

APPENDIX I
TRANSMISSION

APPENDIX I TRANSMISSION

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Appendix I-1
Memorandum to CAISO Board



Memorandum

To: ISO Board of Governors
From: Armando J. Perez, Director of Grid Planning
cc: ISO Officers; ISO Board Assistant
Date: January 21, 2005
Re: *Rancho Vista 500/230 kV Substation Project*

This memorandum requires Board action.

EXECUTIVE SUMMARY

This memorandum is a request for ISO Board approval of the Rancho Vista 500/230 kV Substation Project. This project is needed by the summer of 2011 to reliably serve load growth in the fast growing San Bernardino and Riverside Counties of the Southern California Edison Company ("SCE") service territory. The need for this new substation could be advanced to as early as 2009 with the retirement of old and inefficient generation in southern California. The substation would be located next to the existing Etiwanda Substation on property that is currently owned by SCE (see Attachment 1). The estimated cost of the substation is \$130 million in 2009 dollars. Projects that cost more than \$20 million require ISO Board approval.

The proposed transmission project is needed to reliably serve load on the SCE transmission system. Based on the identified reliability need, Management recommends that the Board approve the proposed project.

MOVED, that the ISO Board of Governors:

- 1. Finds that the new Rancho Vista 500/230 kV Substation Project is a necessary and cost effective addition to the ISO Controlled Grid and approves the project as documented in the ISO Board Memorandum dated January 21, 2005.**
- 2. Directs Southern California Edison to complete construction of the new Rancho Vista 500/230 kV Substation Project no later than the summer of 2011 and preferably by the summer of 2009.**

BACKGROUND

The purpose of the proposed project is to offload the existing Mira Loma 500/230 kV Substation. Mira Loma Substation is nearing its design capacity of 4,000 MW (sufficient to serve approximately 820,000 customers) and the load in the area served by the Mira Loma Substation continues to grow at approximately 100 MW per year. This load growth will lead to the need for additional 500/230 kV transformer capacity by the summer of 2011. Additionally, with high levels of generation retirements (the scenario studied included the retirement of 1,400 MW of high and medium risk generation in the Los Angeles Basin), the need for this new substation could be accelerated to as early as the summer of 2009. Without this additional substation capability, the Mira Loma transformers would be loaded beyond their capability. Installing additional transformation at Mira Loma Substation was determined to

be a less desirable solution than the proposed project as the Mira Loma Substation is at its design capacity and further increases in capability would require major substation upgrades that would be more costly than the proposed new substation. As a result, a new substation called Rancho Vista is being proposed as the preferred solution.

DISCUSSION

Proposed Project

The project includes the following elements:

1. Rearranging the Lugo – Mira Loma #1 and Mira Loma – Serrano #2 500 kV lines to create the Lugo – Rancho Vista and Rancho Vista – Serrano 500 kV lines.
2. Constructing 500 kV and 230 kV switchyards at Rancho Vista.
3. Installing two 500/230 kV 1120 MVA transformers.
4. Creating six new 230 kV transmission lines terminating at Rancho Vista Substation by relocating three existing lines and constructing two new lines. The 230 kV lines that would be created include: Mira Loma – Rancho Vista #1 and #2, Padua – Rancho Vista #1 and #2, and Etiwanda – Rancho Vista #1 and #2.

With these proposed transmission upgrades, the new Rancho Vista substation would have an initial load serving capability of 1,300 MW (limited by a transformer outage). As load continues to grow in the area, additional 500/230 kV transformers would be added until it reaches its ultimate load serving capability of 4,000 MW. Figure 1 shows a single-line connection diagram for the proposed Rancho Vista substation.

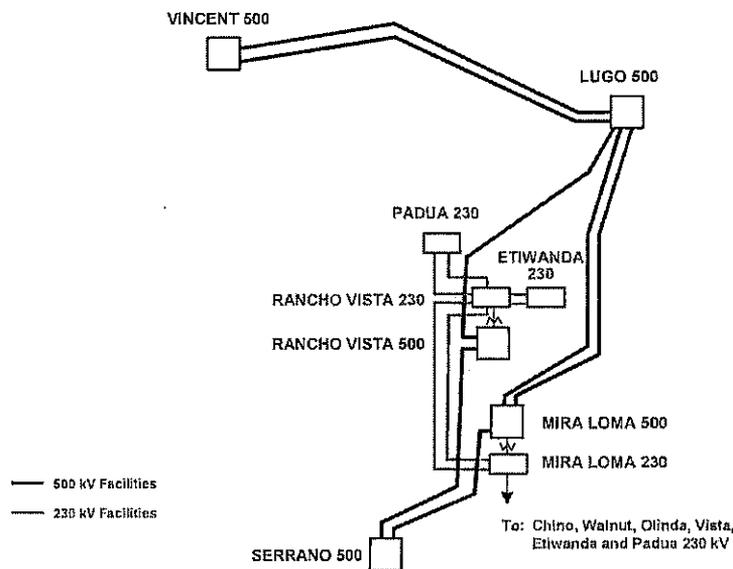


Figure 1. Single-line diagram of Rancho Vista Substation

Transmission Alternatives Considered

The California ISO and SCE evaluated two alternatives to the Rancho Vista Substation Project. These alternatives were determined to be either insufficient or more costly than the proposed project. These alternatives included the following:

1. Alternative 1 – Replace the existing 30 63,000 ampere circuit breakers at Mira Loma Substation with 80,000 ampere circuit breakers:

If area load growth were to be served by installing additional transformers at the existing Mira Loma Substation, the maximum current that the circuit breakers at Mira Loma would need to interrupt in the event of a short circuit would exceed the capability of the existing circuit breakers. Currently the circuit breakers at Mira Loma have the largest interrupting capability that SCE uses on their system, which is 63,000 amperes. Manufacturers have recently developed circuit breakers with 80,000 ampere interrupting capability. However, integrating this new technology at Mira Loma was determined to require extensive changes that would end up being more costly than constructing the proposed Rancho Vista Substation. The primary reason that this would be more expensive is that a temporary substation would need to be constructed to serve the areas load while the existing Mira Loma Substation is upgraded.

