

**SOUTHERN CALIFORNIA EDISON COMPANY
FACILITIES STUDY**

December 29, 2006

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I. Executive Summary

[REDACTED] applied to the California Independent System Operator (CAISO) for the interconnection of 49.9MW of generation from their generating facility in City of Industry, CA to the CAISO Grid at the existing SCE Industry – Proctor – Walnut 66kV Line under the terms of SCE’s Wholesale Distribution Access Tariff (WDAT).

The Project consists of [REDACTED] with a net output of 49.9 MW. The [REDACTED] will connect the 49.9MW of [REDACTED] generation to the new SCE 66kV Wellhead Substation and will interconnect to the CAISO Grid at the Walnut Substation 220kV Bus.

The [REDACTED] will be connected to the SCE 66kV Line via a new 66kV Interconnection Facility to be owned, operated and maintained by SCE [REDACTED] will engineer, design and construct the new 66kV Interconnection Facility to SCE’s standards. For the purpose of this study, the new facility will be referred to as Wellhead Substation. Wellhead Substation will be served by looping the 66kV Industry – Proctor – Walnut line to form the Proctor – Walnut – Wellhead and Industry – Wellhead 66kV lines and will connect the lines to a [REDACTED] owned 66kV Transformer.

[REDACTED] requested an interconnection date of June 1, 2007.

A Transmission System Impact Study (SIS) dated October 31, 2006, was prepared to address the impact of the new generation to the SCE Transmission System.

A Sub – Transmission SIS dated November 2, 2006, was prepared to address the impact of the new generation to the SCE Sub – Transmission System.

II. System Impact Study Results

The sub-transmission SIS concluded that the sub-transmission system is not adequate to support the new generation. The transmission SIS concluded that the transmission system is not adequate to support the new generation

The Transmission SIS analyzed the SCE System under the following conditions:

1. Palo Verde – Devers 500 kV Line #2 was in service.
2. All four West of Devers 230 kV Lines have been upgraded.
3. The Etiwanda – San Bernardino 230 kV line #1 rating will be increased to 2480 Amps / 988 MVA after the current wave trap removal project is completed.

The Transmission SIS found the following overloaded elements:

BASE CASE:

No base case overloads.

SINGLE (N-1) CONTINGENCIES:

The [REDACTED] aggravates one pre-project overload triggered by interconnections placed ahead of the [REDACTED] in the Application Queue.

Center – Olinda 220kV T/L N – 1 Rating 2000A Loaded to 2084A (104%)
Transmission Outage: Mesa – Walnut 220kV T/L

DOUBLE (N-2) CONTINGENCIES:

No N-2 case overloads.

The Transmission System Impact Study recommended the following solutions to eliminate the overloads:

- Upgrade 220kV substation terminal equipment at Center and Olinda Substations.

The Transmission SIS identified twelve locations and the Sub-Transmission SIS identified eleven locations where the system fault duty will increase by 0.1kA or more as a result of the new generation, and recommended that the circuit breakers be investigated to determine whether replacements or upgrades are required.

III. Facilities Study Assumptions

- a. All required ISO metering equipment at the generation facility will be provided by [REDACTED] and is not included in the Facilities Study.
- b. The required RTU and associated equipment to be placed at the [REDACTED] Generating Facility will be installed by SCE and it is included in the Facilities Study.
- c. Engineering and construction of the [REDACTED] Substation will be completed by [REDACTED] and is not included in the Facilities Study.

IV. Facilities Study Scope

The Facilities Study shows the scope of work and the cost estimate for the following work required for the interconnection:

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 Facilities Study will include:

CASE A: All facilities required exclusively by the [REDACTED]

And

CASE B: All additional facilities that may be required by the [REDACTED]

The facilities included on Case B are those additional facilities required to remedy situations caused by earlier Projects, placed ahead of the [REDACTED] 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 [REDACTED] may become responsible for any or all of these additional facilities.

The [REDACTED] potential "maximum costs exposure" is identified by all the elements listed under both Case A and Case B combined.

