

[REDACTED]

SOUTHERN CALIFORNIA EDISON COMPANY

FACILITIES STUDY



MARCH 16, 2007

Prepared by:

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I. Executive Summary

[REDACTED] Southern California Edison (SCE) for the interconnection of 47.2MW of generation from their [REDACTED] facility [REDACTED] the Barre Substation 66kV Bus under the terms of SCE's Wholesale Distribution Access Tariff (WDAT).

The [REDACTED] interconnect to the CAISO Grid at the Barre Substation 220kV Bus.

The Project consists of one 13.8kV [REDACTED] a Net Generation Capacity of 47.2MW, and one 45MVA 66/13.8kV step-up Transformer Bank to interconnect the generation to the SCE 66kV System.

The [REDACTED] will be installed [REDACTED] and it will be connected to a dedicated 66kV Line Position via new 66kV Generation Transformer Bank Leads to be constructed entirely inside the station.

[REDACTED] requested an interconnection date of July 1, 2007. SCE is currently performing Engineering and Design activities and ordering the necessary equipment to meet this date.

A Transmission System Impact Study (SIS), dated December 18, 2006, was prepared to address the impact of the new generation to the SCE Transmission System.

A Sub – Transmission System Impact Study (SIS) dated January 19, 2007, was prepared to address the impact of the new generation to the SCE Sub – Transmission System.

CAISO reviewed the SIS's and granted Preliminary Interconnection Approval for the Barre Peaker on a letter to SCE (Robert Lugo) dated January 26, 2007.

SEE EXHIBIT A: BARRE SUBSTATION and 66kV GEN. TRANSF. BANK LEADS.

SEE EXHIBIT B: TRANSMISSION SIS – EXECUTIVE SUMMARY.

SEE EXHIBIT C: SUB-TRANSMISSION SIS – EXECUTIVE SUMMARY.

SEE EXHIBIT D: CAISO LETTER TO SCE (ROBERT LUGO) DATED 01/26/07.

II. Transmission System Impact Study Results.

The SIS analyzed the System including all interconnections placed ahead of the Project in the Application Queue on line and concluded that:

1. The Project does not trigger any Base Case, N – 1 or N – 2 overloads.
2. The Project does not aggravate any pre-existing Base Case, N – 1 or N – 2 overloads.
3. The project does not impact the transient stability conditions on the Transmission System.
4. The project does not impact the post – transient conditions on the Transmission System.
5. The Project does increase the Three – Phase and / or Single Phase to Ground Short Circuit Duties by 0.1kA or more at the following two 500kV and twelve 220kV locations:

500kV:	Mira Loma	Serrano			
220kV:	Alamitos	Barre	Del Amo	Ellis	Huntington Beach
	Johanna	Lewis	Lighthipe	Mira Loma	Pardee
	Serrano	Villa Park			

The Transmission SIS considered a total of one hundred and fifty six potential Generation Projects, presently ahead of the Project on the Interconnection Application Queue, as already interconnected to the SCE System.

SEE EXHIBIT E: EARLIER INTERCONNECTIONS – APPLICATION QUEUE.

The SIS concluded that a Facilities Study would be required to determine the scope of work and cost estimates for the 66kV Interconnection Facilities at Barre Substation and any required Circuit Breaker replacements or upgrades within the Transmission System.

III. Sub-Transmission System Impact Study Results

The SIS analyzed the System including all interconnections placed ahead of the Project in the Application Queue on line and concluded that:

1. The Project does not trigger any Base Case, N – 1 or N – 2 overloads.
2. The Project does not aggravate any pre-existing Base Case, N – 1 or N – 2 overloads.
3. The Project does increase the Three – Phase and / or Single Phase to Ground Short Circuit Duties by 0.1kA or more at the following fourteen 66kV locations:

Apollo	Barre	Bolsa	Ely	Fullerton	Gilbert
Kinder	Lampson	La Palma	Marion	Shawnee	Sunny Hills
Team	Trask				

The SIS concluded that all Circuit Breakers at the locations identified above were adequate and no replacements or upgrades would be required.

IV. Facilities Study Assumptions

- A. All required ISO metering equipment at the [REDACTED] provided by [REDACTED] and is not included in the Facilities Study.
- B. The required RTU to be installed at the GBU Generating Facility will be installed by SCE and it is included in the Facilities Study.
- C. The following line protection equipment, to be installed at the [REDACTED] termination point of the 66kV Generation Tie Lines will be specified by SCE and provided by [REDACTED] and is not included in the Facilities Study.
 - One SEL-311L Line Current Differential Relay.

