

[REDACTED]

**SOUTHERN CALIFORNIA EDISON COMPANY
FACILITIES STUDY**



September 28, 2009

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I. Executive Summary

[REDACTED] has notified Southern California Edison Company (SCE) that it intends to construct [REDACTED] generating units at [REDACTED] existing [REDACTED]. The new units will be designated units 3 and 4.

The Project consists of [REDACTED] gas turbine generating units with a net generation export of 100 MW connected to [REDACTED]. [REDACTED] intends to transmit energy and/or ancillary service to the California Independent System Operator (CAISO) controlled grid SCE's Vista Substation until SCE's Wildlife Substation is energized, at which point the project will transmit energy to Wildlife Substation.

[REDACTED] has requested a proposed interconnection date of June 1, 2009. However, this date is not attainable and a modified operating date of June 1, 2010 will be used.

A Transmission System Impact Study (SIS) dated January 20, 2009, was prepared to address the impact of the new generation to SCE's Transmission System. The Transmission SIS included an operational analysis with the generator connected to Vista Substation and an application queue analysis with the generator connected to Wildlife Substation.

A Distribution SIS dated May 13, 2009, was prepared to address the impact of the new generation to the SCE's Distribution System.

FOR ADDITIONAL DETAIL REFER TO THE FOLLOWING EXHIBIT:

- EXHIBIT A: TRANSMISSION SIS – EXECUTIVE SUMMARY
- EXHIBIT B: DISTRIBUTION SIS – EXECUTIVE SUMMARY

II. System Impact Study Results

TRANSMISSION SIS RESULTS:

The Transmission SIS analyzed the System under the following conditions for the application queue analysis:

- Palo Verde-Devers No. 2 500 kV Transmission Project
- Desert Southwest Transmission Project (Colorado River Substation, Blythe I & II generation)
- All [REDACTED] West of Devers 220 kV lines have been upgraded.
- Rancho Vista 500/220 kV substation was modeled in service.
- El Casco 220/115 kV substation and Wildlife 220/66 kV substation were modeled in service.
- Devers-Mirage 115-kV system was modeled in "split" configuration.
- New Colorado River 500/220 kV Substation
- New Colorado River 500/220 kV Substation connecting to the existing and proposed Devers-Palo Verde 500 kV transmission lines
- New Desert Center 500/220 kV Substation



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- New Desert Center 500/220 kV Substation connecting to the existing and proposed Devers-Palo Verde 500 kV transmission lines
- New Collector Substation in the vicinity of the Eagle Mountain Substation
- New 10-mile 220 kV transmission line connecting new Desert Center Substation to new Collector Substation in the vicinity of the Eagle Mountain Substation
- LADWP Greenpath Project
- Tehachapi Renewable Transmission Project
- Alberhill 500 kV substation

The Transmission SIS analyzed the System under the following conditions for the operational analysis:

- Rancho Vista Substation
- Antelope Transmission Project

The Transmission SIS concluded that the existing SCE transmission System is not adequate to support the additional generation.

The SIS determined that the new generation would aggravate two pre-existing double contingencies caused by earlier interconnections placed ahead of the [redacted] in the present Application Queue. It was determined that revised dispatch scenarios would mitigate the problem.

DOUBLE (N-2) CONTINGENCIES:

App:

[redacted]



Op:

[redacted]



problem.

DISTRIBUTION SYSTEM IMPACT STUDY RESULTS:

The Distribution SIS concluded that the existing SCE Distribution System is adequate to support the additional generation.

The Study conclusions are:

[REDACTED]
[REDACTED]
FACILITIES STUDY

1. For both peak load and light load conditions, the addition of the [REDACTED] causes no violation of SCE's thermal loading criteria under base case conditions.
2. For both peak load and light load conditions, the addition of the [REDACTED] causes no violation of SCE's thermal loading criteria under N-1 conditions.
3. One substation was identified with an increased short circuit duty of 0.1kA or more as a result of the new generation

Short Circuit Study:

A short circuit duty (SCD) study was performed during the SIS phase. The transmission and sub-transmission SCD study concluded that the Project increases the three – phase and the single phase to ground SCD by 0.1kA or more at the following [REDACTED] 500kV, [REDACTED] 220kV, and [REDACTED] 66kV locations:

500kV:
[REDACTED]

220kV:
[REDACTED]

66kV:
[REDACTED]

Both the Transmission and the Distribution SIS concluded that a Facilities Study would be required to determine the scope of work and cost estimates for all elements required to provide the Project Interconnection and system upgrades.

