650 Town Center Drive, 20th Floor
Costa Mesa, California 92626-1925
Tel: +1.714.540.1235 Fax: +1.714.755.8290
www.lw.com

LATHAM & WATKINS LLP

FIRM / AFFILIATE OFFICES

Abu Dhabi	Moscow
Barcelona	Munich
Beijing	New Jersey
Brussels	New York
Chicago	Orange County
Doha	Paris
Dubai	Rome
Frankfurt	San Diego
Hamburg	San Francisco
Hong Kong	Shanghai
London	Silicon Valley
Los Angeles	Singapore
Madrid	Tokyo
Milan	Washington, D.C.

File No. 039610-0003

January 6, 2010

DOCKET
08-AFC-9
DATE JAN 06 2010
RECD. JAN 06 2010

VIA FEDEX

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 08-AFC-9
1516 Ninth Street, MS-4
Sacramento, California 95814-5512

Re: City of Palmdale Hybrid Power Plant Project: Docket No. 08-AFC-9

Dear Sir/Madam:

Pursuant to California Code of Regulations, title 20, Sections 1209, 1209.5, and 1210, enclosed herewith for filing please find the Final Palmdale Facilities Study Report.

Please note that the enclosed submittal was filed today via electronic mail to your attention and to all parties on the attached proof of service list.

Very truly yours,

Paul E. Kihm
Senior Paralegal

Enclosure

cc: 08-AFC-9 Proof of Service List (w/encl., via e-mail and U.S. Mail)
Michael J. Carroll, Esq. (w/encl.)

California Independent
System Operator Corporation

VIA E-MAIL

November 23, 2009

Mr. Thomas Barnett
Inland Energy, Inc.
3501 Jamboree Road, South Tower, Suite 606
Newport Beach, CA 92660

Subject: Final Palmdale Facilities Study Report

Dear Mr. Barnett,

Attached is the Facilities Study Report for the interconnection of the proposed Palmdale Power Plant Project (Project) to the California Independent System Operators (CAISO) Controlled Grid. The CAISO and SCE performed the Facilities Study in accordance with the CAISO's LGIP tariff.

The ***Nonbinding*** Cost Estimate for the interconnection facilities and reliability upgrades is $4,585,500. The Tehachapi Renewable Transmission Project (TRTP) is needed to interconnect the Project and other generation projects in the Tehachapi Wind Resource Area. The TRTP will be upfront funded by SCE and is not the cost responsibility of the Project.

Should you have questions regarding the Study, please contact Songzhe Zhu at (916) 608-5854 (szhu@caiso.com) or myself at (916) 608-1113 (AChowdhury@caiso.com).

Sincerely,

Ali Asraf Chowdhury, Ph.D., MBA
Director of Regional Transmission (South)

Attachments
AAC/SZ:pjm

cc: via e-mail:

Thomas M. Barnett (tbarnett@inlandenergy.com)
Allen Cadreau (allencadreau@inlandenergy.com)
Tony Penna (tonypenna@inlandenergy.com)
Drew Brabb (Drew.Brabb@sce.com)
Lindsey Sayers (Lindsey.Sayers@sce.com)
Robert Tucker (Robert.Tucker@sce.com)

CAISO via email:

Linda Wright (LWright@caiso.com)
Ali Asraf Chowdhury (AChowdhury@caiso.com)
Songzhe Zhu (SZhu@caiso.com)

Interconnection Facilities Study

Generation Interconnection

City of Palmdale

Palmdale Power Plant Project

Final Report

California ISO
Your Link to Power

November 23, 2009

This study has been completed in coordination with Southern California Edison per the Large Generator Interconnection Procedure

Southern California Edison

Table of Contents

I. Executive Summary

The City of Palmdale (Palmdale) applied to the California Independent System Operator (CAISO) for the interconnection of 570MW of generation from their Palmdale Power Plant (Project) generating facility to the SCE 220kV Transmission System pursuant to Section 3.5 of the Large Generator Interconnection Procedures (LGIP) issued under the CAISO Tariff.

The Project consists of two combustion gas turbines feeding a single steam turbine generator and an integrated solar thermal system used for duct firing with a net generation export of 570MW. The Project will be interconnected to Southern California Edison Company's ("SCE") electric system at the existing 220kV Vincent Substation via a generation tie-line. The Point of Interconnection to the network portion of the CAISO grid would be at the Vincent Substation 220kV Bus.

Palmdale has requested an in-service date of August 1, 2009. The facility study concluded that this is not an achievable in-service date. The gen-tie cannot be interconnected to Vincent Substation until all line work necessary for the Tehachapi Renewable Transmission Project (TRTP) at Vincent Substation is in service.