V. Facilities Study Scope and Cost Estimate

V – A Facilities Study Scope

Pursuant to FERC's orders 2006-A (Small Generators) and 2003-A (Large Generators) all Facilities Studies are required to provide the customer with its "maximum possible funding exposure", which shall include the costs of upgrades that are reasonably allocable to the Interconnection Customer at the time the estimate is made, and the costs of any upgrades not yet constructed that were assumed in the interconnection studies for the Interconnection Customer but are, at the time of the estimate, an obligation of an entity other than the Interconnection Customer."

To comply with the FERC orders, the Scope of Work and Cost Estimate for all elements required for the interconnection are presented for the following two cases:

CASE A: All facilities required exclusively by the Project.

And

CASE B: All additional facilities that may be required by the Project.

The facilities included on Case B are those additional facilities required to remedy situations caused by earlier Projects, placed ahead of the Project in the Application Queue, and are expected to be implemented by them.

However, in the event that any of these earlier Projects withdraws their Application, the Project may become responsible for any or all of these additional facilities.

CASE A:

- Barre Substation Install a Double – Breaker 66kV Line Position at the existing Switchrack Position 2 to terminate the GBU 66kV Generation Transformer Bank Leads.
- Gen. Tr. Bk. Leads Install 500 Circuit Ft. of new 66kV Line with 336.4KCMIL ACSR Conductors from the GBU Generating Facility to the Barre 66kV Switchyard Pos.2.
- Telecommunications Install two telecommunication channels on diverse paths from the [REDACTED] to Barre Substation to support new 66kV GBU Generation Tie Line protection scheme and the RTU.
- Power System Control Install new RTU at the Generating Facility and modify existing Power Management System Data Base at Barre Substation.
- Substations Automation Add the new 66kV Line to the existing Human – Machine Interface at Barre Substation.

CASE B:

- No facilities required except for the Circuit Breakers addressed below.

Circuit Breakers Evaluation

- Evaluate circuit breakers (CB's) short circuit capability at all locations where the Three-Phase and/or Single Phase to Ground SCD's were increased by 0.1kA or more as a result of the Project. The evaluation included a total of twenty five 500kV CB's at two locations, one hundred and sixteen 220kV CB's at twelve locations and one hundred and eleven 66kV CB's at thirteen locations.

The circuit breaker evaluation results are as follows:

CASE A: All circuit breakers are adequate – No replacements or upgrades required.

CASE B: The following replacements and upgrades are required:

- Barre Substation Upgrade eight 220kV CB's
- Lighthipe Substation Replace one and upgrade twelve 220kV CB's

SEE EXHIBIT F: FACILITIES STUDY SCOPE – ADDITIONAL DETAILS.

V – B Facilities Study Cost Estimate

CASE A Identifies the cost of all facilities that are required exclusively by the Project.

CASE B Identifies the cost of all upgrades required that were triggered by earlier Applicants placed ahead of the Project in the Application Queue.

In the event that any Applicant, presently placed ahead of the Project in the Application Queue, withdraws its Application, the system would need to be re-evaluated. The new evaluation may conclude that the Project would now trigger any of these upgrades and would then become responsible for some or all of the upgrades identified on Case B.

The total estimated cost of all elements of the interconnection as identified above in the Facilities Study Scope is as follows:

CASE A:	\$2,091,000
CASE B (<u>May</u> be added to Case A):	<u>\$2,780,000</u>
POSSIBLE MAXIMUM COST EXPOSURE:	\$4,871,000

SEE EXHIBIT G: COST SUMMARY.

VI. Project Timeline

1. The Project is presently under Engineering and Design and major equipment has already been ordered.
2. The present Project Schedule shows an Interconnection Date of July 1, 2007.
3. At this time there is no definite schedule for the replacement and upgrades of 220kV Circuit Breakers at Barre and Lighthipe Substation addressed as Case B.
4. For the purpose of this Facilities Study these upgrades are shown in 2008 Dollars but they may still be postponed beyond 2008 if the System does not require them until later.
5. Future Operational Studies for those interconnections placed ahead of the Project in the Application Queue, but after the Project in the Operational Queue, will determine the actual dates when these upgrades will be required.

