria, and non-binding order of magnitude cost estimates for these mitigation measures.

The Feasibility Study consisted of a power flow analysis and a three-phase short-circuit duty analysis to determine whether the energy associated with the [redacted] can be transmitted through SCE's distribution system to the ISO grid at Pardee Substation, without creating the need for modifications to SCE's distribution system and/or the ISO grid. This report describes the study conditions and assumptions and presents the results of the power flow and short-circuit duty analyses on SCE's Saugus 66kV subtransmission system. Appendix A details study results for the ISO-controlled transmission grid.

2. STUDY CONDITIONS AND METHODOLOGY

A. *Planning Criteria*

The study was conducted by applying SCE's planning criteria to the SCE facilities used to provide the requested WDAT service. Specifically, the main criteria applicable to this study are as follows:

Power Flow Criteria

Line loading should not exceed 100% of a conductor's thermal rating with all facilities in service (base case).

Line loading should not exceed 100% of a conductor's emergency rating with one line out of service (N-1).

Short-Circuit Duty Criteria

Short-circuit duty should not exceed a circuit breaker's interrupting capability with maximum area generation on-line.

B. *System Load Conditions*

The study considered two system load conditions: peak loads and light loads. The peak load forecast was based on SCE's 2005-2014 Distribution Substation Plan. The light load forecast was assumed to be 60% of the peak load forecast.

C. *Power Flow Study*

This study evaluated the [redacted]mpact on line loadings for base case and N-1 conditions. Both peak load and light load conditions were modeled. Line loadings were monitored both with and without the [redacted]to determine if the addition of the [redacted]caused any violations of SCE's thermal loading criteria.

D. *Short-Circuit Duty Study*

This study evaluated the [redacted]impact on three-phase short-circuit duties seen by substation circuit breakers at the 66kV level. Symmetrical three-phase fault currents and X/R ratios were calculated both with and without the [redacted]t to determine if the addition of the [redacted]caused any violations of SCE's short-circuit duty criteria.

The dataset used for the short-circuit study represented all existing generation and all projects in the queue (up to and including the [redacted]) as on-line. Substations where the [redacted]ncreased three-phase short-circuit duties by 0.1 kA or more were flagged, and circuit breaker interrupting capabilities were reviewed at these substations to determine if any circuit breakers required replacement as a result of the [redacted]

3. DISCUSSION OF STUDY RESULTS

A. Power Flow Study

For both peak and light load conditions, the addition of the [redacted] caused no violations of SCE's thermal loading criteria under base case conditions.

For both peak load and light load conditions, the addition of the [redacted] caused no violations of SCE's thermal loading criteria under N-1 conditions.

B. Short-Circuit Duty Study

Table 1 below summarizes the impact of the [redacted] on [redacted] three-phase short-circuit duties and X/R ratios at various 230kV, 66 kV, 16kV, and 13.8kV buses on the SCE system. [redacted] 230kV buses were flagged where the [redacted] increased three-phase short-circuit duties by 0.1 kA or more: Antelope 230kV, Harbor 230kV, Long Beach 230kV, Moorpark 230kV, Ormond 230kV, Pardee 230kV, Sylmar 230kV, and Vincent 230kV. [redacted] 66kV buses were flagged where the [redacted] increased three-phase short-circuit duties by 0.1 kA or more: Saugus 66kV, Burro Flats 66kV, Chatsworth 66kV, Elizabeth Lake 66kV, Lockheed 66kV, Newhall 66kV, North Oaks 66kV, Rocketdyne 66kV, Santa Susana 66kV, Solemint 66kV, Appgen 66kV, Pitchgen 66kV, Haskell 66kV, MWD Hydro 66kV, and Colossus 66kV. [redacted] 6kV buses were flagged where the [redacted] increased three-phase short-circuit duties by 0.1 kA or more: Lockheed 16kV and Saugus 16kV. [redacted] 13.8kV buses were flagged where the [redacted] increased three-phase short-circuit duties by 0.1 kA: Appgen 13.8kV, Pitchgen 13.8kV, and Tengen 13.8kV. A review of circuit breaker interrupting capabilities at these locations determined that the incremental contribution to increased SCD did not trigger the need for circuit breaker upgrades.