CASE-A:

- Install one interconnection facility with three 66kV CB Positions arranged in a Ring-

Bus Configuration equipped with two 66kV Lines. For the purpose of this facility study, the new interconnection facility will be named Wellhead Substation.

- Install new RTU at Wellhead Substation to transmit generation information to the Mira Loma Regional Control Center (RCC).
- Evaluate circuit breakers short circuit capability at two 220kV stations. The evaluation determined that circuit breaker replacements and/or upgrades are required for two different conditions.
- This case identifies only the circuit breaker replacements and upgrades triggered by the [REDACTED], the evaluation concluded that 28 66kV circuit breaker replacements are needed at Walnut Substation and the installation of 4 sets of TRV's to upgrade 3 circuit breakers are required at Barre Substation.

CASE B:

- This case identifies all the circuit breaker replacements and upgrades required, including those triggered by Applicants placed ahead of the Project in the Application Queue. Under this case, 7 66kV circuit breaker replacements are needed at Walnut Substation and 1 replacement is needed at Basset Substation. Also, a total of 26 220kV circuit breaker replacements and the installation of 14 sets of TRV's to upgrade 20 circuit breakers are required at Etiwanda and Mesa Substations.

V – A. Facilities Study Results – CASE A

The following Interconnection Facilities are required:

A. Sub-Transmission:

1. Industry – Proctor – Walnut 66kV Line:
Loop the Industry – Proctor – Walnut 66kV Line to form the Proctor – Walnut – Wellhead and Industry – Wellhead 66kV Lines.

This work requires the installation of X poles and approximately X circuit ft. of X.

B. Substation:

- 1A. Wellhead Substation – Scope of Work by [REDACTED]
Engineer and construct a 66kV interconnection facility, with three 66kV CB's to provide two-line service to serve one generator owned transformer bank. Also install a Mechanical-Electrical Equipment Room (MEER).

All work to be performed according to SCE Engineering, Design, Materials and Construction Standards.

- 1B. Wellhead Substation – Scope of Work by SCE
Review the complete engineering and design drawings, and bills of material submitted by [REDACTED] to verify their compliance with the SCE Engineering and design Standards.

~~Inspect the site during construction to verify compliance with SCE Materials and Construction Standards.~~

Test the substation prior to energization by SCE.

[REDACTED] will deed [REDACTED] to Edison including a 10' easement around each side of the new substation.

2. Barre Substation
Upgrade three 220kV circuit breakers by installing 4 sets of TRV's.
3. Walnut Substation
Replace 28 66kV circuit breakers.

C. Telecommunications:

Install two taps on an existing SCE fiber optic cable and approximately 3000 ft. of fiber cable to provide diverse entrances to the new Wellhead Substation. Install approximately 3000 ft. of 5" PVC conduit. Install one new SONET OC-12 optical multiplexor at Wellhead Substation. Install channel equipment at Wellhead Substation.

D. Power System Controls:

Install a new smart multi-ported Remote Terminal Unit (RTU) at Wellhead Substation and a second RTU installed at the customer site to provide generation data to the SCE Grid Control Center.

E1. Estimated cost : \$XXXXXXXX

See Exhibit C for cost breakdown

V – B. Facilities Study Results – Case B

The following additional System Upgrades are required to support the new interconnection under Case B:

A. Substation:

1. Bassett Substation:
Replace one 66kV circuit breaker.
2. Center Substation:
Replace three 220kV, 1200A disconnect switches with 220kV, 2000A disconnect switches and one 220kV, 2000A wave trap with one 220kV, 3000A wave trap on Pos. 7.
3. Etiwanda Substation:
Replace 3 220kV circuit breakers and upgrade 20 220kV circuit breakers by installing 14 sets of TRV's. Upgrade the switchyard to 83kA.
4. Mesa Substation:
Replace 23 220kV circuit breakers. Upgrade the switchyard to 80kA.
5. Olinda Substation:
Replace four 220kV, 1200A disconnect switches with 220kV, 2000A disconnect switches and one 220kV, 2000A wave trap with one 220kV, 3000A wave trap on Pos. 2.
6. Walnut Substation

Replace 7 66kV circuit breakers.