VII. Conclusions

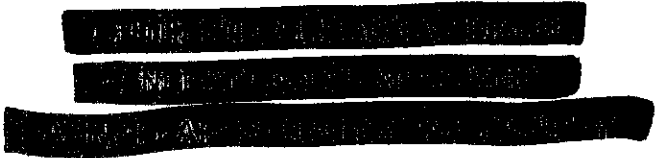
- A. The estimated cost for the Interconnection is approximately \$2,091,000 for Case A with the potential additional cost of \$2,780,000 for Case B for a total Maximum Exposure of \$4,871,000.
- B. The costs indicated in the Cost Summary are shown 2007 Dollars except for the cost of the 220kV Circuit Breaker replacements and upgrades at Barre and Lighthipe Substations which are shown in 2008 Dollars due to the time required for these two elements of the Project and the uncertainty as to the exact time when the SCE Transmission System would really require these upgrades.

These costs are not firm and are subject to change based on the final design and actual material costs. This Facilities Study and cost estimates as presented are valid for a period of 90 days.

- C. [REDACTED] pay SCE based on actual costs. The estimated Project Cost will be reconciled to actual costs upon closure of the subject work orders. The necessary billing adjustments will be made at that time.

ADDENDUM

OPERATIONAL STUDIES RESULTS



ADDENDUM TO THE FACILITIES STUDY

OPERATIONAL STUDIES

General Information

In addition to the Transmission and Sub – Transmission System Impact Studies, which are based on the Application Queue, SCE also prepared Operational Studies, which are based on the Operational Queue, for both Systems.

The Operational Queue includes exclusively those prior interconnections which are either already on line or expected to come on line before the Project.

A Transmission Operational Study dated December 21, 2006 was prepared to address the impact of the new generation to the SCE Transmission System.

The results of the Sub – Transmission Operational Study addressing the impact of the new generation to the SCE Sub – Transmission System were included in the Sub – Transmission SIS.

Operational Studies Results

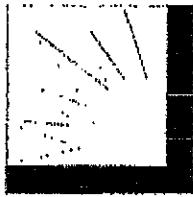
Both the Transmission and Sub – Transmission Operational Studies concluded that the Systems are adequate to support the new Project on July 1, 2007 and no upgrades are required prior to the interconnection.

[REDACTED]

WHOLESALE DISTRIBUTION ACCESS TARIFF
LARGE GENERATOR INTERCONNECTION

OPERATIONAL STUDY
TRANSMISSION ASSESSMENT

December 21, 2006



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Prepared by:
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Southern California Edison Company

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Manager

Transmission & Interconnection Planning

OPERATIONAL STUDY

INTRODUCTION

[REDACTED] applied to the Southern California Edison - Transmission and Distribution Business Unit (TDBU) for Interconnection pursuant to Wholesale Distribution Access Tariff (WDAT). [REDACTED] proposed to interconnect a new 47.9 MW generation project [REDACTED] the 66kV bus at Barre substation. The in-service date proposed by [REDACTED]. *The study accuracy and the results for the assessment of the system adequacy are contingent on the accuracy of the technical data provided by [REDACTED]*

Southern California Edison's Transmission & Interconnection Planning (SCE - TIP) has already performed a System Impact Study (SIS) dated December 18, 2006. This Operational Study is being performed to determine the adequacy of SCE's Transmission System to accommodate the [REDACTED]. The study indicates that the system is adequate to accommodate the 47.9 MW of generation without Transmission System modifications for the 2007 Heavy Summer scenario. A Facilities Study may still be required for the Barre Peaker Project to address any Distribution System related operational requirements.

SYSTEM CONDITIONS AND STUDY ASSUMPTIONS

To simulate the SCE Transmission System for analysis, the study selected the databases that were used to conduct the 2007-2016 SCE Expansion Plan. The 2007 Heavy Summer scenario utilized the following assumptions:

Queued Generation included in study for 2007:

TOT/WDAT #	MW	ONLINE
TOT101	520	N
TOT138	424.8	N
TOT037	810	Y
TOT127	65	N
WDT179	49.9	Y
WDT190	49.9	N
WDT223	49.9	Y
TOT032	850	Y
WDT230	44.55	Y
WDT233	47.21	N
WDT231	45.03	Y
WDT229	47.13	Y
WDT236	47.9	Y
WDT235	46.99	N
TOT135	500	Y
TOT132	500	N