A clustered System Impact Study (SIS) of the Tehachapi Wind Resource Area (TWRA), dated November 16, 2007 was performed by SCE for this project, and transmitted to Palmdale on November 16, 2007. The SIS identified the impact of the Project to SCE's electric system, including those portions that comprise the CAISO Grid. The CAISO reviewed the SIS and their comments were incorporated in the study report.

FOR ADDITIONAL DETAIL REFER TO THE FOLLOWING EXHIBIT:

- **EXHIBIT A: SYSTEM IMPACT STUDY – EXECUTIVE SUMMARY**

II. System Impact Study Results

The SIS analyzed the System under the following conditions:

1. Antelope Transmission Project (ATP) in service.
2. TRTP in service.

The SIS concluded that the existing SCE transmission system is not adequate to support the additional generation and identified upgrades required for the 570MW generation addition.

The SIS determined that all overloads triggered and aggravated by the generation Project, excluding circuit breaker upgrades and replacements due to short-circuit duty impacts, will be addressed by the ATP and TRTP. The primary components of the ATP Segments 1, 2 and 3 and TRTP Segments 4, 5, 9, 10 and 11 are as follows:

- ATP 1: Install the Antelope-Pardee 500kV T/L energized at 220kV
- ATP 2: Install the Antelope-Vincent 500kV T/L energized at 220kV

- ATP 3: Install the Antelope-Windhub 500kV T/L energized at 220kV and portions of the Windhub Substation,
- TRTP 4: Install Whirlwind 500/220kV switchyard equipment, loop Path 26 into Whirlwind Substation, install a new 16 mile Antelope-Whirlwind 500kV T/L
- TRTP 5: Rebuild existing 220kV T/L between Antelope and Vincent to a second new Antelope-Vincent 500kV T/L, increase the operating voltage of the initial Antelope-Vincent 500kV T/L
- TRTP 9: Replace Vincent Substation AA-bank, install Gould Substation upgrades, install SVC equipment at Vincent Substation, install SVC Equipment at Antelope Substation, increase segment 3 operating voltage by installing two 500kV AA banks and necessary switchrack equipment at Antelope Substation, install two additional AA-banks at Windhub Substation
- TRTP 10: Install new Whirlwind-Windhub 500kV T/L
- TRTP 11: Install new Vincent-Mesa No. 2 500/220kV T/L

As identified in the SIS, SCE would have been pursuing development of TRTP Segments 6, 7 and 8 (Vincent-Mira Loma 500kV T/L) irrespective of generation development in the TWRA, and the costs of such segments were not included in the SIS.

The SIS concluded that the Palmdale Project, which provides dynamic reactive support, does not contribute to the post-transient voltage problems identified in the study, and therefore the project would not participate in any need for possible SPS participation to mitigate such problems.

The 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.

The SIS also identified forty-three (43) locations where the three phase short circuit duty will increase by 0.1kA or more as a result of the new generation and thirty (30) locations where the single line to ground short circuit duty will increase by 0.1kA or more as a result of the new generation.

III. Facilities Study Assumptions

Assumptions Included in Facility Study	
1	SCE will install the required Revenue Metering Cabinet and Retail Load Meters at the Generating Facility.
2	SCE will install the required Remote Terminal Unit (RTU) at the Generating Facility.

Assumptions NOT Included in Facility Study	
1	All required CAISO metering equipment at the Generating Facility will be provided by the generator.
2	All required Revenue Metering Equipment to meter the Generating Facility Retail Load will be specified by SCE and installed by the generator at their end of the 220kV generation tie line.

3	Any required upgrades at facilities not owned by SCE are not included in the Facilities Study.
4	One dedicated 125VDC circuit, one dedicated 115VAC convenient circuit and all station interface wiring are provided and brought to the RTU by the customer.
5	Customer will provide for up to 0.95 power factor boost capability as metered at the Point of Interconnection to the CAISO Controlled Grid.
6	Optical ground wire (OPGW) will be designed and installed as part of the construction of the generation tie line. SCE utility operations shall have exclusive use of a minimum of eight strands within the OPGW.

IV. Circuit Breakers Evaluation

The Facilities Study evaluated the circuit breakers 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 Facilities Study concluded that a total of thirteen (13) 500kV CBs at three locations, ninety-seven (97) 220kV CBs at eleven locations, and thirty-five (35) 66kV CBs at one location were impacted by the Project.

The replacement of all 220kV circuit breakers at Mira Loma Substation is needed due to the SCD increasing above the present 63kA standard. This requires the entire switchyard to be upgraded to a new 80kA standard.

V. Facilities Study Scope and Cost Estimate

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 Facilities: All facilities required to be paid by the Project

CASE B Facilities: All additional facilities that may be required to be paid by the Project

This facilities study scope and cost estimate intentionally excludes scope/cost elements associated with building a 35 mile gen-tie line between the generation facility and Vincent substation. Furthermore, the Facilities Study does not address potential feasibility, cost, schedule or scope issues associated with any possible use of existing SCE right-of-way. The customer has requested that SCE perform a right-of-way (ROW) assessment to identify whether use of existing SCE right-of-way is viable for routing of the generation tie line and is

working with SCE on the required letter agreement. Upon such request, SCE will begin developing a letter agreement and, once completed, will present it to the customer for signature.