2. Alternative 2 – Transfer load from the existing Mira Loma Substation to the Vista Substation:

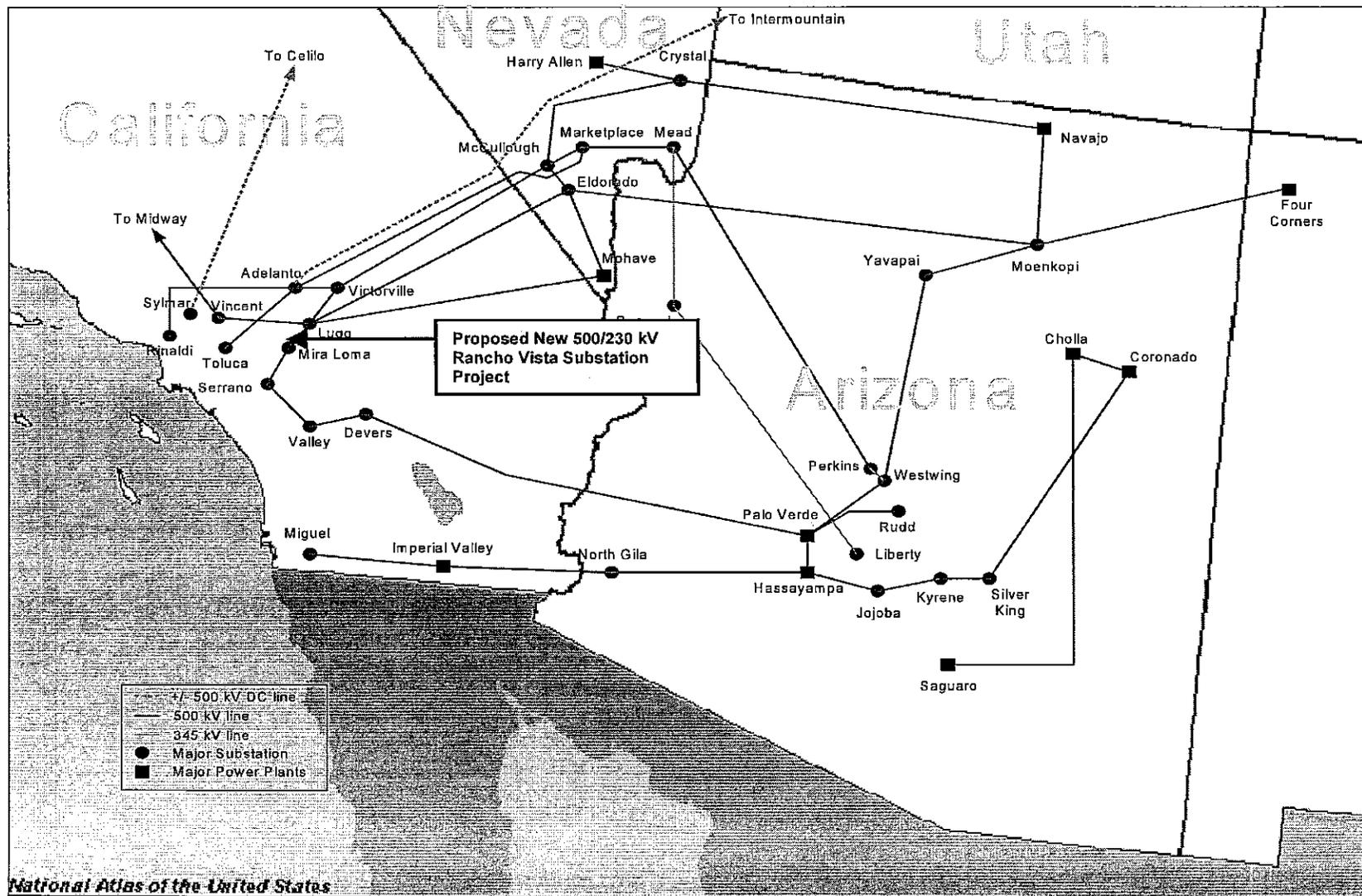
This alternative investigated the potential to transfer 600 MW of load from Mira Loma substation to the existing Vista 230 kV Substation. This option was evaluated and it was determined that it was not feasible to mitigate the Mira Loma transformer loading concerns due to contingency overloads on the Mira Loma transformer #1 or #2, Etiwanda – Vista, Etiwanda – San Bernardino, and Mira Loma – Vista #1 and #2 230 kV lines.

RECOMMENDATION

ISO Management recommends the approval of the Rancho Vista 500/230 kV Substation Project.