Table 1: Three-Phase Short-Circuit Duty Summary

[redacted]

Three Phase Short Circuit Duty Study Results

Bus Names	Voltage (KV)	Pre-Project SCD (kA)	Pre-Project X/R Ratio	Post-Project SCD (kA)	Post-Project X/R Ratio	Delta SCD (kA)
Antelope	230					
Harbor	230					
Long Beach	230					
Moorpark	230					
Ormond	230					
Pardee	230					
Sylmar S	230					
Vincent	230					
Appgen	66					
Burro Flats	66					
Chatsworth	66					
Colossus	66					
Elizabeth Lake	66					
Haskell	66					
Lockheed	66					
MWD HYDR	66					
Newhall						
North Oaks						
Pitchgen						
Rocketdyne						
Saugus	6					
Santa Susana	66					
Solemint	66					
Lockheed	16					
Saugus	16					
Appgen	13.8					
Pitchgen	13.8					
Tengen	13.8					

4. NON-BINDING ORDER OF MAGNITUDE COST ESTIMATES

Non-binding order of magnitude cost estimates for the required interconnection facilities and 66 kV system upgrades are as follows:

[redacted]	$1.40M
Protection Upgrades*	$0.20M
RTU [redacted]	$0.10M
66 kV system line upgrades	$0.30M
Total non-binding order of magnitude cost estimate – 66 kV system	$2.00M

Note: The above costs do not include the 35% ITCC tax. The 66 kV system line upgrades do not include any 131D costs.
*Pending Protection Engineering Review

5. CONCLUSIONS

The results of this Feasibility Study showed that, with the [redacted] on-line:

- Thermal loadings on the SCE subtransmission facilities used to provide the requested WDAT service were all within criteria limits.

- Three-phase short-circuit duties increased by 0.1 kA or more at [redacted] 230kV buses, [redacted] 66 kV buses [redacted] 6kV buses, and [redacted] 13kV buses. A review of circuit breaker interrupting capabilities at these locations determined that no circuit breakers will need to be replaced as a result of the [redacted]

Non-binding order of magnitude cost estimates for the required interconnection facilities and 66 kV system upgrades are as follows:

[redacted]	$1.40M
Protection Upgrades*	$0.20M
RTU at [redacted]	$0.10M
66 kV system line upgrades	$0.30M
Total non-binding order of magnitude cost estimate – 66 kV system	$2.00M

Note: The above costs do not include the 35% ITCC tax. The 66 kV system line upgrades do not include any 131D costs.
*Pending Protection Engineering Review

Additional system studies (i.e., single line-to-ground short circuit duty, transient stability, post-transient stability) will be performed and refined cost estimates will be developed in a subsequent System Impact Study and/or Facilities Study if requested by the customer.

APPENDIX A

TRANSMISSION ASSESSMENT

[redacted]

WHOLESALE DISTRIBUTION ACCESS TARIFF

FEASIBILITY STUDY
TRANSMISSION ASSESSMENT

August 29, 2005

SOUTHERN CALIFORNIA
EDISON®
An *EDISON INTERNATIONAL*® Company

Study by
C. Vartanian

Southern California Edison Company

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for Patricia L Arons

[redacted]

FEASIBILITY STUDY - TRANSMISSION ASSESSMENT

EXECUTIVE SUMMARY

[redacted] applied to Southern California Edison ("SCE") for Distribution Service under the terms of SCE's Wholesale Distribution Access Tariff ("WDAT"). [redacted] proposes to connect [redacted] simple cycle gas turbine at a generating facility in Saugus, California ("Project"), with a maximum operating rating of 49 MW. Although, not explicitly specified in [redacted] application to SCE [redacted] proposes to connect the Project to SCE's Saugus-Lockheed 66 kV line for the delivery of energy through SCE's system to the ISO Grid at SCE's Pardee Substation. The in-service date proposed by [redacted] is June 1, 2006.