III. Facilities Study Assumptions

- A. All required ISO metering equipment at the Generating Facility will be provided by [REDACTED] and is not included in the Facilities Study. The CAISO revenue meter requirements can be found in the California ISO Generator Interconnection Manual.
- B. Any required upgrades at facilities not owned by SCE are not included in the Facilities Study.
- C. [REDACTED] must permit SCE access to the generating facility ISO metering data

IV. Facilities Study Scope and Cost Estimate

IV – 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 [REDACTED] in the Application Queue, and are expected to be implemented by them.

However, in the event that any of these earlier Projects withdraws or modifies their application in accordance with applicable tariff allowances [REDACTED] Project may become responsible for any or all of these additional facilities.

CASE A:

No case A facilities have been identified for this Project, however, this Project can not interconnect until 23 breakers at Vista Substation have been replaced. SCE has identified these breaker replacements as an SCE project.

CASE B:

Substation:

Chino Substation:

Upgrade [REDACTED] 220kV 50kA rated circuit breaker to 63kA by installing two sets of 220kV TRVs.

Devers Substation:

Install [REDACTED] new 220kV 63kA breakers and [REDACTED] TRVs to upgrade 220kV [REDACTED] breakers to 63kA.

Etiwanda Substation:

Replace [REDACTED] 63kA 220kV circuit breakers with 80kA 220kV circuit breakers and upgrade the existing 63kA switchyard to an 80kA rating.

Lugo Substation:

Replace [REDACTED] 63kA 500kV circuit breakers with 80kA 500kV circuit breakers and upgrade the existing 63kA switchyard to an 80kA rating.

Mira Loma Substation:

Upgrade [REDACTED] 500kV circuit breakers from 40kA to 50kA, replace [REDACTED] 63kA 220kV circuit breakers with 80kA 220kV circuit breakers and upgrade the existing 63kA switchyard to an 80kA rating.

Serrano Substation:

SCE's Serrano Substation is shown with a post project three-phase Short Circuit Duty of [REDACTED] however, existing SCE equipment is rated at 63 kA. The Serrano Substation is critical to the operation of the SCE System, and it is physically located in a congested metropolitan area. Acceptable and viable methods of mitigation will require solving very complex engineering challenges with potentially long lead times. Detailed engineering analysis is required to propose feasible solutions at this substation. The Facility Study process does not allow time to address this type of complex planning and engineering challenge. SCE will further evaluate the impacts of the short circuit duty at this station

outside of this study process. SCE has not assigned any cost estimates for this upgrade to the customer.

Vista Substation:

Install [REDACTED] 220kV TRVs to upgrade [REDACTED] 220kV breakers to 63kA.

IV – 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:	\$ 0
CASE B (May be added to Case A):	\$ 115,060,000
POSSIBLE MAXIMUM COST EXPOSURE:	\$ 115,060,000

SEE EXHIBIT C: COST SUMMARY

V. Conclusions

- A. The estimated cost for the Interconnection is \$0 for Case A with the potential additional cost of \$115,060,000 for Case B for a total Maximum Cost Exposure of \$115,060,000.
- B. There are no case A facilities for this project. However, 23 66kV breakers at Vista need to be replaced before [REDACTED] can interconnect the new generation. These upgrades have been triggered by SCE and will be funded by SCE. The estimated OD of this project is 6/1/2010.
- C. The costs indicated in the attached tables are shown 2010 Dollars and are not firm. These are only preliminary estimates 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.
- E. 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.
- F. Although study results reflect no adverse impact on the high-voltage CAISO controlled transmission system with the addition of the [REDACTED], the Interconnection Customer will still be required to adhere to all applicable WECC policies including, but not limited to, the WECC Generating Unit Model Validation Policy. For example, the Interconnecting Customer will be required to provide validated dynamic models for the proposed project within the timelines identified in the WECC policy. The latest policy is available at www.wecc.biz.