CASE A Facilities Scope:

SCE will install a 220kV interconnection position at Vincent Substation to terminate the new Palmdale generation tie line. Move to Case A Facilities.

SCE will design, install, own, operate and maintain the new interconnection position at Vincent Substation.

Vincent Substation – Line Drop:

Install 220kV switchrack position to terminate the Palmdale Project 220kV generation-tie line. This work includes the position dead end structure, conductors and three sets of CCVTs.

Install Protection Relays as follows on the gen-tie line:

- Install one (1) G.E. L90 relay as System "A" backup protection to customer's generation protections.
- Install one (1) Schweitzer SEL-311C relay as System "B" backup protection to customer's generation protections.
- Install one (1) G.E. C60 relay as Local Breaker Failure Backup and Sync-check relay to each of the new 220kV CBs.

Install two 220kV circuit breakers and four 220kV vertically mounted disconnect switches.

Palmdale Power Project 220kV Gen-Tie Line:

As, mentioned previously, a ROW study funded by the customer needs to be conducted by SCE and funded by the customer to analyze the customers request to build along the ROW between Pear Blossom and Vincent substations. This Facilities Study neither approves, denies, nor implies an approval or denial of such request. Any portion of transmission line built on SCE ROW will be owned and operated by SCE.

Power Systems Control:

In order to maintain the integrity and the reliability of the SCE system, a real-time Remote Terminal Unit (RTU) is required at the Palmdale Power Plant facility to monitor customer's generation data such as low side MW, MVAR, kV, CB status, auxiliary load MW, MVAR and relay protection status alarms.

Telecommunication:

Install optical fiber cable to extend OPGW from the first customer-owned transmission structure outside of the Vincent Substation fence into the communication room at Vincent Substation. Install SONET optical multiplex and channel equipment at Vincent Substation and at the customer owned Palmdale Power Generation Substation. The scope for telecom may change depending on the results of the ROW study.

Automatic Congestion Management System:

Install one GE N-60 relay at the generation tie-line termination at Vincent Substation for the inclusion of such relay into an automatic "congestion management program" that will reside

within the Participating TO's Energy Management System ("EMS").

Licensing:
The scope and cost for licensing will be determined in the separate ROW study.

Coporate Real Estate:
The scope and cost for corporate real estate will be determined in the separate ROW study.

Reliability Network Upgrades:
The eleven segments of the ATP and TRTP network components, and the circuit breaker upgrades and replacements are required to accommodate the Palmdale Power Project. These upgrades will be up-front funded by SCE. Therefore, the cost of the following upgrades are not included in either the Case A or Case B estimate.

Antelope Substation:
Install two 500/220kV transformers and the necessary switchrack equipment. Install SVC equipment. Replace seven (7) 40kA 220kV circuit breakers with 50kA 220kV circuit breakers, install six (6) sets of TRV's to upgrade four (4) 220kV circuit breakers from 40kA to 50kA, and replace thirty-five (35) 66kV circuit breakers with 40kA 66kV circuit breakers.

Chino Substation:
Install two (2) TRV's to upgrade one (1) 220kV circuit breaker from 50kA to 63kA.

El Segundo Substation:
Install seven (7) sets of TRV's to upgrade six (6) 220kV circuit breakers to 45.6kA

Etiwanda Substation:
Replace four (4) 50kA 220kV circuit breakers with 63kA 220kV circuit breakers and install nineteen (19) TRV's to upgrade seventeen (17) 220kV circuit breakers from 50kA to 63kA.

Gould Substation:
Equip one 220kV position to accommodate TRTP 11 transmission line construction.

Laguna Bell Substation:
Replace two (4) 40kA 220kV circuit breakers with 50kA 220kV circuit breakers and install twelve (12) TRV's to upgrade fourteen (14) 220kV circuit breakers from 34kA to 45.6kA.

Lugo Substation:
Install six (6) TRV's to upgrade three (3) 500kV circuit breakers from 50kA to 63kA. Replace three (3) 50kA 220kV circuit breakers with 63kA 220kV circuit breakers and install four (4) TRV's to upgrade two (2) 220kV circuit breakers from 50kA to 63kA.

Mesa Substation:
Install four (4) TRV's to upgrade two (2) 220kV circuit breakers from 50kA to 63kA.

Mira Loma Substation:
Upgrade six (6) 500kV circuit breakers from 40kA to 50kA, replace twelve (12) 63kA 220kV circuit breakers with 80kA 220kV circuit breakers and upgrade the existing 63kA switchyard to an 80kA rating.