Additional Estimated costs:

\$36,092,400

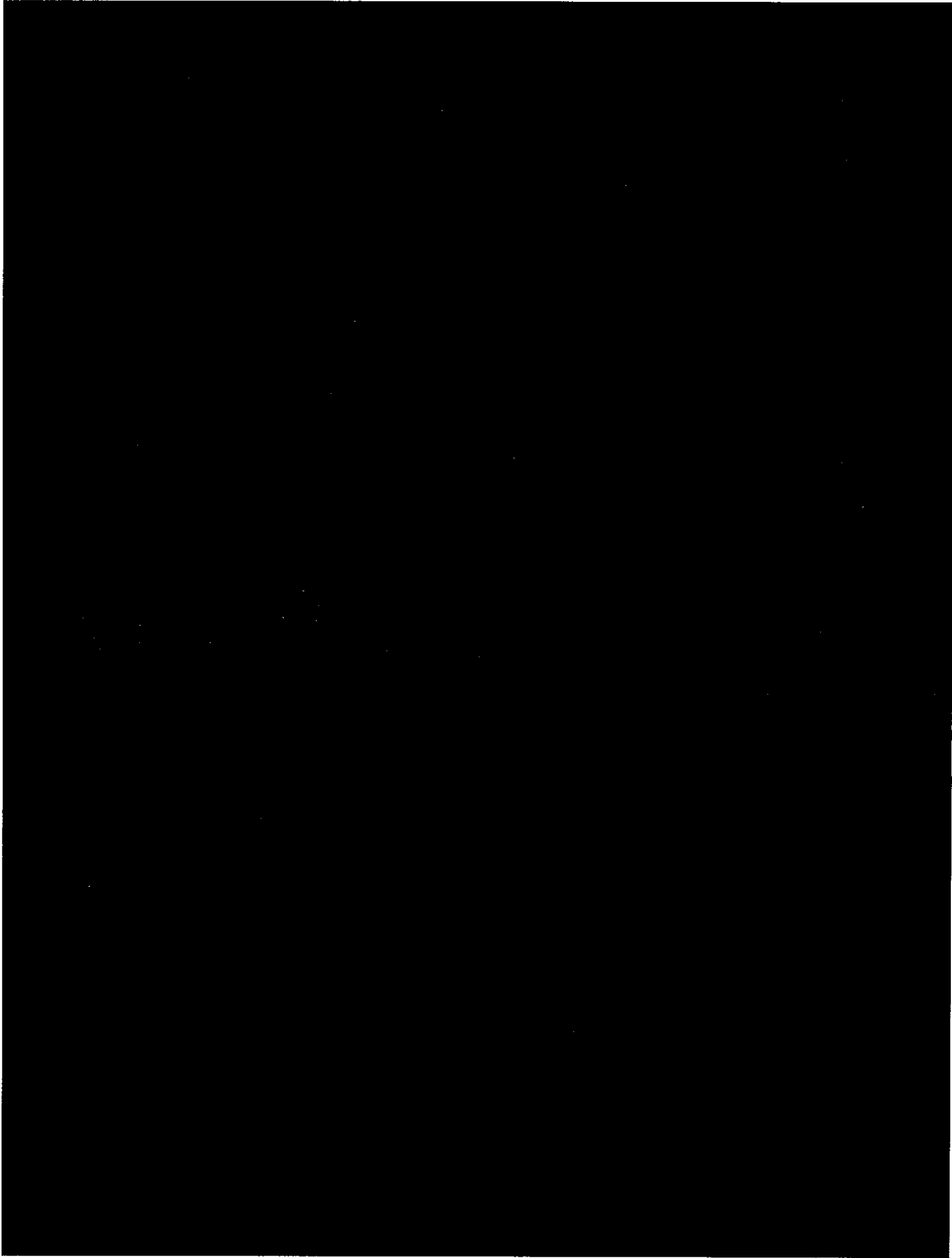
See Exhibit C for cost breakdown

VI. Conclusions

- a. The estimated cost for the Interconnection is approximately \$XXXXXX for Case A with the potential additional cost of \$36,092,400 for a total project "maximum exposure" of \$XXXXXX.
- b. Generally, the completion of the proposed project option 1 requires approximately 18 months, which includes engineering review, material procurement, and construction. Two weeks of acceptance testing and pre-operations validation are necessary before releasing the substation to grid operations and the CASIO.
- c. The costs indicated in the attached tables are 2007 dollars and are not firm, these are preliminary estimates only. These cost estimates are based on conceptual engineering and system unit costs, 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.
- d. 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.