Key Case Factors:

SCE AREA TOTAL GENERATION, IMPORT, LOAD AND LOSSES (MW)	
	2007-Peak
Generation	14918.5
Imports	10102.8
Load	24454.6
Losses	566.67

POWER FLOW STUDY RESULTS

The power flow study results show that no overloading problems are found on the transmission lines for base-case, N-1 and N-2 contingencies. Specifically:

Base Case (Summer 2007 Conditions)

There were no base case overloads attributed to [REDACTED]

Single Contingencies (Summer 2007 Conditions)

There were no single contingency overloads attributed to [REDACTED]

Double Contingencies (Summer 2007 Conditions)

There were no double contingency overloads attributed to [REDACTED]

TRANSIENT STABILITY AND POST TRANSIENT STUDIES

SCE used study findings from earlier Interconnection Studies for large projects electrically proximate to this project and concluded that there are no transient stability and post transient impacts to the SCE transmission system from this proposed project.

SHORT CIRCUIT DUTY STUDY

The data provided by [REDACTED] has been used to study the Short Circuit Duty contribution by the project on the affected Transmission System substation circuit breakers. The addition of the Project has impacted multiple 500 kV and 230 kV substations with increases in the Short Circuit Duty.

The addition of the project has impacted one (1) 500 kV substation, thirteen (13) 230 kV and one (1) 115 kV substation with short circuit duty increases greater than 0.1 kA.

Bus Name	Bus KV	PRE CASE		POST CASE		DELTA kA
		MVA	KA	MVA	KA	

Apparatus Engineering has determined that the circuit breakers at all of the affected substations, identified above, meet the duty required for the 2007 Heavy Summer operational scenario.

SCOPE OF WORK

The scope of work to accommodate the generation interconnection on the SCE Transmission System for the 2007 Heavy Summer scenario is listed below. This study has not assumed overload or short circuit mitigation requirements for projects ahead of it in the queue.

No SCE Transmission System related components (Circuit Breakers and Transmission Lines) are triggered by the [REDACTED] in the SIS or Operational Study. Distribution related components will be addressed by the Field Engineering Operational Study.

COST OF UPGRADES

There is no cost of upgrades for the Transmission System assigned to the project, at this time. However, the assignment of network upgrade costs could change if the interconnection queue changes.

Note: 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. All cost estimates are rough order of magnitude, and are non-binding cost estimates.

66 kV System Operational Study Results Appendix A

[REDACTED] applied to Southern California Edison (SCE) Transmission and Distribution Business Units (TDBU) for distribution service under the terms of SCE's Wholesale Distribution Access Tariff (WDAT). [REDACTED] will own and operate a 47.21 MW generating facility [REDACTED] to be interconnected to a dedicated position at the [REDACTED] 66 kV switchrack. Distribution service pursuant to the WDAT is proposed to be from the [REDACTED] to the California Independent System Operator (ISO) grid at SCE's 230 kV [REDACTED]. The proposed in-service date of the [REDACTED].

As requested by [REDACTED] SCE performed an Operational Study to identify the general electrical system impacts of the [REDACTED] and the required 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 Study Conditions and Methodology are similar to those in the System Impact Study except that the dataset used for the short-circuit study analysis represented all existing generation and all projects which are expected to be on-line by July 2, 2007 (including the [REDACTED] substations where the [REDACTED] increased short-circuit duties (three-phase or single line-to-ground) by 0.1 kA or more were identified and circuit breaker interrupting capabilities were reviewed at those substations to determine if any circuit breakers required replacement as a result of the [REDACTED].

The Operational Study showed that, with the [REDACTED] on-line:

- Thermal loadings on the SCE transmission and subtransmission facilities used to provide the requested WDAT service were all within criteria limits.
- No 66 kV circuit breakers and no 230 kV circuit breakers will need to be upgraded due to the [REDACTED].

Table 1: Short-Circuit Duty Summary

	1	2	3	4	5	6	7	8

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

Interconnection (substation and 66 kV interconnection tie)	\$ 0.975M
RTU installed at [REDACTED]	\$ 0.050M
Circuit breaker replacements (66 kV, 230 kV)	\$ 0.000M
35% ITCC Tax	\$ 0.359M
Total non-binding order of magnitude cost estimate	\$1.384M

Additional system studies (e.g., transient stability) will not be required unless requested by a third party. Refined cost estimates will be developed in a subsequent Facilities Study if requested by [REDACTED]. Non-Binding cost estimate does not include any G.O. 131-D costs.