Ormond Beach Substation:
Install nine (9) sets of TRV's to upgrade eleven (11) 220kV circuit breakers to 44.3kA.

Pardee Substation:
Replace five (5) 220kV circuit breakers and install nine (9) sets of TRV's to upgrade five (5) 220kV circuit breakers from 44.3kA to 63kA.

Vincent Substation:
Install 500kV SVC equipment and replace the existing AA-bank. Upgrade four (4) 500kV circuit breakers from 40kA to 50kA.

Redondo Substation:
Replace twelve (12) 220kV circuit breakers.

Whirlwind 500/220kV Substation:
- Install one 1120MVA 500/220kV transformer bank and the section of 220kV switchyard required for the 220kV bank position and the new line position to terminate the two Drycreekwind 220kV transmission line. The station layout should allow for expansion of the facility to ten 500 kV and sixteen 220 kV bus positions and four 500/220kV transformer banks, two 500kV capacitor banks.
- Install the section of 500kV switchyard required for the 500kV bank position and the new line positions to terminate the Antelope, Midway and Vincent 500kV transmission lines.

Windhub 500/220kV Substation:
- Facilities required for the initial interconnection and operation: Install two 220kV buses for positions 10 to 13. Equip 220kV position numbers 10 and 11 with two 220kV circuit breakers and four sets of 220kV disconnect switches to terminate generation tie lines. Equip 220kV position number 12 with two 220kV circuit breakers and four sets of 220kV disconnect switches to terminate the Highwind 220kV line. Equip 220kV position number 13 with three 220kV circuit breakers and six sets of 220kV disconnect switches to terminate one generation tie line and the Antelope 500kV line de-energized to 220kV.
- Additional facilities required for substation build out: Install four 500/220kV transformer banks, four 220/66kV transformer banks, necessary 220kV switchrack equipment and necessary 66kV switchrack equipment.
- Construct new 500 kV switchrack. Install the section of 500kV switchyard required for the 500kV bank positions and the new line positions to terminate the Whirlwind and Antelope 500kV transmission lines. Install two 500kV shunt capacitors.

Antelope – Pardee 500kV T/L
Install approximately 25 miles of new 500 kV transmission line equipped with 2-2156KCMIL ACSR conductors per phase and optical ground wire.

Antelope – Vincent No. 1 500/220kV T/L
Install approximately 21.5 miles of new 500 kV transmission line equipped with 2-2156KCMIL ACSR conductors per phase and optical ground wire.

Antelope – Vincent No. 2 500kV T/L
Reconfigure existing Antelope – Vincent and Antelope – Mesa 220kV lines. Install

approximately 18 miles of new 500 kV transmission line equipped with 2-2156KCMIL ACSR conductors per phase and optical ground wire.

Antelope – Whirlwind 500kV T/L
Install approximately 14 miles of new 500 kV transmission line equipped with 2-2156KCMIL ACSR conductors per phase and optical ground wire.

Antelope – Windhub 500/220kV T/L
Install approximately 26 miles of new 500 kV transmission line initially energized at 220kV equipped with 2-2156KCMIL ACSR conductors per phase and optical ground wire.

Vincent – Mesa No. 2 500/220kV T/L
Construct 18.6 mile single circuit 500kV T/L from Vincent to Gould. Construct approximately two miles of single circuit 220kV T/L to terminate Eagle Rock – Pardee 220kV T/L into Vincent. Remove 18.6 miles of existing single circuit Eagle Rock – Pardee 220kV T/L. String approximately 18 miles of new 220kV conductor on vacant position on existing 220kV double circuit tower line between Mesa and Gould.

Whirlwind – Windhub 500kV T/L
Install approximately 17.5 miles of new 500 kV transmission line equipped with 2-2156KCMIL ACSR conductors per phase and optical ground wire.

Loop Midway – Vincent No. 3 500 kV T/L into Whirlwind
Loop the existing 500 kV transmission line into the new Whirlwind Substation to form the two new Midway-Whirlwind and Vincent-Whirlwind 500 kV transmission lines.

Corporate Real Estate
Perform all required activities to secure permits and land acquisition as required for the installation of the new network substations and transmission lines specified above.

CASE B Facilities Scope:

The facilities included in Case B are those additional facilities required to mitigate overloads caused by projects placed ahead of the Palmdale Power Project in the application queue, and are expected to be implemented by such projects.

The Palmdale Power Project does not aggravate any existing overloads. Therefore there are no Case B facilities for the Palmdale Power Project.

Facilities Cost Estimate

CASE A Identifies the cost of all facilities that are the full responsibility of the Project based on the current application queue.

CASE B Identifies the cost of all additional upgrades required that were triggered by projects placed ahead of the Palmdale Power Project in the application queue.

In the event that any project placed ahead of the Palmdale Power Project in the application queue is withdrawn or modified in accordance with applicable tariff allowances, a restudy would be required.