Still need: Sub-Transmission Scope of Work and Costs

EXHIBIT A
SUBSTATION



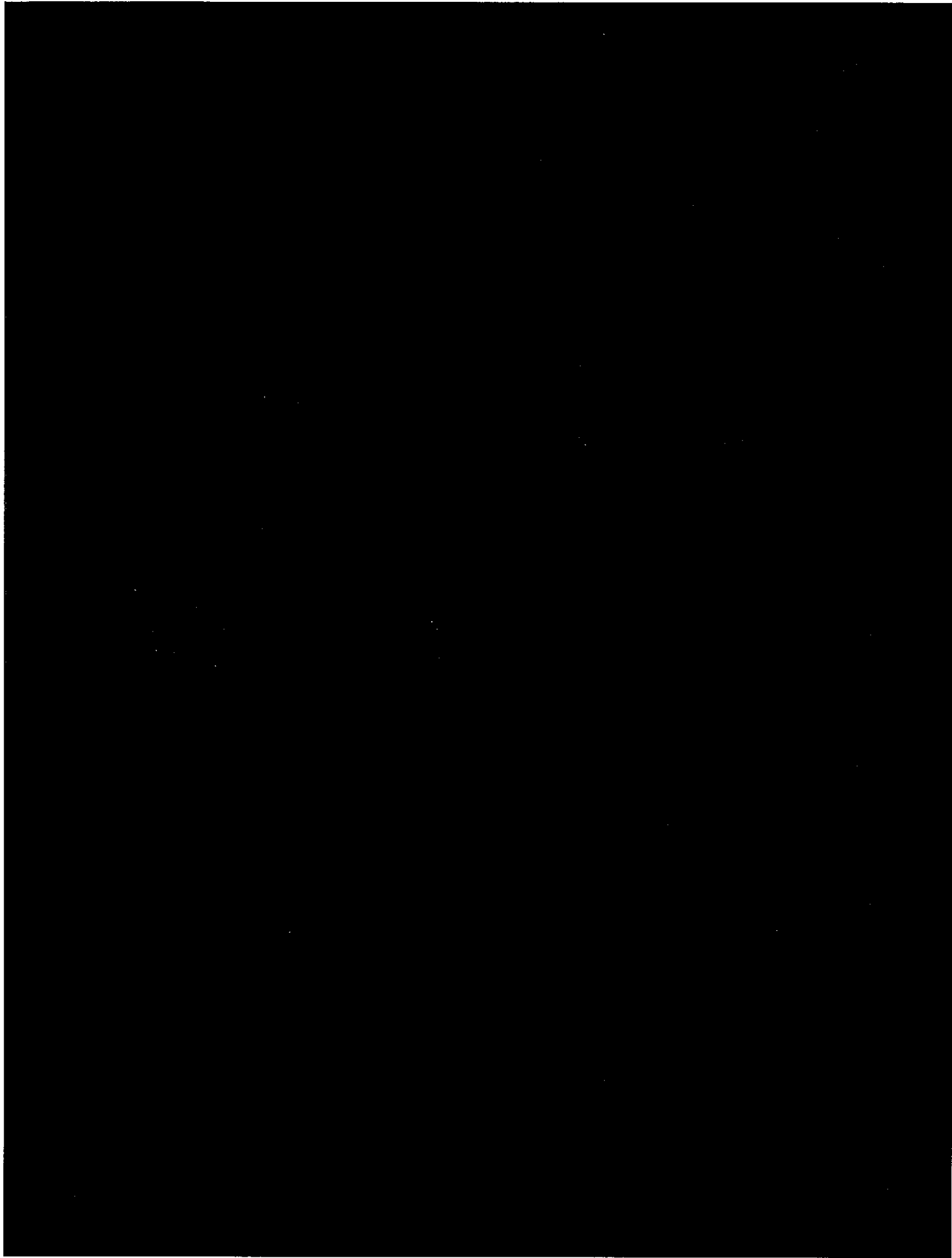


EXHIBIT B
MAJOR EQUIPMENT

[REDACTED] PROJECT
MAJOR EQUIPMENT AND RELAYS - CASE A

NEW WELLHEAD SUB – TO BE DESIGNED AND CONSTRUCTED BY [REDACTED]