EXHIBIT A



and

**66kV GENERATION
TRANSFORMER BANK LEADS**

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CEII REGULATIONS**

EXHIBIT B

**TRANSMISSION
SYSTEM IMPACT STUDY
EXECUTIVE SUMMARY**



SYSTEM IMPACT STUDY

December 18, 2006

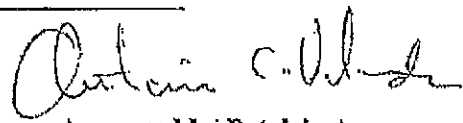


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Prepared by

Maria Puga

Southern California Edison Company


Approved by Patricia Arons
for

EXECUTIVE SUMMARY

INTRODUCTION

[REDACTED] applied to the California Independent System Operator (CAISO) for Interconnection pursuant to Wholesale Distribution Access Tariff (WDAT). [REDACTED] proposed to interconnect a new 47.9 MW generation project to the 66kV bus at Barre substation. The in-service date proposed by GBU is July 2, 2007. *The study accuracy and the results for the assessment of the system adequacy are contingent on the accuracy of the technical data provided by [REDACTED]*

Southern California Edison Company (SCE) has performed a System Impact Study (SIS) to determine the adequacy of SCE's transmission system to accommodate the [REDACTED]. The results of the System Impact Study will be used as the basis to determine project cost allocation for facility upgrades in the Facilities Study. The study indicates that the system is adequate to accommodate the 47.9 MW of generation without transmission line modifications. However, a Facilities Study will be required for the [REDACTED].

RESULTS / CONCLUSION

POWER FLOW STUDY

The power flow study results show that no overloading problems are found on the transmission lines for base-case, N-1 and N-2 contingencies. Specifically:

Base Case (spring and summer Conditions)

There were no base case overloads attributed to [REDACTED].

Single Contingencies (spring and summer Conditions)

There were no single contingency overloads attributed to [REDACTED].

Double Contingencies (spring and summer Conditions)

There were no double contingency overloads attributed to [REDACTED].

TRANSIENT STABILITY AND POST TRANSIENT STUDIES

SCE used study findings from earlier Interconnection Studies for large projects electrically close to this project and concluded that there are no negative transient stability and post-transient impacts to the SCE transmission system from this proposed project.

SHORT CIRCUIT DUTY STUDY

3-PHASE FAULT DUTY

The addition of the project has impacted one (1) -- 500 kV substation and twelve (12) -- 230kV substation with short circuit duty increases greater than 0.1kA.

SINGLE - LINE TO GROUND FAULT DUTY

The addition of the project has impacted one (1) 525 kV substation and three (3) 230 kV substations with short circuit duty increases greater than 0.1kA. The remaining five (5) substations are part of the 3-phase fault duty evaluation.

SCOPE OF WORK

Power Flow Study Conclusion

Base Case (spring and summer Conditions)

There were no base case overloads attributed to [REDACTED] Project.

Single Contingencies (spring and summer Conditions)

There were no single contingency overloads attributed to [REDACTED] Project.

Double Contingencies (spring and summer Conditions)

There were no double contingency overloads attributed to [REDACTED] Project.

Transient Stability and Post Transient Studies

SCE used study findings from earlier Interconnection Studies for large projects electrically close to this project and concluded that there are no negative transient stability and post - transient impacts to the SCE transmission system from this proposed project.

Short Circuit Duty Study Conclusions

3-PHASE FAULT DUTY

The addition of the project has impacted one (1) -- 500 kV substation and twelve (12) -- 230kV substation with short circuit duty increases greater than 0.1kA.

COST OF UPGRADES

No overload problems were identified for [REDACTED]. This project did not increase any existing loading by 1% or more.

Engineering has evaluated the circuit breakers at all substations buses where the project contributed to the Short Circuit Duty results in an increase of 0.1kA or greater.

Circuit breaker replacements and upgrades to accommodate the generation interconnection on the SCE network are listed below. This study has not assumed overload mitigation requirements for projects ahead in the queue. The total cost of \$3,156,000 was not triggered by the [REDACTED] and only shown in maximum exposure in case of changes in the queue.

The following cost are given in Year 2008 Level Dollars and do not include 35% ITCC Tax.