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

CASE A:	$	4,585,500
CASE B:	$	0

SEE EXHIBIT B: COST SUMMARY

VI. Operational Constraints

The Palmdale Power Project is requesting interconnection at the Vincent Substation 220-kV bus by August 2009. Based on the latest TRTP construction phasing schedule, Vincent Substation work will not be complete by the requested date. The gen-tie cannot be interconnected to Vincent Substation until all line work necessary for the Tehachapi Renewable Transmission Project (TRTP) at Vincent Substation is in service. The estimated completion date of the Vincent re-configuration is yet to be determined, but may be as late as 2013. The estimated in-service date of the Interconnection Facilities is typically 12 months after receiving authorization to proceed pursuant to a signed Large Generator Interconnection Agreement or letter agreement and subject to resource availability. That is true for this project; however, it should be noted that resource availability includes completion of substation reconfiguration.

The completion of both ATP and TRTP will be required to accommodate the full output of the Palmdale Power Project and all other TWRA Queue Cluster projects. The ATP has an estimated completion date of 2009 and the TRTP has an estimated completion date of 2013, therefore the system cannot accommodate the full output of the Palmdale Power Project and all other projects in the TWRA Queue Cluster until 2013. The SIS determined that with the completion of the ATP segments 1, 2, and 3, there is 700 MW available transmission capacity to deliver TWRA generation to Southern California. If the developer wishes to establish interconnection in advance of completion of ATP and TRTP facilities, the Project is subject to congestion management whenever the amount of generation in the area exceeds the available transmission capacity and there is a need to install automatic equipment to trip the Project gen-tie as needed in order to maintain system reliability.

As a general principle of the CAISO LMP-based market, both the day-ahead and the real-time markets manage congestion by enforcing all operationally relevant constraints on a realistic computer model of the CAISO Controlled Grid, so that the resulting schedules and dispatch instructions are feasible with respect to the grid facilities they will impact and respect the associated thermal limits. Thus the interconnection and the energy production of generation will be manageable by the CAISO market software so as to prevent thermal overloads, assuming that the generating units themselves can and will reduce their injections into the CAISO Controlled Grid when so instructed by the CAISO. When trying to arrive at a feasible solution (i.e., a schedule for supply and demand resources that achieves system energy balance, congestion management, and ancillary service capacity procurement), the LMP-based market utilizes submitted economic or price-quantity bids and

without making adjustments to bid components that do not have prices. Only if an operationally-reasonable solution based on economic bids is not attainable will the market software begin to adjust non-priced quantities such as submitted self-schedules (submitted quantity bids that do not have prices and are therefore treated as "price takers") in order to reach a solution. Subject to certain priorities given to existing rights, the market will reduce the most effective self-schedules available to relieve congestion in order to minimize the total MW quantity of reductions. For the LMP congestion management process to effectively mitigate the congestion, it is critical that the generation is curtailable at any time in response to CAISO instructions.

As a back up, an automatic congestion management system will be needed to trip off generation when the MW's being generated by the Project and other generator projects in the region exceed the capability of the transmission system equipment installed at that time. This includes installation of a GE N-60 relay at the SCE facility where the generation tie line terminates and the inclusion of this relay into an automatic "congestion management program" that will reside within the SCE Energy Management System (EMS). SCE will monitor the generation of the TWRA Queue Cluster through the EMS system. The EMS program will arm when the generation of the TWRA Queue Cluster nears the amount of generation that the system can handle. At such point, generators will be called to cut back their generation within a pre-determined time frame or the N-60 will trip the generation tie-line. The priority in which a generator gets tripped will be based on the effectiveness. The estimated costs of these facilities are included as Case A in Exhibit B. The N-60 relay and EMS program will be needed to trip the entire generation tie line any time that congestion attributed to the Project exists. This may result in significant real-time curtailment to the Project until completion of the ATP and TRTP facilities.

VII. Conclusions

A. The estimated cost to interconnect the Project is approximately $4,585,500 for Case A with the potential additional cost of $0 for Case B. The network reliability portion of those costs ($2,560,000) may be paid for by the TRTP project or, if the costs are funded by the customer they will be reimbursed to the customer under the standard network reimbursement payment schedule.
B. The costs indicated in the attached tables are shown in 2009 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.
C. The estimated Project cost will be reconciled to actual costs upon closure of the associated work orders. The necessary billing adjustments will be made in accordance with the terms of the interconnection agreement.
D. Study results may be affected by changes to projects queued ahead of the Palmdale Power Project. Such changes would require a restudy to be performed.
E. The results provided in this study are based on conceptual engineering and are not sufficient for permitting of facilities.
F. There are no opportunities at this time for expediting the schedule as communicated above. SCE will continue to make every effort to expedite and coordinate the availability of a position at Vincent substation with the completion of the termination

point of the customer's gen-tie that begins at the Project and ends at Vincent Substation.