MOVED, that the ISO Board of Governors:

- 3. Finds that the new Rancho Vista 500/230 kV Substation Project is a necessary and cost effective addition to the ISO Controlled Grid and approves the project as documented in the ISO Board Memorandum dated January 21, 2005.**
- 4. Directs Southern California Edison to complete construction of the new Rancho Vista 500/230 kV Substation Project no later than the summer of 2011 and preferably by the summer of 2009.**



Attachment 1 – Proposed New 500/230 kV Rancho Vista Substation Project

Appendix I-2
Excerpt from CAISO 2006 Transmission Plan

California Independent System Operator

2006 TRANSMISSION PLAN



DRAFT



California ISO
Your Link to Power

Planning and Infrastructure Development Department

December 2006

2.4 Southern California Edison Expansion Plan

Thirty-eight (38) transmission projects appear in 2006 Southern California Edison (SCE) expansion plan. This includes both reliability and economic transmission projects to mitigate reliability criteria violations, reduce congestions, LCR reduction, and economic project to access low cost resources. More than 14 of transmission projects¹⁰ in SCE transmission will require or already received CAISO board approval due to the project costs greater than 20 \$M. These projects are summarized in table 2-2.

Among these proposals, Devers-Palo Verde 2 (DVP2) is a project to connect California with low cost resource in the Desert Southwest. Cost of this new project and is estimated at \$680M (2009 dollars) and California ISO Board of Governor approved this project in 2005. More details of this project can be found in section 2.8.4

At this time, SCE is in the process of finalizing its annual expansion plan process. Information in this section does not represent the whole SCE expansion plan. The final CAISO transmission plan should provide the complete information in SCE expansion plan.

In addition, SCE is actively involves with the California South Regional Transmission Planning (CSRTP) group which is currently working on three major transmission projects. Sections 2.6 and 2.7 describe CSRTP in more details.

Table 2-2 Summary of transmission projects in SCE 2006 expansion plan

No.	Project Title	Project Type	Justification	Project Description	Planned In-Service Date	Cost Range (\$)	CAISO Approval Status
1	Devers-Palo Verde 500 kV T/L #2 (DPV2)	Economic	Access to low cost resources in the Desert Southwest	Construct approximately 230 miles of new 500 kV line from Harquahala to Devers, Devers-Valley #2, and other reactive support equipment	12/1/2009	< 1000M	Approved
2	Rancho Vista 500/230 kV Substation	Reliability	Mitigate criteria violations	Develop a new 500/230 kV Substation equipped with 2x1120 MVA transformers	6/1/2009	< 300M	Approved
3	Big Creek #3-Springville 230 kV Line Loop	Reliability	Mitigate criteria violations	Loop Big Creek 3-Springville 230 kV line into Rector	4/1/2009	< 100M	Approved
4	Devers-Mirage 115 kV System Split	Reliability	Mitigate criteria violations	Separate Devers-Mirage 115 kV system into two radial 115 systems	6/1/2009	< 20M	Approved

¹⁰ Based on the information in table 2-2 and does not include the projects that cost estimated have not yet been determined. This number is subject to change again in the final report.

Appendix I-3
System Impact Study Agreement and Proof of Payment

INTERCONNECTION SYSTEM IMPACT STUDY AGREEMENT

THIS AGREEMENT is made and entered into this 23rd day of January, 2007 by and between Reliant Energy Etiwanda, Inc., a corporation organized and existing under the laws of the State of Delaware, ("Interconnection Customer,") and the California Independent System Operator Corporation, a California nonprofit public benefit corporation existing under the laws of the State of California, ("ISO"). The Interconnection Customer and the ISO each may be referred to as a "Party," or collectively as the "Parties."

RECITALS

WHEREAS, the Interconnection Customer is proposing to develop a Large Generating Facility or generating capacity addition to an existing Generating Facility consistent with the Interconnection Request submitted by the Interconnection Customer dated October 23, 2006; and

WHEREAS, the Interconnection Customer desires to interconnect the Large Generating Facility with the ISO Controlled Grid; and

WHEREAS, the ISO has completed an Interconnection Feasibility Study (the "Feasibility Study") and provided the results of said study to the Interconnection Customer¹; and

WHEREAS, the Interconnection Customer has requested the ISO to conduct or cause to be performed an Interconnection System Impact Study to assess the impact of interconnecting the Large Generating Facility;

NOW, THEREFORE, in consideration of and subject to the mutual covenants contained herein the Parties agree as follows:

- 1.0 When used in this Agreement, with initial capitalization, the terms specified shall have the meanings indicated in the ISO's FERC-approved Standard Large Generation Interconnection Procedures ("LGIP") or the Master Definitions Supplement, Appendix A to the ISO Tariff, as applicable.
- 2.0 The Interconnection Customer elects and the ISO shall conduct or cause to be performed an Interconnection System Impact Study consistent with the LGIP in accordance with the ISO Tariff.

¹ This recital to be omitted if the Interconnection Customer has elected to forego the Interconnection Feasibility Study.