No CASE A - Triggered by [REDACTED]. All of the circuit breakers are adequate, no replacements or upgrades are required.

CASE B - Triggered by earlier Projects ahead of [REDACTED] in Application Queue

STATION	SYSTEM	Replace	Upgrade	Sets of TRV's required	Cost of CB	Cost of TRV set of 3	Sub-Total CB	Sub-Total TRV	GRAND TOTAL
Barre	220kV		8	5		\$ 144,000	\$ -	\$720,000	\$ 720,000
Lightship	220kV	1	12	11	\$476,000	\$ 144,000	\$476,000	\$1,584,000	\$2,060,000
		1	20				\$476,000	\$2,304,000	\$2,780,000

* Circuit Breaker replacement at Marion Substation requires Field Engineering concurrence.

Note: 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. All cost estimates are rough order of magnitude, and are non-binding cost estimates.

EXHIBIT C

**SUB-TRANSMISSION
SYSTEM IMPACT STUDY
EXECUTIVE SUMMARY**

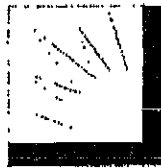


System Impact Study

January 19, 2007

Prepared by:

Paul McCabe, P.E. – Distribution Engineering
Leanne Swanson, P.E. – Distribution Engineering



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EDISON

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SOUTHERN CALIFORNIA EDISON COMPANY

Approved by:

Randy R. Smith
Engineering Manager

EXECUTIVE SUMMARY

[REDACTED] applied to Southern California Edison (SCE) Transmission and Distribution Business Units (TDBU) for distribution service under the terms of SCE's Wholesale Distribution Access Tariff (WDAT). [REDACTED] will own and operate a 47.21 MW generating facility [REDACTED] to be interconnected to a dedicated position at the [REDACTED] 66 kV switchrack. Distribution service pursuant to the WDAT is proposed to be from the [REDACTED] to the California Independent System Operator (ISO) grid at SCE's 230 kV [REDACTED]. The proposed in-service date of the [REDACTED] is June 1, 2007.

The [REDACTED] is a generation system consisting of one (1) 13.8 kV, 71.2 kVA [REDACTED] net generation export of 47.21 MW. The generation facility will utilize one (1) 45 MVA, 13.8/66 kV step-up transformer to interconnect the generator to the SCE's system. As requested by [REDACTED] SCE performed a System Impact 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 System Impact Study consisted of a power flow analysis, three-phase analysis and single-line-to-ground short-circuit duty to determine any impacts that would be associated with the [REDACTED] transmitting energy through SCE's system to the ISO grid at [REDACTED]. The study showed that, with the [REDACTED]

- Thermal loadings on the SCE subtransmission facilities used to provide the requested WDAT service were all within criteria limits.
- No 66 kV circuit breakers and no 230 kV circuit breakers will need to be upgraded due to the [REDACTED]

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

Interconnection (substation and 66 kV interconnection tie)	\$ 0.975M
RTU installed at [REDACTED]	\$ 0.050M
Circuit breaker replacements (66 kV, 230 kV)	\$ 0.000M
35% ITCC Tax	\$ 0.359M
Total non-binding order of magnitude cost estimate	\$1.384M

Additional system studies (e.g., transient stability) will not be required unless requested by a third party. Refined cost estimates will be developed in a subsequent Facilities Study if requested. [REDACTED] Non-binding cost estimate do not include any G.O. 131-D costs.

EXHIBIT D

**CAISO LETTER TO SCE
(ROBERT LUGO) DATED 01/26/07**

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CEII REGULATIONS**

EXHIBIT E

**EARLIER INTERCONNECTIONS –
APPLICATION QUEUE**

APPENDIX A.
Application Queue

Project Name	Project Size (MW)
TOT005	830
WDT011	9
WDT034	2.1
WDT016	11.57
TOT022	16.5
WDT028	2.5
TOT023	3.71
1114	2.8
TOT015	45
TOT004	1000
TOT010	450
TOT018	750
WDT044	49.9
WDT014	5.6
WDT038	110
WDT040	17.1
WDT041	34
WDT042	40
TOT019	44.4
TOT021	22.2
TOT051	22.44
TOT032	850
TOT040	110
TOT041	280
WDT054	16.5