Southern California Edison's (SCE's) Transmission and Interconnection Planning (TIP) department has performed a Feasibility Study to determine the adequacy of SCE's transmission system to accommodate the Project. The study indicates that the transmission system is not adequate to accommodate the Project's 49 MW of generation without modifications. A number of 230 kV circuit breakers will need to be replaced to accommodate the Project. Other projects ahead in the interconnection application queue are responsible for triggering this work.

TIP has determined there is no need to perform future additional dynamic stability analysis at the transmission level for this Project. Therefore, a transmission System Impact Study will not be needed for this Project. A Facilities Study will be required for the Project to further evaluate the need for transmission circuit breaker upgrades. This portion of the future Facility Study will be in addition to the distribution-level interconnection and network facilities to be evaluated.

The study accuracy and the results for this assessment of system adequacy are contingent on the accuracy of the technical data provided by [redacted] Any changes from the customer provided data could void the study results.

SCE's Field Engineering department has also performed a Feasibility Study on the affected SCE distribution system.

POWER FLOW STUDY RESULTS

The power flow study results show that the Project does not contribute significantly to overloading or voltage deviation problems on the transmission system under base case (normal) conditions, or the tested single and double contingencies.

SHORT CIRCUIT DUTY STUDY

The data provided by [redacted] was used to study the Project's three-phase Short Circuit Duty (SCD) contribution. The addition of the Project impacts eight substations by increasing SCD by 0.1 KA or more. However, the Project's incremental contribution to increased SCD did not trigger the need for facility upgrades, as determined in this Feasibility Study.

SCOPE OF WORK

A conceptual scope of upgrades to accommodate interconnection of the Project on the SCE network is listed below.

The following scope item is associated with Project impacts that have been identified in this Feasibility Study.

1. Evaluate 230 kV circuit breakers at [redacted]ubstations (Antelope, Pardee, and Vincent) affected by the Project, and verify need for replacement of circuit beakers at the [redacted] substations.

A Facilities Study will be required to determine and confirm the scope of facilities identified in this Feasibility Study.

An Operational Study will also need to be performed based on in-service-year, as opposed to interconnection application queue order. The Operational Study will evaluate the need for having circuit breaker upgrades in-service prior to Project interconnection, even if these upgrades are assigned to earlier-queued projects that may have later in-service dates.

COST OF UPGRADES

Total Cost of upgrades for the Project-impacted portion of transmission system will be approximately $21,530,000 (35% ITCC Tax not included) for circuit breaker replacements. Based on Engineering's initial screening for this Feasibility Study, the Project does not trigger any of the potential circuit breaker replacements that contribute to the Total Cost. Therefore, no portion of these costs are assigned to the Project for the informational purpose of this Feasibility Study.

Notes:
Study results may be affected by changes in other projects ahead of the queue in the area. A re-study may be required if there are changes in the project queue or the scope of projects ahead in the queue. The Project impacts and related costs could change based on any future re-study.

Cost estimates are rough order of magnitude, and are non binding cost estimates only.

Very conservative costs are assumed due to the fact that no detailed engineering analysis was done for the FS cost estimates. There is a very good possibility that the costs for any of the mitigation measures identified in this FS could be reduced after SCE Engineering has done a detailed analysis.

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WHOLESALE DISTRIBUTION ACCESS TARIFF

FEASABILITY STUDY
TRANSMISSION ASSESSMENT

INTRODUCTION

[redacted] applied to Southern California Edison ("SCE") for Distribution Service under the terms of SCE's Wholesale Distribution Access Tariff ("WDAT"). [redacted] proposes to connect a single [redacted] simple cycle gas turbine at a generating facility in Saugus, California ("Project"), with a maximum operating rating of 49 MW. Although, not explicitly specified in [redacted] application to SCE, [redacted] proposes to connect the Project to SCE's Saugus-Lockheed 66 kV line for the delivery of energy through SCE's system to the ISO Grid at SCE's Pardee Substation. The in-service date proposed by [redacted] is June 1, 2006.