- 3.0 The scope of the Interconnection System Impact Study shall be subject to the assumptions set forth in Attachment A to this Agreement.
- 4.0 The Interconnection System Impact Study will be based upon the results of the Interconnection Feasibility Study and the technical information provided by the Interconnection Customer in the Interconnection Request, subject to any modifications in accordance with Section 4.4 of the LGIP. The ISO reserves the right to request additional technical information from the Interconnection Customer as may reasonably become necessary consistent with Good Utility Practice during the course of the Interconnection System Impact Study. If the Interconnection Customer modifies its designated Point of Interconnection, Interconnection Request, or the technical information provided therein is modified, the time to complete the Interconnection System Impact Study may be extended.
- 5.0 The Interconnection System Impact Study report shall provide the following information:
- identification of any circuit breaker short circuit capability limits exceeded on the Participating TO's electric system or the ISO Controlled Grid as a result of the interconnection;
 - identification of any thermal overload or voltage limit violations on the Participating TO's electric system or the ISO Controlled Grid resulting from the interconnection;
 - identification of any instability or inadequately damped response to system disturbances on the Participating TO's electric system or the ISO Controlled Grid resulting from the interconnection;
 - a description and non-binding, good faith estimate of cost and cost responsibility for and time for construction of facilities on the Participating TO's electric system required to interconnect the Large Generating Facility to the ISO Controlled Grid and to address the identified short circuit, instability, and power flow issues on the ISO Controlled Grid; and
 - a Deliverability Assessment on the ISO Controlled Grid pursuant to Section 3.3 of the LGIP; and
 - assessment of the potential magnitude of financial impacts, if any, on Local Furnishing Bonds and a proposed resolution.
- 6.0 The Interconnection Customer shall provide a deposit of \$50,000 for the performance of the Interconnection System Impact Study. The good faith estimate for the time of completion of the Interconnection System Impact

Study is June 18, 2007 (30 days for IC execution, 120 days for study completion).

Following the issuance of the Interconnection System Impact Study, the ISO shall charge and the Interconnection Customer shall pay the actual costs of the Interconnection System Impact Study, inclusive of any re-studies and amendments to the Interconnection System Impact Study, pursuant to Section 9 of this Agreement.

Any difference between the deposit made toward the Interconnection System Impact Study, amendments and re-studies to the Interconnection System Impact Study, and the actual cost of the study shall be paid by or refunded to the Interconnection Customer, as appropriate in accordance with Section 13.3 of the LGIP.

- 7.0 Pursuant to Section 3.7 of the LGIP, the ISO will coordinate the conduct of any studies required to determine the impact of the Interconnection Request on Affected Systems. The ISO may provide a copy of the Interconnection System Impact Study results to an Affected System Operator and the Western Electricity Coordinating Council. Requests for review and input from Affected System Operators or the Western Electricity Coordinating Council may arrive at any time prior to interconnection, and a revision of the Interconnection System Impact Study or re-study may be required in such event.
- 8.0 Substantial portions of technical data and assumptions used to perform the Interconnection System Impact Study, such as system conditions, existing and planned generation, and unit modeling, may change after the ISO provides the Interconnection System Impact Study results to the Interconnection Customer. Study results will reflect available data at the time the ISO provides the Interconnection System Impact Study to the Interconnection Customer. The ISO shall not be responsible for any additional costs, including, without limitation, costs of new or additional facilities, system upgrades, or schedule changes, that may be incurred by the Interconnection Customer as a result of changes in such data and assumptions.
- 9.0 In the event that a re-study or amendment of the Interconnection System Impact Study is required, the ISO shall provide notification of the need for such re-study or amendment, and the Interconnection Customer shall provide direction as to whether to proceed with the re-study or amendment and any associated deposit payment pursuant to Section 7.6 or Section 12.2.4 of the LGIP, as applicable.
- 10.0 The ISO shall maintain records and accounts of all costs incurred in performing the Interconnection System Impact Study, inclusive of any re-

studies or amendments thereto, in sufficient detail to allow verification of all costs incurred, including associated overheads. The Interconnection Customer shall have the right, upon reasonable notice, within a reasonable time at the Participating ISO's offices and at its own expense, to audit the ISO's records as necessary and as appropriate in order to verify costs incurred by the ISO. Any audit requested by the Interconnection Customer shall be completed, and written notice of any audit dispute provided to the ISO representative, within one hundred eighty (180) Calendar Days following receipt by the Interconnection Customer of the ISO's notification of the final costs of the Interconnection System Impact Study, inclusive of any re-study or amendment thereto.

11.0 In accordance with Section 3.8 of the LGIP, the Interconnection Customer may withdraw its Interconnection Request at any time by written notice to the ISO. Upon receipt of such notice, this Agreement shall terminate.

12.0 Pursuant to Section 7.2 of the LGIP, this Agreement shall become effective upon the date the fully executed Agreement and deposit specified in Section 6 of this Agreement are received by the ISO. If ISO does not receive the fully executed Agreement and payment pursuant to Section 7.2 of the LGIP, then the Interconnection Request will be deemed withdrawn upon the Interconnection Customer's receipt of written notice by the ISO pursuant to Section 3.8 of the LGIP.

13.0 Miscellaneous.

13.1 Dispute Resolution. Any dispute, or assertion of a claim, arising out of or in connection with this Interconnection System Impact Study Agreement, shall be resolved in accordance with Section 13.5 of the LGIP.

13.2 Confidentiality. Confidential Information shall be treated in accordance with Section 13.1 of the LGIP.

13.3 Binding Effect. This Interconnection System Impact Study Agreement and the rights and obligations hereof, shall be binding upon and shall inure to the benefit of the successors and assigns of the Parties hereto.

13.4 Conflicts. In the event of a conflict between the body of this Interconnection System Impact Study Agreement and any attachment, appendices or exhibits hereto, the terms and provisions of the body of this Interconnection System Impact Study Agreement shall prevail and be deemed the final intent of the Parties.