WDT072	10.5
TOT048	45.3
TOT056	90.6
WDT073	30
WDT075	39.6
WDT082	19.8
WDT080	28.5
TOT005	20
7019	1.5
WDT086	8
WDT085	2.4
WDT053	42.6
TOT067	330
WDT092	66
7033	6
7030	6
7044	2.25
2495	1.28
2502	2.7
7045	7.3
7034	2
7042	1
7068	47
WDT109	4.2
WDT110	5.6
WDT111	3.93
7056	2.12
WDT098	40
7057	1.3

2530	1.21
7075	2
7071	1.13
7036	3.8
2535	1
2521	10.6
EAK049	134
2529	2,28
2522	1.06
7070	5,74
2538	14,66
2540	1.1
7088	8
WDT118	9
WDT112	16,54
7084	2.4
TOT095	185
WDT019	45.5
TOT100	63
7094	1.4
7010	3.3
7100	1.6
7101	1.77
WDT133	48.3
WDT129	2.56
WDT123	8.73
WDT123	3
WDT123	6.75
2531	2.4

2546	4.9
TOT098	50
WDT124	32
WDT082	1.2
2543	1.1
TOT079	520
TOT102	65
TOT108	300
WDT147	45.6
TOT109	72
TOT111	17
TOT112	82
WDT131	8.4
TOT113	201
TOT117	300
TOT118	10
WDT163	5.8
WDT164	80
TOT119	157
WDT165	325
TOT120	100.5
WDT177	96
TOT121	599
WDT176	6.5
TOT037	810
TOT127	65
TOT129	1650
WDT179	49.9
TOT135	500.5

WDT182	507
TOT138	424.8
TOT131	850
TOT132	500
WDT190	49.9
TOT148	250
WDT205	99
TOT146	51
TOT149	610
TOT150	60
WDT213	49
TOT151	400
TOT152	120
TOT155	33
TOT156	34
TOT166	613.5
TOT160	570
TOT153	51
TOT154	570
TOT161	220
TOT164	180
TOT162	550
TOT163	600
TOT165	150
TOT167	120
TOT149	304
WDT221	8.5
TOT159	635
TOT157	600


TOT158	1400
CSDLA-Puente Hills Project A	8
TOT171	150
TOT169	50
TOT170	150
WDT223	49.9
TOT172	550
TOT173	500
TOT174	1200
WDT227	102
WDT228	63
TOT175	300
WDT230	44.55
WDT233	47.21
WDT231	45.03
WDT229	47.1
	47.9
Project - WDT236	

EXHIBIT F

**FACILITIES STUDY SCOPE –
ADDITIONAL DETAILS**

[REDACTED]

FACILITIES STUDY SCOPE – ADDITIONAL DETAIL

CASE A

A. Substations:

[REDACTED]
Equip existing 66kV Position 2 to terminate the new [REDACTED] 66kV Generation Tie Line in a double breaker configuration.

The work requires installation of the following equipment:

- Two 66kV 1200A 31.5kA circuit breakers and foundations.
- Two 66kV group operated – horizontally mounted disconnect switches with support structures and foundations
- Two 66kV group operated – vertically mounted (on existing structure) disconnect switches with support structures and foundations – One of them equipped with grounding attachments for line grounding.
- Two 69kV Voltage Transformers with support pedestals and foundations.
- 1590KCMIL ACSR conductors throughout the position.

Also install the following relays in the existing Relay Room:

- One SEL-311L Line Current Differential Relay with redundant Fiber Optic Communication Channels to the GBU Generating Facility.
- One SEL-351 Directional Phase and Ground Over-current Relay.
- Two GE C60 Breaker Management Relays (One for each CB at 66kV Pos.2)
- One DPU-2000R Distribution Protection Unit with Synch – Check for the existing Substation Automation System (SAS)
- One SEL-2030 Communications Processor.

Also install approximately 500Ft. of 5-In. Dia. PVC Conduit for fiber optic communications wire between the Barre Substation Communications Room and the [REDACTED] facility.

B. Sub - Transmission:

66kV Generation Transformer Bank Leads

Install approximately 500 Circuit Ft. of single circuit line using 336.4KCMIL ACSR Conductors from the [REDACTED] Dead-End Rack to the existing Dead-End Structure at the Barre Substation 66kV Position 2.

This construction requires the installation of four new 66kV wood poles, two 70-Ft. and two 55-Ft. Two of the poles would be equipped with one set of guy wires and one pole with two sets. A total of thirty dead-end insulator / hardware assemblies with polymer insulators are required, six at each pole and three at each Dead-End Structure.