The study was performed for two system conditions representing: (a) 2006 heavy summer load (once in-ten-year heat wave assumption) with maximum eastern area generation, and (b) spring load (60% of 2006 heavy summer peak load) for the total transmission system. These conditions reflected the most critical expected loading condition for the transmission system in SCE's northern area.

The study accuracy and the results for this assessment of system adequacy are contingent on the accuracy of the technical data provided by [redacted] Any changes from the customer provided data could void the study results.

SCE's Field Engineering department has also performed a Feasibility Study on the affected SCE distribution system.

STUDY CONDITIONS AND ASSUMPTIONS

A. Planning Criteria

The study was conducted by applying the California Independent System Operator (CAISO) Reliability Criteria. More specifically, the main criteria applicable to this study are as follows:

Power Flow Assessment

The following contingencies are considered for transmission or sub-transmission lines and 500/230 kV transformer banks ("AA-Bank"):

Assuming both San Onofre Units 2 and 3 in service and then:

- Single Contingencies (N-1 Line or N-1 AA-Bank)
- Double Contingencies (N-2 Two Lines, N-1 Line and N-1 AA-Bank) (Outages of two AA-Banks are beyond the Planning Criteria)

The following criteria are used:

Table 1

Transmission Lines	Base Case	Limiting Component Normal Rating
	N-1	Limiting Component A-Rating
	N-2	Limiting Component B-Rating
500-230 kV Transformer Banks	Base Case	Normal Loading Rating
	Long & Short Term	As Defined by SCE Operating Bulletins

Mitigation measures, including system upgrades or Special Protection Systems, for transmission lines are generally recommended only for base case overloads, single contingency overloads in excess of the A-Rating, and common mode failure double contingencies in excess of the B-Rating.

Congestion Assessment

The following principles, outlined below, are used for interconnecting generation into the SCE transmission system, which fall under CAISO jurisdiction (these principles may be subject to change for future interconnection projects).

- Congestion management, as a means to mitigate base case overloads, can be used if it is determined to be manageable and the CAISO concurs with the implementation.

- Facility upgrades will be required if it is determined that the use of congestion management is unmanageable as defined in the congestion management section that follows.

- Special protection schemes (SPS), in lieu of facility upgrades, will be recommended if the scheme is effective, does not jeopardize system integrity,

does not exceed the current CAISO single and double contingency tripping limitations, does not adversely effect existing or proposed special protection schemes in the area, and can be readily implemented.

- Facility upgrades will be required if use of protection schemes is determined to be ineffective, the amount of tripping exceeds the current CAISO single and double contingency tripping limitations, adverse impacts are identified on existing or currently proposed special protection schemes, or the scheme cannot be readily implemented.

- Congestion management in preparation for the next contingency will be required, with CAISO concurrence, if no facility upgrades or special protection schemes are implemented.

The following study method was implemented to assess the extent of possible congestion:

a) Under Base Case with all transmission facilities in service, the system was evaluated with all existing interconnected generation and all generation requests in the area that have a queue position ahead of the Project (pre-project).

b) Under Base Case with all transmission facilities in service, the system was reevaluated with the inclusion of the Project (post-project).

If the normal loading limits of facilities are exceeded in (a), the overload is identified as an existing overload that was triggered by a project in queue ahead of the Project. If the normal loading limits of facilities are exceeded in (b) and were not exceeded in (a), the overload is identified as triggered by the addition of the Project. The Project, assuming it is a market participant, and other market participants in the area may be subjected to congestion management, potential upgrade cost and/or participation of any proposed special protection scheme if the project addition aggravates or triggers the overload. Additionally, the Project may have to participate in mitigation of overloads triggered by subsequent projects in queue, subject to FERC protocols and policies.

In order for congestion management to be a feasible alternative to system facilities, all of the following factors need to be satisfied:

- Time requirements for necessary coordination and communication between the CAISO operators, scheduling operators and SCE operators.