13.5 Rules of Interpretation. This Interconnection System Impact Study Agreement, unless a clear contrary intention appears; shall be construed and interpreted as follows: (1) the singular number includes the plural

number and vice versa; (2) reference to any person includes such person's successors and assigns but, in the case of a Party, only if such successors and assigns are permitted by this Interconnection System Impact Study Agreement, and reference to a person in a particular capacity excludes such person in any other capacity or individually; (3) reference to any agreement (including this Interconnection System Impact Study Agreement), document, instrument or tariff means such agreement, document, instrument, or tariff as amended or modified and in effect from time to time in accordance with the terms thereof and, if applicable, the terms hereof; (4) reference to any applicable laws and regulations means such applicable laws and regulations as amended, modified, codified, or reenacted, in whole or in part, and in effect from time to time, including, if applicable, rules and regulations promulgated thereunder; (5) unless expressly stated otherwise, reference to any Article, Section or Appendix means such Article or Section of this Interconnection System Impact Study Agreement or such Appendix to this Interconnection System Impact Study Agreement, or such Section to the LGIP or such Appendix to the LGIP, as the case may be; (6) "hereunder", "hereof", "herein", "hereto" and words of similar import shall be deemed references to this Interconnection System Impact Study Agreement as a whole and not to any particular Article, Section, or other provision hereof or thereof; (7) "including" (and with correlative meaning "include") means including without limiting the generality of any description preceding such term; and (8) relative to the determination of any period of time, "from" means "from and including", "to" means "to but excluding" and "through" means "through and including".

- 13.6 Entire Agreement. This Interconnection System Impact Study Agreement, including all Appendices and Schedules attached hereto, constitutes the entire agreement between the Parties with reference to the subject matter hereof, and supersedes all prior and contemporaneous understandings or agreements, oral or written, between the Parties with respect to the subject matter of this Interconnection System Impact Study Agreement. There are no other agreements, representations, warranties, or covenants which constitute any part of the consideration for, or any condition to, any Party's compliance with its obligations under this Interconnection System Impact Study Agreement.
- 13.7 No Third Party Beneficiaries. This Interconnection System Impact Study Agreement is not intended to and does not create rights, remedies, or benefits of any character whatsoever in favor of any persons, corporations, associations, or entities other than the Parties, and the obligations herein assumed are solely for the use and benefit of the Parties, their successors in interest and, where permitted, their assigns.

- 13.8 Waiver. The failure of a Party to this Interconnection System Impact Study Agreement to insist, on any occasion, upon strict performance of any provision of this Interconnection System Impact Study Agreement will not be considered a waiver of any obligation, right, or duty of, or imposed upon, such Party.

Any waiver at any time by either Party of its rights with respect to this Interconnection System Impact Study Agreement shall not be deemed a continuing waiver or a waiver with respect to any other failure to comply with any other obligation, right, duty of this Interconnection System Impact Study Agreement. Termination or default of this Interconnection System Impact Study Agreement for any reason by the Interconnection Customer shall not constitute a waiver of the Interconnection Customer's legal rights to obtain an interconnection from the Participating TO or ISO. Any waiver of this Interconnection System Impact Study Agreement shall, if requested, be provided in writing.

Any waivers at any time by any Party of its rights with respect to any default under this Interconnection System Impact Study Agreement, or with respect to any other matter arising in connection with this Interconnection System Impact Study Agreement, shall not constitute or be deemed a waiver with respect to any subsequent default or other matter arising in connection with this Interconnection System Impact Study Agreement. Any delay, short of the statutory period of limitations, in asserting or enforcing any right under this Interconnection System Impact Study Agreement shall not constitute or be deemed a waiver of such right.

- 13.9 Headings. The descriptive headings of the various Articles and Sections of this Interconnection System Impact Study Agreement have been inserted for convenience of reference only and are of no significance in the interpretation or construction of this Interconnection System Impact Study Agreement.
- 13.10 Multiple Counterparts. This Interconnection System Impact Study Agreement may be executed in two or more counterparts, each of which is deemed an original but all constitute one and the same instrument.
- 13.11 Amendment. The Parties may by mutual agreement amend this Interconnection System Impact Study Agreement by a written instrument duly executed by both of the Parties.
- 13.12 Modification by the Parties. The Parties may by mutual agreement amend the Appendices to this Interconnection System Impact Study Agreement by a written instrument duly executed by both of the Parties. Such amendment shall become effective and a part of this Interconnection

System Impact Study Agreement upon satisfaction of all applicable laws and regulations.

- 13.13 **Reservation of Rights.** The ISO shall have the right to make a unilateral filing with FERC to modify this Interconnection System Impact Study Agreement with respect to any rates, terms and conditions, charges, classifications of service, rule or regulation under section 205 or any other applicable provision of the Federal Power Act and FERC's rules and regulations thereunder, and Interconnection Customer shall have the right to make a unilateral filing with FERC to modify this Interconnection System Impact Study Agreement pursuant to section 206 or any other applicable provision of the Federal Power Act and FERC's rules and regulations thereunder; provided that each Party shall have the right to protest any such filing by another Party and to participate fully in any proceeding before FERC in which such modifications may be considered. Nothing in this Interconnection System Impact Study Agreement shall limit the rights of the Parties or of FERC under sections 205 or 206 of the Federal Power Act and FERC's rules and regulations thereunder, except to the extent that the Parties otherwise mutually agree as provided herein.
- 13.14 **No Partnership.** This Interconnection System Impact Study Agreement shall not be interpreted or construed to create an association, joint venture, agency relationship, or partnership between the Parties or to impose any partnership obligation or partnership liability upon any Party. No Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, another Party.
- 13.15 **Assignment.** This Interconnection System Impact Study Agreement may be assigned by a Party only with the written consent of the other Party; provided that a Party may assign this Interconnection System Impact Study Agreement without the consent of the other Party to any Affiliate of the assigning Party with an equal or greater credit rating and with the legal authority and operational ability to satisfy the obligations of the assigning Party under this Interconnection System Impact Study Agreement; and provided further that the Interconnection Customer shall have the right to assign this Interconnection System Impact Study Agreement, without the consent of the other Party, for collateral security purposes to aid in providing financing for the Large Generating Unit, provided that the Interconnection Customer will require any secured party, trustee or mortgagee to notify the other Party of any such assignment. Any financing arrangement entered into by the Interconnection Customer pursuant to this Article will provide that prior to or upon the exercise of the secured party's, trustee's or mortgagee's assignment rights pursuant to said arrangement, the secured creditor, the trustee or mortgagee will notify the other Party of the date and particulars of any such exercise of