EXHIBIT A

SYSTEM IMPACT STUDY EXECUTIVE SUMMARY

TABLE OF CONTENTS

CITY OF PALMDALE
PALMDALE POWER PLANT PROJECT
TEHACHAPI QUEUE CLUSTER WINDOW
SYSTEM IMPACT STUDY

November 16, 2007

I. INTRODUCTION

The City of Palmdale applied to the California System Operator (CAISO) for interconnection of a new 598 MW (net) combined-cycle generation facility pursuant to Section 25 (formerly Section 5.7) of the CAISO Tariff. The Palmdale Power Plant Project ("Palmdale Project") consists of two combustion gas turbines feeding a single steam turbine generator and includes an integrated solar thermal system used for duct firing. The City of Palmdale requested and paid for a System Impact Study which SCE was in the process of commencing. However, this study effort was placed on hold while studies to assess, on a regional basis, three major transmission expansion projects that directly affect the required transmission for the Palmdale Project were completed through the CAISO South Regional Transmission Plan (CSRTP) for 2006. In particular, the required studies involved the review of and modification to the transmission plan of service developed by the Tehachapi Collaborative Study Group[1] (TCSG) for integrating up to 4,500 MW of total area generation.

Upon completion of all studies necessary to support the development of a transmission plan of service which thermally accommodates up to 4,500 MW of total area generation, the CAISO filed a request for a one-time waiver of the CAISO Open Access Transmission Tariff (OATT). This request was made in order to change the established 180-day Queue Cluster Window to conduct a clustered Interconnection System Impact Study (ISIS) of the Tehachapi Wind Resource Area (TWRA)[2]. The CAISO also requested a waiver of the 180-day advance notice on its website of a change to the established opening and closing dates of the Queue Cluster Window. The request for the creation of a Queue Cluster Window for projects requesting interconnection in the TWRA between September 4, 2003 and May 24, 2006, which includes the Palmdale Project, was approved by FERC[3] on March 20, 2007. Consequently, this study report completes the System Impact Study, as requested by the City of Palmdale and provides the results in accordance with the established Queue Cluster Window.

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 Queue Cluster Window SIS withdraws or is modified in accordance with applicable tariff allowances.

---

[1] The California Public Utilities Commission (CPUC) ordered the formation of a study group to develop a rational transmission plan of service for integrating over 4,000 MW of total area generation, most of which is wind (D.04-06-010)

[2] The Tehachapi Wind Resource Area (TWRA) is located within Southern California Edison Company's service territory, in Kern County, between Bakersfield and Mohave, California.

[3] http://elibrary.ferc.gov/idmws/doc_info.asp?document_id=13507202

II. CONCLUSION

Power Flow Study

With both the Antelope Transmission Project (ATP) and Tehachapi Renewable Transmission Project (TRTP) in service, the Palmdale Project can be integrated in the system. However, additional project specific facilities will be required to satisfy the requested Palmdale Project interconnection plan of service. These upgrades are not part of the Antelope Transmission Project (ATP) or Tehachapi Renewable Transmission Project (TRTP).

Post-Transient Voltage Stability

The Queue Cluster Window Interconnection System Impact Study determined that under specific outage conditions, a Special Protection System to automatically trip generation resources may be needed. The amount of generation tripping for post-transient voltage conditions was determined to be highly dependant on the amount of power factor correction installed at each of the wind generation projects. With all TWRA Queue Cluster wind generation providing for up to 0.95 power factor correction as metered at the point of interconnect, such need is mitigated. In any event, since the Palmdale Project provides dynamic reactive support and does not contribute to the post-transient voltage problems, the project would not participate in any need for possible SPS participation to mitigate such problems.

Transient Stability

With both the Antelope Transmission Project and Tehachapi Renewable Transmission Project in service, the Palmdale Project did not result in any transient stability problems with the dynamic models utilized in this study.

Short-Circuit Duty

The short-circuit duty study identified four 500 kV and thirty-nine 230 kV substation locations under the three-phase-to-ground short-circuit duty that require specific breaker evaluation for replacement. Under the single-phase-to-ground short-circuit duty, the study identified three 500 kV substation and twenty-seven 230 kV substation locations that require specific breaker evaluation for replacement.

Facility Study Required

Based on the results of the Tehachapi Queue Cluster Window Interconnection System Impact Study, a Facility Study will be required to:

1. Evaluate circuit breaker locations at the identified substation locations and develop cost estimates for any circuit breaker identified to require upgrade or replacement

2. Identify specific cost for direct assign facilities (i.e. telecomm, metering, system protection, and position equipment to support new project radial gen-tie)

III. STUDY CONDITIONS AND ASSUMPTIONS

A. PLANNING CRITERIA

The Queue Cluster Window Interconnection System Impact Study was conducted by applying the Southern California Edison and California Independent System Operator (CAISO) Reliability Criteria. Specifically, the criteria applicable to this study are described below with further discussion in Attachment A – Detailed Cluster Window Study Report.