- Distinct Path/Corridor rating should be well defined so monitoring and detecting congestion and implementing congestion of the contributing generation resources can be performed when limits are exceeded.

- Sufficient amount of market generation in either side of the congested path/corridor should be available to eliminate market power.

- Manageable generation in the affected area is necessary so that operators can implement congestion management if required (i.e. the dispatch schedule is known and controllable).

The results of these studies should identify:

a. if capacity is available to accommodate the proposed Project and all projects ahead in queue without the need for congestion management, special protection schemes, or facility upgrades

b. if overloads exist in the area after the addition of all projects in queue ahead of the Project and all facilities in service

c. if congestion exists in the area with the addition of the Project and all projects ahead in queue under single and double element outage conditions assuming no new special protection schemes are in place

d. if sufficient capacity is maintained to accommodate all Must-Run and Regulatory Must-Take generation resources with all facilities in service

e. if sufficient capacity is maintained to accommodate the total output of any one generation resource which is not classified as Must-Run.

B. [redacted] Saugus, California

[redacted] proposes to connect the Project to SCE's Saugus-Lockheed 66 kV line for the delivery of energy to the ISO Grid at SCE's Pardee Substation. The in-service date proposed by [redacted] is June 1, 2006. For purposes of this Feasibility Study that examined impacts to the transmission system, the project was assumed connected directly to the Saugus 66 kV bus. This was a conservative assumption for the purpose of identifying impacts to the networked transmission system that serves the radial Saugus 66 kV subtransmission system. Appendix A displays a simplified one line diagram showing the interconnection point, and the portion of the transmission network that would integrate the Project 's output with the wider CAISO grid.

[redacted] proposes to deliver a net of 49 MW of generation.

C. System Conditions

To simulate the SCE transmission system for analysis, the study selected databases that originated from the CAISO Controlled Transmission 2004-2008 Assessment. These load flow studies considered the existing system arrangement without the SDGE proposed Rainbow-Valley 500 kV transmission project and to reflect other transmission projects.

For example:

- Palo Verde – Devers 500 kV Line #2 was in service.
- All four West of Devers 230 kV Lines have been upgraded.

The bulk power study cases from the Expansion Plan were modified for an earlier-queued project to specifically stress the Northern portion of the SCE transmission system that. This modified case was used as the starting point for this Feasibility Study. Under this case scenario, generation in the north and north/west portions of the SCE system are at relatively high output, and are delivering power through the SCE transmission system to serve the L.A. basin region.

In addition, this study considered two system load conditions: 2006 heavy summer and light spring. The summer peak load forecast was based on SCE's 2005 Transmission Substation Transformer Capacity Assessment, and reflects a one-in-ten-year heat wave assumption. The 2005 – 2009 heavy summer load forecast is shown in Table 1. The 2005 - 2009 spring forecast assumed 60% of summer load forecast.

D. Power Study

Power flow studies were conducted under 2006 heavy summer and 2006 spring load conditions with and without the Project for a total of 4 base cases. Further descriptions of the base case assumptions are as follows:

a) 2006 Heavy Summer: Case 1 **without** the Project and Case 2 **with** high generation in SCE's northern area. Generation included: all market and all regulatory must-take units. Generation patterns were maximized in the northern area to fully stress the system in order to identify extent of potential congestion on the bulk power system with the addition of the Project.

b) 2006 Spring: Case 3 **without** the Project Case 4 **with** 2006 spring load (60% of summer peak for the total system) was used with high generation in SCE's northern area. Generation included: all market and all regulatory must-take units. Generation patterns were maximized in the northern area to fully stress the system in order to identify extent of potential congestion on the bulk power system with the addition of the Project.