assignment right(s). Any attempted assignment that violates this Article is void and ineffective. Any assignment under this Interconnection System Impact Study Agreement shall not relieve a Party of its obligations, nor shall a Party's obligations be enlarged, in whole or in part, by reason thereof. Where required, consent to assignment will not be unreasonably withheld, conditioned or delayed.

IN WITNESS THEREOF, the Parties have caused this Agreement to be duly executed by their duly authorized officers or agents on the day and year first above written.

California Independent System Operator Corporation

By: Armando J. Perez
Armando J. Perez
Title: VP Planning and
Infrastructure Development
Date: 01/18/07

Reliant Energy Etiwanda, Inc.

By: David Brast *int*
Title: Vice President
Date: Jan. 24, 2007

Attachment A

**Interconnection System Impact
Study Agreement**

**ASSUMPTIONS USED IN CONDUCTING THE
INTERCONNECTION SYSTEM IMPACT STUDY**

The Interconnection System Impact Study will be based upon the results of the Interconnection Feasibility Study, subject to any modifications in accordance with Section 4.4 of the LGIP, and the following assumptions:

Designation of Point of Interconnection and configuration to be studied:

- **Rancho Vista 500kV Substation**

Designation of alternative Point(s) of Interconnection and configuration:

- **Waived**

Attachment B

**Interconnection System Impact
Study Agreement**

INTERCONNECTION SYSTEM IMPACT STUDY PLAN

System Impact Study

Study Plan

Reliant Energy Etiwanda, Inc

Etiwanda CCGT Expansion

January 18, 2007



California ISO
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Introduction

On October 24, 2006, Reliant Energy Etiwanda, Inc applied to the California Independent System Operator (“CAISO”) for interconnection pursuant to Section 3.5 of the Large Generator Interconnection Procedures (“LGIP”) issued under the CAISO Tariff. Reliant Energy Etiwanda, Inc requested to interconnect its proposed 698 MW Etiwanda Combined Cycle Gas Turbine (“CCGT”) Expansion (“Project”) and as an alternate, its proposed 504 MW Etiwanda Simple Cycle Gas Turbine (“SCGT”) Expansion Project, located in Etiwanda, California to Southern California Edison’s future Rancho Vista Substation at 500kV. As a result of an interconnection application received from Reliant Energy Etiwanda, Inc., a System Impact Study (SIS) for the proposed Project will be performed. Reliant waived the performance of a Feasibility Study. The Project has requested a Commercial Operation Date (COD) of June 1, 2010. A separate SIS will be conducted for the alternate 504 MW Etiwanda SCGT Expansion project. The Project SIS shall provide the incremental transmission system impacts on SCE’s portion of the CAISO controlled grid and the CAISO-Controlled Grid. In addition, the SIS shall provide a description and non-binding, good faith estimated cost and time to construct the required facilities to interconnection the project as specified in LGIP Section 7.3 and will also identify Affected Systems that may be potentially impacted by the proposed project, if applicable. If an Affected System is identified in the SIS, the SIS draft report will be circulated to each identified Affected System for evaluation. Reliant Energy Etiwanda, Inc may need to enter into separate interconnections study agreements with any Affected Systems.

This Study Plan provides scope, content, and assumptions to be included in the performance of the SIS in addition to those provided in the Large Generator Interconnection Procedures (LGIP) and/or the SIS Agreement executed between Reliant Energy Etiwanda, Inc. and CAISO. Nothing in this Study Plan is intended to modify, limit or expand any rights and obligations of Reliant Energy Etiwanda, Inc, SCE and/or the CAISO under the SIS Agreement and/or the LGIP. In the event of conflicting language, the language in the LGIP and SIS Agreement, as applicable, shall prevail.

Study Fee

The applicant has submitted a valid interconnection request and paid a \$10,000 deposit. The parties have agreed to waive the Interconnection Feasibility Study and commence with a detailed Interconnection System Impact Study. Pursuant to LGIP Section 7.2, Reliant Energy Etiwanda, Inc. will provide a \$50,000 deposit upon execution of the SIS Agreement to be applied towards costs accrued for performance of the SIS.¹

The CAISO has estimated a study fee of \$90,000 for performing the SIS. The final study fee to complete the SIS will be based on actual cost.

¹ Refer to ISO’s Standard Large Generator Interconnection Procedures (LGIP) Effective July 1, 2005, Issued on August 30 2005.

Schedule

The following schedule shows the milestones associated with the study.

Task	Milestone Description	Target Date*
1	System Impact Study Plan and Agreement are tendered to Reliant Energy Etiwanda, Inc	January 18, 2007
2	Receipt of executed System Impact Study Agreement, \$50,000 study deposit, and technical data (Attachment A to Appendix 1) from Reliant Energy Etiwanda, Inc	+30 Calendar Days
3	Issuance of final SIS report	+120 Calendar Days
4	Results Meeting	+10 Business Days

Cost Estimates

As specified in LGIP Section 7.3, the SIS will include a non-binding good faith estimate of cost responsibility and a non-binding good faith estimate of time to implement the interconnection.