EXHIBIT A

**TRANSMISSION SYSTEM IMPACT
STUDY EXECUTIVE SUMMARY**



OPERATIONAL STUDY / SYSTEM IMPACT STUDY

January 20, 2009



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EXECUTIVE SUMMARY

[REDACTED] has notified Southern California Edison Company ("SCE") that it intends to construct [REDACTED] generating units at RPU's existing Riverside Energy Resource Center ("RERC"). The new units will be designated [REDACTED] and have a proposed in-service date of June 1, 2009. The [REDACTED] units will include [REDACTED] gas turbine generating units, transformation facilities, meters and metering equipment and appurtenant facilities ("Project"). The [REDACTED] generating facility is currently connected to Riverside's distribution system via two 69 kV lines to [REDACTED] Mountain View and Riverside Substations, respectively, with two new 69 kV lines to be added in 2012. [REDACTED] intend to transmit Energy and/or Ancillary Services from [REDACTED] to the California Independent System Operator ("CAISO") Controlled Grid at SCE's Vista Substation until 2012. Upon synchronization of SCE's proposed new 230 kV Wildlife Substation to RPU's electrical system at [REDACTED] new Wilderness Substation, currently anticipated to be in 2012, RPU anticipates that the [REDACTED] generating facility and approximately one-half of [REDACTED] system load currently connected to SCE's Vista Substation will be transferred to SCE's new Wildlife Substation.

Having two methods of service for two different years, there is a need to study two different scenarios. One scenario would follow the LGIP process which is the final configuration of having the Project connect to SCE's Wildlife Substation through Riverside's 69 kV distribution system. Another scenario would be the interim method of service which the Project is connected to SCE's Vista Substation through Riverside's 69 kV distribution system and this would be the operational scenario.

SCE has performed an Interconnection System Impact Study (ISIS) to determine the adequacy of SCE's electrical system, including that portion of SCE's electrical system that is part of the CAISO controlled grid, to accommodate the RPU's Project. The Study was performed for two system conditions: a 2013 heavy summer with a one-in-ten heat wave load forecast and a 2013 light spring load forecast (65% of the heavy summer load). These conditions reflect the most critical expected loading condition for the transmission system in SCE's area. The study includes all queued ahead generation projects in the study area ahead of RPU's Project. The system load condition assumptions were based on the latest in-service date of all queued ahead projects.

SCE has also performed the operational study for when the Project connects to SCE's Vista system. The Study was performed for two system conditions: a 2009 heavy summer with a one-in-ten heat wave load forecast and a 2009 light spring load forecast (65% of heavy summer load). These conditions reflect the most critical expected loading condition for the transmission system load condition assumptions were based on the latest in-service date of the projects in the queue. The operational scenario would determine if any upgrades are necessary when the generators come online.

Results of the ISIS will be used as the basis to determine appropriate project cost allocation for facility upgrades in the Facilities Study. *The study accuracy and results for the assessment of the system adequacy are contingent on the accuracy of the technical data provided by [REDACTED]* Any changes from the data provided could void the study results. The ISIS report provides detailed study assumptions and conditions of the system in which the ISIS was conducted.

Please be aware that a restudy may be required to reflect the system configuration if a higher queued generation or transmission project that was modeled in the ISIS withdraws or is modified in accordance with applicable tariff allowances.

CONCLUSION

Based on the study results, the existing SCE transmission facilities with the above set of facility upgrades is not adequate to accommodate the Project without additional facility upgrades.

Voltage and VAR Support

The study showed that the generators do not need any additional voltage or VAR support.

Power Flow

Base Case

Under Base Case Conditions for the application queue and the operational queue studies, no thermal overloads were identified. All loadings were below the line normal ratings listed in the current CAISO Register Data.

Single Outages (N-1 Contingencies)

Under single outage conditions for the application queue and the operational queue studies, no thermal overloads were identified. All loadings were below the line emergency ratings listed in the current CAISO Register Data.

Double Contingencies

The power flow study results for the operational study identified several pre-existing overload problems on various transmission lines for double (N-2) contingencies.

Under double outage condition for the operational scenario, the study identified the following transmission facility whose loading is aggravated by the addition of the Project.

[REDACTED]

This overloaded line is due to the re-dispatch of generation in order to maintain Load and Resources balance. A different dispatch scenario will mitigate these impacts. Consequently use of CAISO Market Redesign Technology Upgrade (MRTU) should be sufficient to mitigate these problems.

The power flow study results for the application queue study identified several pre-existing overload problems on various transmission lines for double (N-2) contingencies.