With the addition of the Project, SCE's area total generation, imports, loads, and losses for each case are summarized in Table 2 below:

Table 2

SCE AREA TOTAL GENERATION, IMPORT, LOAD AND LOSSES (MW)				
	2006 Heavy Summer		**2006 Light Spring**	
	Case 1-pre	**Case 2-post**	**Case 3-pre**	**Case 4-post**
Generation	15692	15692	8133	8133
Imports	7462	7462	6027	6027
Load	22554	22554	13626	13626
Losses	601	601	534	534

Simulations

For each of the four cases, load flow simulations of the bulk power system were conducted for the base case, single contingencies and double contingencies for lines and 500-230 kV transformer banks to determine impacts to the SCE system. A total of [redacted] single and [redacted] double contingencies in the SCE system were studied with system performance monitored for criteria violations on the SCE 500-kV and 230-kV systems.

E. Short Circuit Duty

The data provided by [redacted] has been used to study the Project's three phase Short Circuit Duty (SCD) contribution at SCE 230 kV substations. Project SCD contribution of 0.1 KA or higher are identified as a Project impact, and will require additional evaluation by SCE to determine the specific equipment upgrades associated with the identified increases in SCD. However, the Project must trigger the need for any identified upgrades for assignment of costs to the Project in this informational Feasibility Study.

POWER FLOW STUDY RESULTS

A. 2006 Spring Results

The power flow study did not identify significant Project-impacted base case, N-1 or N-2 overloads in the 2006 spring case.

B. 2006 Summer Results

The power flow study did not identify significant Project-impacted base case, N-1 or N-2 overloads in the 2006 summer case. The Summer 2006 case had relatively higher line loadings than the Spring 2006 case.

The power flow study results show that the Project does not contribute significantly to overloading or voltage deviation problems on the transmission system under base case (normal) conditions, or the tested single and double contingencies.

TIP has determined there is no need to perform future additional dynamic stability analysis at the transmission level for this Project. Therefore, a transmission System Impact Study will not be needed for this Project.

SHORT CURCUIT DUTY STUDY RESULTS

Short Circuit Duty Study

The results of the maximum symmetrical three-phase SCD at the [redacted] critical Project-impacted buses in the SCE bulk transmission system are summarized in Table 3 (the short circuit duty sheet).

The addition of the 49 MW Project increases the short circuit duty at the substation facilities listed below for future review. However, study results may change due to other projects ahead of the queue in the area. A new study may be required if those projects are revised.

Three Phase (3PH) Short Circuit Duty Study Results

Table 3
Short Circuit Duty Sheet

Bus Name	Bus
ANTELOPE	
HARBOR	
LONG BEACH	
MOORPARK	
ORMOND	
PARDEE	
SYLMAR S	
VINCENT	

SCE T/S Engineering performed an initial screening analysis that narrowed the eight impacted substations down to [redacted] substations where increased SCD will require equipment upgrades. The [redacted] substations that require equipment upgrade, and that have an incremental contribution in SCD from the Project, are Antelope, Pardee, and Vincent substations. The screening analysis identified 10 circuit breakers at the [redacted] substations that are at risk for needing replacement due to queue-driven increase in SCD. The Total Cost for this work is estimated at $21,530,000 (including overheads, but not including 35% ITCC Tax). However, the screening analysis determined that the Project does not trigger the need for replacement of any of these 10 CB's, per the queue that exists at the time of this Feasibility Study. Any future queue changes could change this determination.

Upgrades to 230 kV circuit breakers on SCE's transmission system will be required to accommodate the Project. However, since the Project did not trigger any of the identified facility upgrades, no Project SCD impact costs are assigned in this Feasibility Study.

CONCLUSIONS

A. Power Flow Study Conclusions

Power flow studies were conducted under conditions representing 2006 heavy summer and 2006 light spring load with and without the Project for a total of 4 cases.

Power flow study results show that the Project does not contribute significantly to overloading or voltage deviation problems on the transmission system under base case (normal) conditions, or the tested single and double contingencies.

TIP has determined there is no need to perform any future additional dynamic stability analysis at the transmission level for this Project. Therefore, a transmission System Impact Study will not be needed for this Project.