Interconnection Plan

The interconnection of the Etiwanda CCGT Expansion to the CAISO Controlled Grid will be via expected new Rancho Vista 500kV substation at the 500kV level.

Additional Study Assumptions

In addition to the study assumptions specified in the SIS Agreement, SCE will conduct the SIS using the following assumptions:

- 1) The plant load of 698 MW will be modeled.
- 2) The Reliant Energy Etiwanda, Inc will design, construct, own, and maintain its proposed facility.
- 3) Unless otherwise agreed to by SCE, it is assumed that Reliant Energy Etiwanda, Inc will design, build, and own two 500 kV transmission lines (generation tie lines) that connect the plant switchyard to the SCE Rancho Vista 500kV Bus.

Power Flow Base Case Assumptions

Two power flow scenarios will be used in this study:

1) Peak Load Case

The 2011 Heavy Summer scenario models the SCE transmission system and expected operating conditions during the summer peak that assumes a one-in-ten-year heat wave. The peak load scenario will be used for power flow analysis, post-transient power flow analysis, and dynamic stability analysis.

2) Off Peak Load Case

The 2011 Off-peak scenario will be used for power flow analysis, post-transient power flow analysis, and dynamic stability analysis.

For each of the load scenarios, a "pre-project" and "post-project" base case will be used to assess the impacts of the interconnection of the project.

Base Case Generation Assumptions

The generation assumptions shall be as provided in the base case to include all existing and queued generations ahead of the project including but not limited to the following:

Eastern area Interconnection Projects		
SCE Project ID	Area of Interconnection	Project Size (MW)
WDT244	Vista 230:66	43
TOT185	Devers-Vista 230	150
WDT240	Olinda 230:66	27.6
TOT186	Etiwanda 230	330
WDT231	Mira Loma 230	44.55
WDT230	Etiwanda 230	45.03
WDT223	Walnut 220:66	49.9
TOT132	LEAPS Pump Storage 500	500
TOT135	Walnut 230	500.5
TOT037	Valley 500	810
TOT120	Devers 115	100.5
WDT165	Vista 115	325
TOT109	San Bernardino 230	72
TOT004	San Bernardino 230	1000
WDT098	Vista 230: 66	40
WDT080	Vista 230: 66	28.5
WDT073	Vista 230: 66	80
TOT032	Devers 230	850

Study Scope

The SIS will study the impact of Etiwanda CCGT Expansion's added generation on the CAISO's controlled area. The specific studies conducted for the SIS are outlined in this section.

Steady State Power Flow Analysis

The base cases will be used to simulate the impact of the new facility during normal operating conditions, as well as single and selected multiple (NERC/WECC/CAISO Categories "B" and "C") contingencies. The project may be subject to remedy problems identified in by the most viable and economic solution according to the CAISO's reliability criteria. The study will cover the transmission facilities in SCE's planning areas. New protection requirements, together with protection modifications needed, will also be identified.

Category "B"

- All single transmission circuit outages (115 - 500 kV)
- All single transformer outages (500/115 kV) under the CAISO control.
- Selected overlapping (single generator unit and transmission circuit) outages

Category “C”

- Selected combination of two successive category B outages

Transmission Line Evaluation

The transmission line evaluation will identify existing transmission lines requiring upgrades in order to mitigate overloading due to the new generation, if any.

Substation Evaluation

The Substation evaluation will identify existing equipment, if any, requiring upgrades to mitigate problems caused by overstress or overload.

Deliverability Assessment

A Deliverability Assessment will be performed by the CAISO. This assessment will determine the Project's ability to deliver its energy to the CAISO Controlled Grid under peak load conditions. The Deliverability Assessment will provide the IC with information as to the level of deliverability without Network Upgrades, and the required Network Upgrades required delivering the full output of the Project.

The Deliverability Assessment will provide:

- Deliverability Level with no Network Upgrades
- Required Network Upgrades to support 100% Deliverability

CAISO will conduct the Deliverability Assessment in accordance with Sections 3.3.2 and 3.3.3 of the LGIP.

Post-transient Voltage Stability Study

Post-transient voltage stability studies will be conducted using the Peak Load and Off-peak Load Base Cases to ensure that the transmission system can meet NERC/WECC/CAISO reliability requirements under abnormal operating conditions after the new facility begins operation.

Limited selection of Category “B” and “C” Contingencies for the SCE service territory will be simulated.

Dynamic Stability Study

Dynamic stability studies will be conducted using the Peak Load and Off-peak Load Base Cases to ensure that the transmission system remains in operating equilibrium through abnormal operating conditions after the new facility begins operation. Other SCE transmission projects that will be operational by 2011 will also be modeled in the base case.

Limited selection of Category “B” and “C” Contingencies for the SCE service territory will be simulated.

Short Circuit Duty Study

Short circuit studies will be conducted to determine the fault duties on existing SCE facilities before and after the proposed project addition. The fault duty results will then be used to identify overstressed equipment, if any, that results solely from the addition of the proposed facility.

Revisions to Study

In the event that the Study Plan requires revision due to changes in the application queue or other reasons, SCE will provide advance notification to Reliant Energy Etiwanda, Inc and the CAISO.

Gonzalez, Patricia A.