Under double outage condition for the application queue, the study identified the following transmission facility whose loading is aggravated by the addition of the Project.

[REDACTED]

EXHIBIT B

DISTRIBUTION SYSTEM IMPACT STUDY EXECUTIVE SUMMARY

WDT 311

SYSTEM IMPACT STUDY

4/13/09

Prepared by:

Eric Hester – Distribution Engineering



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EXECUTIVE SUMMARY

[REDACTED] ("RPU") applied to Southern California Edison ("SCE") for distribution service under the terms of SCE's Wholesale Distribution Access Tariff ("WDAT"). RPU owns and operates [REDACTED], and is adding an additional 100 MWs of generation ([REDACTED]) to be interconnected at the existing interconnection facility ("RERC"). SCE provides power to seven of [REDACTED] 66 kV lines out of Vista substation from the Vista C bus. [REDACTED] Project is within [REDACTED] 66 kV system and is not directly connected to SCE system. Distribution service pursuant to the WDAT is proposed to be from [REDACTED] the California Independent System Operator ("ISO") grid at SCE's 230 kV at Vista Substation. The proposed in-service date of [REDACTED] Project is June 1, 2009.

The [REDACTED] Project is a generation system consisting of [REDACTED] gas turbines with a net generation export of 100 MW. As requested by [REDACTED] Project, SCE performed a System Impact Study to identify the general electrical system impacts of the [REDACTED] Project, possible mitigation measures to maintain conformance with SCE, ISO, or other applicable reliability planning criteria.

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

- For both peak load and light load conditions, the addition of the [REDACTED] Project caused no violation of SCE's thermal loading criteria under base case conditions.
- For both peak load and light load conditions, the addition of the [REDACTED] Project caused no violation of SCE's thermal loading criteria under N-1 conditions.
- There is one substation where the [REDACTED] Project increased three-phase short-circuit duties by 0.1 kA or more. The circuit breaker interrupting capabilities were reviewed at these substations and it was determined that nine circuit breakers were required to be upgraded as a result of the [REDACTED] Project.

Results of the Interconnection System Impact Study (ISIS) will be used as the basis to determine appropriate project cost allocation for facility upgrades in the Facilities Study. The study accuracy and results for the assessment of the system adequacy are contingent on the accuracy of the technical data provided by [REDACTED]. Any changes from the data provided could void the study results. The ISIS report provides detailed study assumptions and conditions of the system in which the ISIS was conducted.

EXHIBIT C

COST SUMMARY

(Case A)

Cost Estimate Summary (2010 Dollars)

Scope: There are no Case A upgrades allocate to the

Additional Elements (Case B)

Cost Estimate Summary (2010 Dollars)

Scope:

No.	ELEMENT	INTERCONNECTION FACILITIES (Subject to ITCC) (A)	ONE-TIME COSTS (Not Subject to ITCC) (B)	RELIABILITY UPGRADES* (Not Subject to ITCC) (C)	ITCC ** (35%) (D=A*35%)	ONE-TIME PAYMENT (F=A+B+C+D)
1	Chino Substation - Install two 220kV TRVs	\$ -	\$ -	\$ 308,000	\$ -	\$ 308,000
2	Devers Substation - Install seven 220kV CBs, seventeen 220kV TRVs	\$ -	\$ -	\$ 6,347,000	\$ -	\$ 6,347,000
3	Etiwanda Substation - Upgrade 220kV switchyard to 80kA	\$ -	\$ -	\$ 30,637,000	\$ -	\$ 30,637,000
4	Lugo Substation - Upgrade 500kV switchyard to 80kA	\$ -	\$ -	\$ 42,447,000	\$ -	\$ 42,447,000
5	Mira Loma Substation - Install six 500kV CBs, upgrade 220kV switchyard to 80kA	\$ -	\$ -	\$ 35,311,000	\$ -	\$ 35,311,000
6	Vincent Substation - Install nineteen 220kV TRVs	\$ -	\$ -	\$ 2,922,000	\$ -	\$ 2,922,000
Totals		\$ -	\$ -	\$ 117,972,000	\$ -	\$ 117,972,000

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

* Pursuant to FERC Order 2003A, ITCC is not collected on Reliability Upgrades.

** ITCC cost may be satisfied with a letter of credit in accordance with the tax provisions of the LGIA.