B. Short Circuit Duty Study Conclusions

The addition of the 49 MW Project increases three-phase short circuit duty at three substation facilities where equipment replacement will be required. The three substations that will need further review in the Facilities Study are: Antelope substation, Pardee substation, and Vincent substation. Therefore, upgrades to 230 kV circuit breakers on SCE's transmission system will be required to accommodate the Project. However, since the Project did not trigger any of the identified facility upgrades, no Project SCD impact costs are assigned in this Feasibility Study.

A Facilities Study will be required for the Project to further evaluate the need for the transmission circuit breaker upgrades. This portion of the future Facility Study will be in addition to the distribution-level interconnection and network facilities to be evaluated.

Note:
Study results may change due to other projects ahead of the queue in the area. A new study may be required if projects ahead of the queue are changed, and the Project impact findings could change.

CONCEPTUAL SCOPE OF WORK

A conceptual scope of upgrades to accommodate interconnection of the Project on the SCE network is listed below.

The following scope item is associated with Project impacts that have been identified in this Feasibility Study.

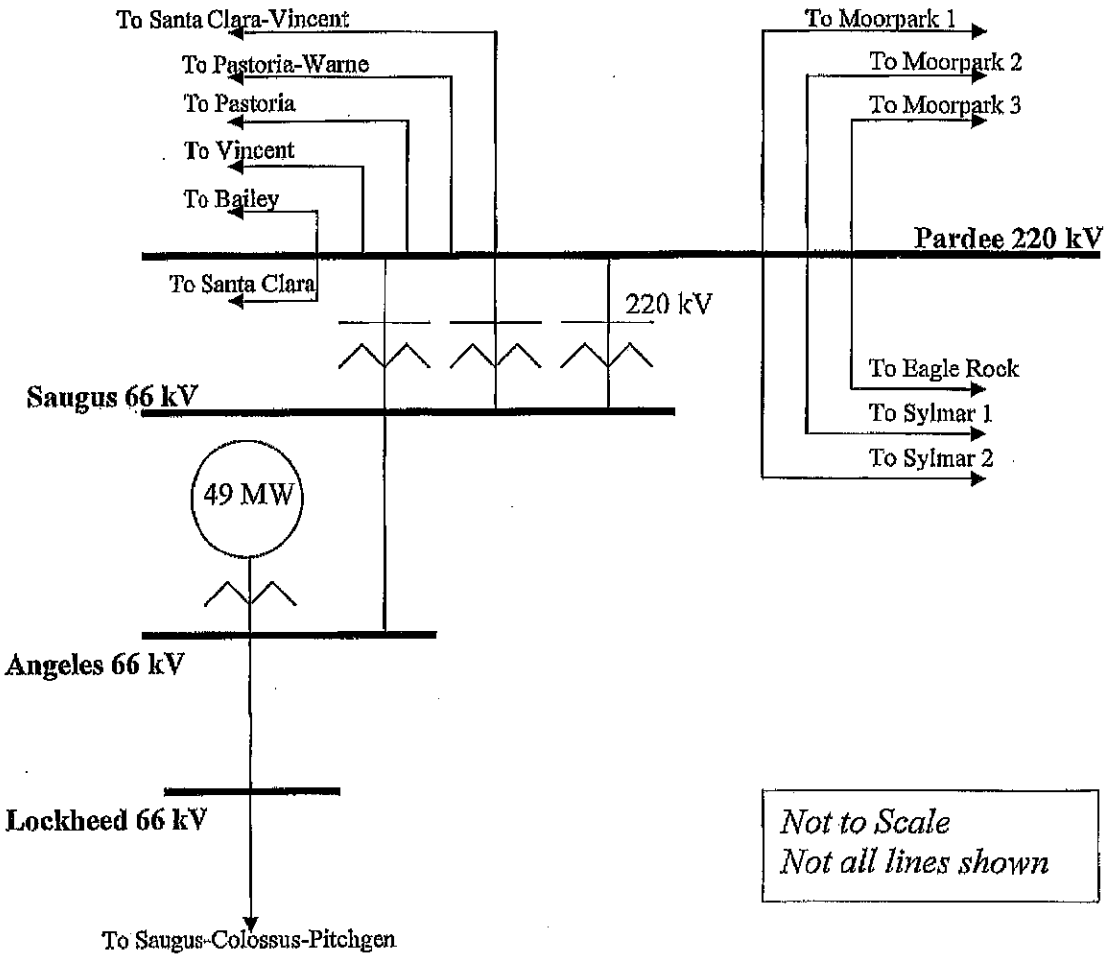
1. Evaluate 230 kV circuit breakers at three substations (Antelope, Pardee, and Vincent) affected by the Project, and verify need for replacement of circuit beakers at the three substations.