From: Simpson, John L.
Sent: Friday, January 26, 2007 1:21 PM
To: Gonzalez, Patricia A.
Subject: Etiwanda Wire Transfers to CAISO

FILE COPY

Pat,

I need two wire transfers to the CAISO on Monday, Jan 29 for \$50,000 each. Both transfers will be charged to I/O # 14041200.

The transfers should be identified as:

Reliant Energy Etiwanda CCGT Expansion Project,

and

Reliant Energy Etiwanda SCGT Expansion Project.

Thanks.

John

John L. Simpson
Director, Transmission Analysis
Reliant Energy
Phone: 713-497-8429
Fax: 713-537-8429
Mobile: 713-516-8950
Email/pager: jlsimpson@reliant.com

Reliant Resources
 Treasury Initiated Third Party Vendor
ELECTRONIC FUNDS TRANSFER (EFT)

XRT REFERENCE

FILE COPY

This form must be received by 3:00 p.m. the DAY BEFORE payment is required to assure execution of EFT.
 Faxed forms will not be accepted from work units in Reliant Energy Plaza.

PAYING COMPANY CODE 0011	PAYING COMPANY NAME RELIANT ENERGY ETIWANDA	DATE PREPARED 01-30-2007
PAYABLE TO California ISO	VENDOR NUMBER 144969	
PAYEE ADDRESS 151 Blue Ravine Rd	CITY Folsom	STATE CA
		ZIP CODE

To insure your accounting entries post successfully to SAP, please verify the following BEFORE submitting EFT to Treasury.

Please check applicable (one or more)

- If using Balance Sheet G/L 100000 through 399999, provide a G/L and a Company Code to bill.
- If using Revenue G/L 400000 through 499999, provide a G/L, Profit Center, and a Company Code to bill.
- If using Expense G/L 500000 through 799999, provide a G/L, ONLY ONE Cost Object (Cost Center, Internal Order, Work Order, or WBS), and a Company Code to bill.

Please check all

- Vendor number is set-up in SAP for PAYING COMPANY. If not, please contact Accounts Payable.
- G/L is active in SAP (and cost object if needed) for the desired COMPANY CODE to bill. If not, please contact your Master Data Coordinator.

G/L	COST CENTER	INTERNAL ORDER	PROFIT CENTER	WBS / WO OR ADDITIONAL DETAILS	COMPANY CODE TO BILL	AMOUNT
550021		14041200		Etiwanda CCGT Expansion System	0011	\$50,000.00
				Impact Study Deposit		
TOTAL TRANSFER AMOUNT						\$50,000.00

EFT PAYMENT INSTRUCTIONS

DATE EFT REQUIRED 01-31-2007	BANK ROUTING NUMBER 026009593	CREDIT BANK NAME Bank of America	Treasury Use Only	
BANK ADDRESS		CITY	STATE	
BENEFICIARY'S NAME		CITY	STATE	
ACCOUNT NUMBER 14994-20225	REASON FOR PAYMENT / COMMENTS RE: Etiwanda CCGT Expansion Sys Impact Study Deposit			
FOR FURTHER CREDIT - BENEFICIARY'S NAME	FFC ACCOUNT NUMBER	CITY	STATE	
REQUESTED BY (Print Name) PATRICIA GONZALEZ	TELEPHONE NO. (713) 497-1275	APPROVED BY (Print Name) David Freysinger	APPROVED BY (Signature) 	TELEPHONE NO. 713-497-7378

Treasury Contact (713) 497-3328

76515

1191574 CoCode : 0011 RE Etiwanda, Inc. Updated on:Jan,31,2007

CREDITS :

TITLE/REFERENCE NBR	BALANCE	IMMEDIATE	ONE DAY
TWO DAY			

INDIVIDUAL INCOMING INTRNL MONEY TRANSFE 142,000.00 142,000.00
 RRN=7TO11 REF=27041*RCV=043000261MELLON PIT-*BBK=D1191574*RELIANT
 ENERGY E
 TIWANDA INC*1000 MAIN ST 12TH FL*HOUSTON TX 77002-6336*BNF=D1191574*RE
 ETI
 WANDA INC*PO BOX 148*HOUSTON TX 77001-0148*ORG=D1191443*RELIANT
 ENERGY POW
 ER*GENERATION INC*1000 MAIN ST 12TH FL*HOUSTON TX 77002-6336*
 MELLON REF#=27041 WIRE TYPE=BT NETWORK REF#=0 12:58 01-31-07

TOTAL CREDITS	142,000.00		
TOTAL CREDIT AMOUNTMTD		5,307,973.91	
TOTAL INCOMING MONEYTRANSFERS		142,000.00	

DEBITS :

TITLE/REFERENCE NBR	BALANCE	IMMEDIATE	ONE DAY
TWO DAY			

ZBADEBIT 39,858.80
 ZBA AUTO TRANSFER
 FROM 119-0336
 ACCT(S)

OUTGOING MONEY TRANSFER 100,000.00
 REF=18325*RCV=026009593BKAMER NYC-*BNF=D1499420225*CALIFORNIA
 ISO*CA*ORG=D
 1191574*RELIANT ENERGY ETIWANDA INC*1000 MAIN ST 12TH FL*HOUSTON TX
 77002-
 6336*OBI=ETIWANDA CCGT & SCGT*EXPANSION SYSTEM IMPACT*STUDY
 DEPOSIT*
 MELLON REF#=18325 WIRE TYPE=FW NETWORK REF#=2731 10:35 01-31-07

MISCELLANEOUSACHDEBIT	1,762.36		
466 ACH FILE STTLMNT			
1760555456ACCT REFER			
ENTRYDATE070130			
04300026445476007031			