- 1 66kV Ring Bus Rack
- 3 66kV Circuit Breakers
- 24 66kV Group Operated - Vertically Mounted Disconnect Switches
- 4 66kV Potential Transformers
- 1 66kV Dead End Rack
- 1 HCB with PMA
- 1 HCB with PM-2
- 1 Schweitzer SEL-2030 Communications Processor Relays
- 3 Schweitzer SEL-311C relays
- 1 Remote Terminal Unit (RTU)

TRANSMISSION:

Need from Transmission

POWER SYSTEM CONTROL

SCE equipment at [REDACTED] Generating Facility

- 1 Remote Terminal Unit (RTU)

BARRE SUB

- 4 220kV TRV Line to Ground Capacitors with individual steel pedestals

WALNUT SUB

- 28 66kV Circuit Breakers

ADDITIONAL MAJOR EQUIPMENT FOR CASE B

- 26 220kV Circuit Breakers
- 8 66kV Circuit Breakers
- 14 220kV TRV Line to Ground Capacitors with individual steel pedestals
- 7 220kV 2000A Disconnect Switches
- 2 220kV 3000A Wave Traps

L. A. Sayers
12/29/06

EXHIBIT C
COST SUMMARY

PROJECT - Case A

Cost Estimate Summary (2007 Dollars)

Interconnect 49.9MW of generation to the Walnut Substation 66KV Bus.

The interconnection requires the installation of a new 66KV Switching Station - Wellhead Substation [redacted] will design and construct the Substation. Edison will review the design, inspect construction and test equipment. It also requires telecommunication facilities for the line protection, upgrade CB's at Barre and Replace CB's at Walnut

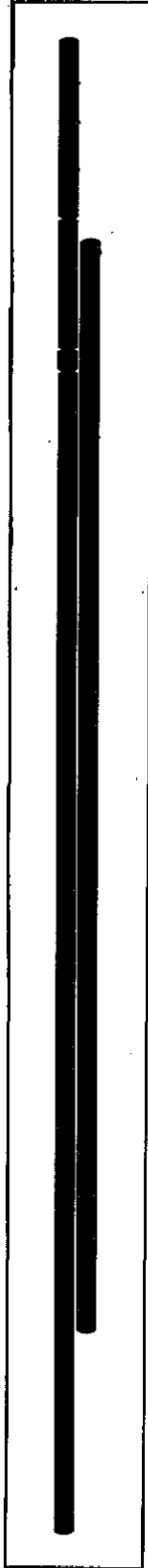
ELEMENT	INTERCONNECTION FACILITIES		DISTRIBUTION UPGRADES		RELIABILITY UPGRADES		Income Tax Component of Contribution *	ONE TIME PAYMENT
	Subject to O&M	Not Subject to O&M	Subject to O&M	Not Subject to O&M	Subject to O&M	Not Subject to O&M		
Wellhead Sub. - SCE Scope of Work	\$ 650,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 227,500	\$ 877,500
Transmission Line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Telecommunications (Line Protection)	\$ 182,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 63,700	\$ 246,700
Power Systems Control - RTU	\$ 77,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 26,950	\$ 103,950
Power Systems Control - Upgrades	\$ -	\$ 5,000	\$ -	\$ -	\$ -	\$ -	\$ 1,750	\$ 6,750
PMA Relay Installed at Proctor	\$ -	\$ 10,000	\$ -	\$ -	\$ -	\$ -	\$ 3,500	\$ 13,500
Barre Substation - Install 4 TRV's to upgrade 3 CB's	\$ -	\$ -	\$ -	\$ -	\$ 576,000	\$ -	\$ -	\$ 576,000
Walnut Substation - Replace 28 66KV CB's	\$ -	\$ -	\$ 5,840,000	\$ -	\$ -	\$ -	\$ 2,044,000	\$ 7,884,000
TOTAL	\$ 909,000	\$ 5,855,000	\$ 5,855,000	\$ 576,000	\$ 576,000	\$ 2,367,400	\$ 9,707,400	