Power Flow Assessment

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

- Single Contingencies (loss of one line **or** one AA-Bank)
- Double Contingencies (loss of two lines **or** one line and one AA-Bank)
- Outages of two AA-Banks is beyond the Planning Criteria

The following loading criteria are used:

Transmission Lines	Base Case	Limiting Component Normal Rating
	N-1	Limiting Component A-Rating
	N-2	Limiting Component B-Rating
500/230 kV Transformer Banks	Base Case	Normal Loading Limit
	Long-Term & Short-Term	As defined by SCE Operating Bulletin No.33

B. LOAD ASSUMPTIONS

To simulate the SCE transmission system for analysis, the study used databases that were used to conduct the SCE Annual CAISO Controlled Facilities Expansion Program assuming load forecast for year 2014. Additional details are provided in Attachment A – Detailed Cluster Window Study Report.

EXHIBIT B

COST SUMMARY

Palmdale Power Plant Project - Cost Estimate Summary - Case A

Cost Estimate Summary for Interconnection Facilities (2010 Dollars)

Scope Provide interconnection of wind turbine generation to Southern California Edison Transmission system by the installation of, but not limited to, the following;

Conductors, and relays for the 220kV position at Vincent Substation.
Optical fiber cable to extend OPGW into the communication room at Vincent Substation.
One GE N-60 Relay at the Generationie-Line termination at Windhub Substation.
Remote Terminal Unit at Palmdale Power Facility.

	ELEMENT		INTERCONNECTION FACILITIES (Subject to O&M)	NETWORK RELIABILITY UPGRADES	Income Tax Component of Contribution (ITCC) *See Note 1*	TOTAL COST
1	**Substations** - - Vincent Substation - Line Drop		$ 770,000	$ -	$ 269,500	$ 1,039,500
2	- Vincent Substation - Line Position - *See Note 2*		-	2,560,000	-	2,560,000
3	**Telecommunication** - Connection to Windhub Station (Portion that can be shared.)		430,000	-	150,500	580,500
4	**Power System Control** - Remote Terminal Unit		50,000	-	18,000	68,000
5	**Automatic Congestion Management System** - Relay		130,000	-	45,500	175,500
6	**Retail Meter**		20,000	-	7,000	27,000
7	**Transmission**	*See Note 3* - Costs to be determined.	---	---	---	---
8	**Corporate Real Estate** - Transmission-Related		---	---	---	---
9	**Licensing** - Transmission-Related		---	---	---	---
10	**Corporate Real Estate** - *Non* -Transmission-Related		50,000	-	17,500	67,500
11	**Licensing** - *Non* -Transmission-Related		50,000	-	17,500	67,500
	TOTALS	**TOTALS**	**$ 1,500,000**	**$ 2,560,000**	**$ 525,500**	**$ 4,585,500**

NOTES

1) ITCC Cost may be satisfied with a letter of credit in accordance with the tax provisions of the Large Generator Interconnection Agreement.
2) These costs may be covered by the TRTP Project.
3) These costs will be determined upon completion of a separate Transmission Route Study.

EXHIBIT C

WECC GENERATOR TESTING REQUIREMENTS

WECC Generator Testing Requirements

Current WECC generating unit model validation policy is intended to ensure that models of generators and associated controls that are used in grid simulations are accurate and up-to-date. Within the context of the WECC policy, "validation" is used synonymously with verification and refers to the process of selecting parameters for the appropriate WECC-approved models for generating units and demonstrating that the model behavior is consistent with the generating unit behavior by comparison of simulation to test recording. The generating unit model validation policy applies to generating facilities that connect to the WECC transmission grid at 60-kV or higher voltage (both new and existing, synchronous and non-synchronous) with single unit capacity of 10 MVA and larger, or facilities with aggregate capacity of 20 MVA and larger. The exact policy can be found on the WECC website (www.wecc.biz).

The dynamic models provided by the developer for use in this study relied on the use of dynamic models that were sufficient for use in the GE PSLF program but have not been approved by the Western Electricity Coordinating Council (WECC) Modeling and Validation Work Group (MVWG). Therefore, at this time, sufficient modeling data to satisfy WECC generating unit model validation policy has not been provided. It will be the responsibility of the developer to ensure that the requirements in the WECC generating unit model validation policy are met within the timelines stipulated in the policy. This can be done by either (a) securing MVWG approval of the models that have been used in the interconnection study, (b) providing alternative WECC-approved models of the generation project that are equivalent to those used in the interconnection study, or (c) receiving an exemption from WECC from the requirements established in the generating unit model validation policy.