A Facilities Study will be required to determine and confirm the scope of facilities identified in this Feasibility Study.

An Operational Study will also need to be performed based on in-service-year, as opposed to interconnection application queue order. The Operational Study will evaluate the need for having circuit breaker upgrades in-service prior to Project interconnection, even if these upgrades are assigned to earlier-queued projects that may have later in-service dates.

Note:
Study results may change due to other projects ahead of the queue in the area. A new study may be required if projects ahead of the queue are changed, and the Project impact findings could change.

APPENDIX A
SINGLE LINE DIAGRAM



APPENDIX B
Load Flow Plots

1) **Heavy Summer, post project, normal conditions**
2) **Heavy Summer, pre project, normal conditions**
3) **Light Spring, post project, normal conditions**
4) **Light Spring, pre project, normal conditions**

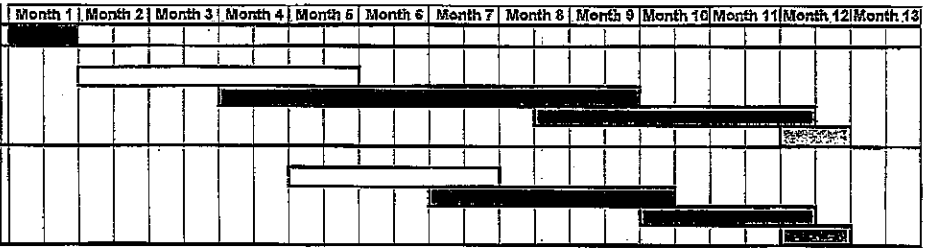
PAGES OMITTED FOR CEII REGULATIONS

APPENDIX B

[redacted] PROJECT SCHEDULE

[redacted] PROJECT SCHEDULE**

ELEMENT	START	END
PROJECT APPROVAL	Initiate Work Orders	
[redacted] 66kV INTERCONNECTION FACILITY	New 66kV Facility	
Engineering & Design	Start of Mo.2	Start of Mo.8
Major Equipment Procure & Deliver	Start of Mo.4	Start of Mo.10
Construction	Middle of Mo.8	Middle of Mo.12
Testing	Start of Mo.12	End of Mo.12
OTHER RELATED SUBSTATIONS	PROTECTION UPGRADES	
Engineering & Design	Start of Mo.5	Start of Mo.8
Relays & Panels	Start of Mo.7	Middle of Mo.10
Construction	Start of Mo.10	Middle of Mo.12
Testing	Start of Mo.12	End of Mo.12



**Pending Sub-Transmission Review

05/02/05
E. A. ROMERO

[redacted] PROJECT SCHEDULE**

ELEMENT	START	END	Month 14	Month 15	Months 16 - 24
PROJECT APPROVAL	Initiate Work Orders				
[redacted] 66kV INTERCONNECTION FACILITY	New 66kV Facility				
Engineering & Design	Start of Mo.2	Start of Mo.6			
Major Equipment Procure & Deliver	Start of Mo.4	Start of Mo.10			
Construction	Middle of Mo.8	Middle of Mo.12			
Testing	Start of Mo.12	End of Mo.12			
OTHER RELATED SUBSTATIONS	PROTECTION UPGRADES				
Engineering & Design	Start of Mo.5	Start of Mo.8			
Relays & Panels	Start of Mo.7	Middle of Mo.10			
Construction	Start of Mo.10	Middle of Mo.12			
Testing	Start of Mo.12	End of Mo.12			

**Pending Sub-Transmission Review