Additional Elements for Case B

Cost Estimate Summary (2008 Dollars)

Replace 1 66KV CB at Bassett Sub., Replace 3 1200A disconnect switches and 1 wave trap at Center Substation, Replace 3 220KV CB's, upgrade 20 220KV CB's by installing 14 TRV's and upgrade switchyard to 83kA at Etowanda Sub., Replace 23 220KV CB's at Mesa Sub., Replace 4 1200A disconnect switches and 1 wave trap at Olinda Sub., Replace 7 66KV CB's at Walnut Sub.

ELEMENT	INTERCONNECTION FACILITIES		DISTRIBUTION UPGRADES		RELIABILITY UPGRADES		Income Tax Component of Contribution *	ONE TIME PAYMENT
	Subject to O&M	Not Subject to O&M	Subject to O&M	Not Subject to O&M	Subject to O&M	Not Subject to O&M		
Bassett Sub. - Replace 1 66KV CB	\$ -	\$ 188,000	\$ -	\$ -	\$ -	\$ -	\$ 65,800	\$ 253,800
Center Sub. - Replace 3 dis. switches and 1 wave trap	\$ -	\$ -	\$ -	\$ -	\$ 506,000	\$ -	\$ -	\$ 506,000
Etowanda Sub. - Replace 3 CB's, Install 14 TRV's	\$ -	\$ -	\$ -	\$ -	\$ 18,444,000	\$ -	\$ -	\$ 18,444,000
Mesa Sub. - Replace 23 CB's	\$ -	\$ -	\$ -	\$ -	\$ 29,467,000	\$ -	\$ -	\$ 29,467,000
Olinda Sub. - Replace 4 dis. switches and 1 wave trap	\$ -	\$ -	\$ -	\$ -	\$ 645,000	\$ -	\$ -	\$ 645,000
Walnut Sub. - Replace 7 66KV CB's	\$ -	\$ -	\$ 1,316,000	\$ -	\$ -	\$ -	\$ 460,600	\$ 1,776,600
TOTAL	\$ -	\$ 1,504,000	\$ 1,504,000	\$ 49,062,000	\$ 49,062,000	\$ 526,400	\$ 51,092,400	



* 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.

EXHIBIT D
PROJECT SCHEDULE

PROJECT SCHEDULE

CASE A

ELEMENT	MONTHS																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
PROJECT APPROVAL																		
WELLHEAD SUBS, DESIGNED & INSTALLED BY																		
Design Review																		
Site Inspection during Wellhead Construction																		
Testing																		
BARRE SUB																		
Engineering & Design																		
Major Equipment Procure & Deliver																		
Construction																		
Testing																		
WALNUT SUB																		
Engineering & Design																		
Major Equipment Procure & Deliver																		
Construction																		
Testing																		

ADDITIONAL ELEMENTS FOR CASE B

ELEMENT	MONTHS																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
RASSET SUB																		
Engineering & Design																		
Major Equipment Procure & Deliver																		
Construction																		
Testing																		
CENTER SUB																		
Engineering & Design																		
Major Equipment Procure & Deliver																		
Construction																		
Testing																		
ETIWANDA SUB																		
Engineering & Design																		
Major Equipment Procure & Deliver																		
Construction																		
Testing																		
MESA SUB																		
Engineering & Design																		
Major Equipment Procure & Deliver																		
Construction																		
Testing																		
OLINDA SUB																		
Engineering & Design																		
Major Equipment Procure & Deliver																		
Construction																		
Testing																		
WALNUT SUB																		
Engineering & Design																		
Major Equipment Procure & Deliver																		
Construction																		
Testing																		

The Start Date of Case B will depend on the System Conditions at the time of the Project which will determine when the additional upgrades will be required.