STATE OF CALIFORNIA
ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

In the Matter of:	)	Docket No. 08-AFC-9
	)	
Application for Certification,	)	**PROOF OF SERVICE**
for the CITY OF PALMDALE HYBRID	)	
POWER PLANT PROJECT	)	(Revised October 1, 2009)
	)	
	)	

APPLICANT

Thomas M. Barnett
Executive Vice President
Inland Energy, Inc.
3501 Jamboree Road
South Tower, Suite 606
Newport Beach, CA 92660
tbarnett@inlandenergy.com

Antonio D. Penna Jr.
Vice President
Inland Energy
4390 Civic Drive
Victorville, CA 92392
tonypenna@inlandenergy.com

Laurie Lile
Assistant City Manager
City of Palmdale
38300 North Sierra Highway, Suite A
Palmdale, CA 93550
llile@cityofpalmdale.org

APPLICANT'S CONSULTANTS

Sara Head
Vice President
ENSR Corporation
1220 Avenida Acaso
Camarillo, CA 93012
SHead@ensr.aecom.com

INTERESTED AGENCIES

Erinn Wilson
Staff Environmental Scientist
California Department of Fish and Game
18627 Brookhurst Street, #559
Fountain Valley, CA 92708
E-mail preferred
EWilson@dfg.ca.gov

Michael R. Plaziak
Manager
Lahontan Regional Water Quality Control Board
14440 Civic Drive, Suite 200
Victorville, CA 92392-2306
mplaziak@waterboards.ca.gov

Rick Buckingham
State Water Project
Power & Risk Office
3310 El Camino Avenue, LL-90
Sacramento, CA 95821
E-mail preferred
rbucking@water.ca.gov

Manuel Alvarez
Robert J. Tucker
SoCal Edison
1201 K Street
Sacramento, CA 95814
Manuel.Alvarez@sce.com
Robert.Tucker@sce.com

Christian Anderson
Air Quality Engineer
Antelope Valley AQMD
43301 Division St, Suite 206
Lancaster, CA 93535
E-mail preferred
canderson@avaqmd.ca.gov

Jeffrey Doll
Air Resources Engineer
Energy Section/Stationary Sources
California Air Resources Board
P.O. Box 2815
Sacramento, California 95812
E-mail preferred
jdoll@arb.ca.gov

California ISO
P.O. Box 639014
Folsom, CA 95763-9014
e-recipient@caiso.com

ENERGY COMMISSION

Jeffrey D. Byron
Commissioner and Presiding Member
CALIFORNIA ENERGY COMMISSION
1516 Ninth Street
Sacramento, California 95814-5512
jbyron@energy.state.ca.us

Arthur H. Rosenfeld
Commissioner and Associate Member
CALIFORNIA ENERGY COMMISSION
1516 Ninth Street
Sacramento, California 95814-5512
pflint@energy.state.ca.us

Paul Kramer
Hearing Officer
CALIFORNIA ENERGY COMMISSION
1516 Ninth Street
Sacramento, California 95814-5512
pkramer@energy.state.ca.us

Felicia Miller
Project Manager
CALIFORNIA ENERGY COMMISSION
1516 Ninth Street
Sacramento, California 95814-5512
fmiller@energy.state.ca.us

Caryn Holmes
Staff Counsel
CALIFORNIA ENERGY COMMISSION
1516 Ninth Street
Sacramento, California 95814-5512
CHolmes@energy.state.ca.us

Public Adviser
CALIFORNIA ENERGY COMMISSION
1516 Ninth Street
Sacramento, California 95814-5512
Publicadviser@energy.state.ca.us

DECLARATION OF SERVICE

I, Paul Kihm, declare that on January 6, 2010, I served and filed copies of the attached:

FINAL PALMDALE FACILITIES STUDY REPORT

to all parties identified on the Proof of Service List above in the following manner:

California Energy Commission Docket Unit

☒ Transmission via electronic mail and by depositing a copy with FedEx overnight mail delivery service at Costa Mesa, California, with delivery fees thereon fully prepaid and addressed to the following:

CALIFORNIA ENERGY COMMISSION
Attn: DOCKET NO. 08-AFC-09
1516 Ninth Street, MS-4
Sacramento, California 95814-5512
docket@energy.state.ca.us

For Service to All Other Parties

☒ Transmission via electronic mail to all email addresses on the Proof of Service list; and

☒ by depositing one paper copy with the United States Postal Service via first-class mail at Costa Mesa, California, with postage fees thereon fully prepaid and addressed as provided on the Proof of Service list to those addresses **NOT** marked "email preferred."

I further declare that transmission via electronic mail and U.S. Mail was consistent with the requirements of California Code of Regulations, title 20, sections 1209, 1209.5, and 1210.

I declare under penalty of perjury that the foregoing is true and correct. Executed on January 6, 2010, at Costa Mesa, California.

Paul Kihm