C. Telecommunications:

Install approximately 2,000Ft. of underground fiber optic cables to form two diverse paths between the [REDACTED] Communications Room and the [REDACTED] [REDACTED] support the Line Current Differential-Relays and the RTU.

D. Power System Controls:

1. Main RTU at Generating Facility.

Install a new full size real-time Remote Terminal Unit (RTU) at the [REDACTED] Facility to monitor the following elements:

- Net and Gross MW
- MVAR
- Amps on each phase
- Voltage at the Generator Bus
- Unit Status
- Unit Circuit Breaker Status

The RTU will be connected to the [REDACTED] Supervisory Control System (SCS) to collect the data described above. This information will be transmitted to Barre Substation and from there to the Lighthipe Regional Control Center (RCC). The RTU will use Distributed Network Protocol (DNP) to communicate with the RCC.

2. Upgrade of existing Power Management System Data Base at [REDACTED] to include the new data for the 66kV Generation Tie Line at 66kV Position 2.

E. Substation Automation:

Install additional points to the existing Substation Automation System Human – Machine Interface equipment at [REDACTED] to include all monitoring and control functions related to the new [REDACTED]

FACILITIES STUDY SCOPE – ADDITIONAL DETAIL
ADDITIONAL ELEMENTS FOR CASE B

A. Substations:

1. Barre Substation

Install five sets of Transient Recovery Voltage (TRV) Line to Ground Capacitors (Total of fifteen units) to upgrade five 220kV 45.6kA and three 50.0kA CB's to 63kA Rating.

2. Lighthipe Substation

Replace one 220kV 50.0kA CB with new 63.0kA Rated unit install twelve sets of TRV Line to Ground Capacitors (Total of thirty six units) to upgrade five 220kV 50kA and seven 50.2kA CB's to 63.0kA Rating.

E. A. ROMERO
03/07/07

EXHIBIT G

COST SUMMARY

Elements for Case A

Cost Estimate Summary (2007 Dollars)

Scope: Interconnect 47.21MW of Net Generation to the 66kV Bus.

ELEMENT	INTERCONNECTION FACILITIES	DISTRIBUTION SYSTEM UPGRADES	RELIABILITY UPGRADES	Income Tax Component of Contribution *	ONE TIME PAYMENT
66kV Line Position	\$ 150,000	\$ 999,000	-	\$ 402,000	\$ 1,551,000
66kV Gen. Transformer Bank Leads	\$ 61,000	-	-	\$ 22,000	\$ 83,000
Telecommunications - Line Protection	\$ 293,000	-	-	\$ 103,000	\$ 396,000
Power Systems Control - RTU	\$ 33,000	-	-	\$ 12,000	\$ 45,000
Power Systems Control - Upgrades	\$ -	\$ 4,000	-	\$ 1,000	\$ 5,000
Substations Automation - Upgrades	\$ -	\$ 8,000	-	\$ 3,000	\$ 11,000
TOTAL	\$ 537,000	\$ 1,011,000	\$ -	\$ 543,000	\$ 2,091,000

Additional Elements for Case B

Cost Estimate Summary (2008 Dollars)

Scope: Replace one and upgrade twenty 220kV Circuit Breakers at two locations.

ELEMENT	INTERCONNECTION FACILITIES	DISTRIBUTION SYSTEM UPGRADES	RELIABILITY UPGRADES	Income Tax Component of Contribution *	ONE TIME PAYMENT
Barre Sub. - Upgrade 8 CB's	\$ -	\$ -	\$ 720,000	\$ -	\$ 720,000
Lighthipe Sub. - Replace 1 & Upgrade 12 CB's	\$ -	\$ -	\$ 2,060,000	\$ -	\$ 2,060,000
TOTAL	\$ -	\$ -	\$ 2,780,000	\$ -	\$ 2,780,000

This document includes confidential trade secrets and proprietary information of Southern California Edison, to be used only by the [redacted] in connection with its evaluation of this Facility Study Proposal. Southern California Edison retains all rights to maintain the confidentiality of this information and requests that GBU its confidentiality.

* ITCC tax (calculated at 35%) is collected via Letter of Credit.
 * Pursuant to FERC Order 2003A, there will be no ITCC collected on Reliability Upgrades.