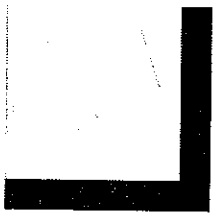
[redacted]

SYSTEM IMPACT STUDY

October 24, 2006



SOUTHERN CALIFORNIA
EDISON
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Prepared by

Chuck-yan Wu

Southern California Edison Company

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for Patricia L. Arons
Manager, Transmission
Interconnection Planning

EXECUTIVE SUMMARY

INTRODUCTION

[redacted] applied to Southern California Edison (SCE) for Distribution Service pursuant to the Wholesale Distribution Access Tariff (WDAT), and for Interconnection Service pursuant to the Large Generator Interconnection Procedure (LGIP) on July 15, 2005. Such application was made for the proposed [redacted] (Project), consisting of [redacted] individual wind induction generation turbines with a total net output of 99 MW.

SCE performed a System Impact Study, as requested by [redacted] The proposed point of interconnection for the Project is a tap on the Victor-Black Mountain-Soport-Southcap-Southdown 115kV line between Black Mountain Substation and Soport Substation. The scheduled commercial operation date of the [redacted] facility is December 1, 2007.

The evaluations included study conditions with all generation projects in queue ahead of the [redacted]. Transmission upgrades currently in progress or scheduled were modeled into the starting base cases. These transmission projects are fully discussed in the assumptions section.

The purpose of the System Impact Study is to determine the adequacy of SCE's transmission system to accommodate the Project. The System Impact Study is a follow up study to the initial Feasibility Study, and will evaluate project impact due to transient stability and post transient voltage issues as well as evaluate the project's under-voltage ride-through performance and power factor requirements. ***The study accuracy and the results for the assessment of the system thermal adequacy are contingent on the accuracy of the technical data provided by*** [redacted] Any changes from the attached data could void the System Impact Study results.

LOAD FLOW RESULTS

Study results indicated that in addition to transmission line upgrades necessary to support generation projects in queue ahead of the [redacted] new base case overload problems were identified resulting from this project. Also, the [redacted] aggravated other pre-project overloads identified to be triggered by a project in queue ahead. Therefore, the need for additional system reinforcements or implementation of a Special Protection System will be required to mitigate the incremental project contributions.

SHORT-CIRCUIT DUTY RESULTS

With generation interconnection requests queued ahead of the Project, an engineering investigation based on the results indicated the need to replace [redacted] breakers in [redacted] substations and upgrade [redacted] breakers in [redacted] substations.

COST ESTIMATE AND SCHEDULE

Orion Energy agreed to SCE proposed Project interconnection point by tapping to the line just before the Black Mountain substation and upgrading the existing 115kv line to Victor Substation. The cost estimate for the Project's Interconnection Facilities and Reliability Upgrades reflects the proposed interconnection solution:

1. Tap to existing Victor-Black Mountain-Soport-Southcap-Southdown 115kV line near Black Mountain customer substation.
2. Build and install associated relay protection, metering and communication equipment.
3. Build approximately 1.7 miles of 115kV single circuit transmission line from the new tap position to [redacted] substation.
4. Rebuild and upgrade the line segments (about 16 miles) from Victor 115kV substation to tapped point to another wind project on the existing Victor-Black Mountain-Soport-Southcap-Southdown 115kV line.
5. (Triggered by prior queued projects) Upgrade Kramer-Lugo 230 kV #1 and Kramer-Lugo 230 kV #2 lines to 2500Amps emergency rating.
6. (Triggered by prior queued projects) Upgrade Victor-Lugo 230 kV #1 and Victor-Lugo 230 kV #2 lines to 2500Amps emergency rating.
7. (Triggered by prior queued projects) Install 3rd 500/230kV transformer at Lugo substation.
8. SPS required to mitigate overloads under single and double outage conditions as part of the exiting Kramer RAS, High Desert Power Project RAS
9. Replace [redacted] and upgrade [redacted] breakers at [redacted] 230kV substations based on short circuit duty results.

These facilities total $38.999 million are allocated to the project and are summarized in Table 4. Additional facility costs of $147.88, triggered by other projects ahead, may be allocated to the project.

In addition, real properties will be required to upgrade, secure and procure all necessary easements and rights of ways.

A thorough G.O. 131 filing will be required for additional right of way, which could take up to 30 months.

Once the routes right-of-way has been secured and regulatory approvals have been obtained, there will be a 24 month lead time to procure materials and construct the project.

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[redacted]

FEASIBILITY STUDY

October 24, 2006

I. INTRODUCTION

[redacted]applied to Southern California Edison (SCE) for Distribution Service pursuant to the Wholesale Distribution Access Tariff (WDAT), for Interconnection Service pursuant to the Large Generator Interconnection Procedure (LGIP) on July 15, 2005. Such application was made for the proposed [redacted] (Project), consisting of [redacted] individual wind induction generation turbines with a total net output of 99 MW.

Southern California Edison (SCE) performed a System Impact Study, as requested by Orion. The proposed point of interconnection for the Project is a tap on the Victor-Black Mountain-Soport-Southcap-Southdown 115kV line between Black Mountain Substation and Soport Substation. The scheduled commercial operation date of the [redacted] facility is December 1, 2007.

The evaluations included study conditions with all generation projects in queue ahead of the [redacted]. Transmission upgrades currently in progress or scheduled were modeled into the starting base cases. These transmission projects are fully discussed in the assumptions section.

The purpose of the System Impact Study is to determine the adequacy of SCE's transmission system to accommodate the Project. The System Impact Study is a follow up study to the initial Feasibility Study, and will evaluate project impact due to transient stability and post transient voltage issues as well as evaluate the project's under-voltage ride-through performance and power factor requirements. ***The study accuracy and the results for the assessment of the system thermal adequacy are contingent on the accuracy of the technical data provided by*** [redacted] Any changes from the attached data could void the System Impact Study results.

II. STUDY CONDITIONS AND ASSUMPTION

A. Planning Criteria

The System Impact Study was conducted by applying the Southern California Edison and California Independent System Operator (CAISO) Reliability Criteria. More specifically, the main criteria applicable to this study are as follows:

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

The following principles were used in determining whether congestion management, special protection systems, or facility upgrades are required to mitigate base case, single contingency, or double contingency overloads:

- Congestion management, as a means to mitigate base case overloads, can be used if it is determined to be manageable and the CAISO concurs with the implementation

- Facility upgrades will be required if it is determined that the use of congestion management is unmanageable as defined in the congestion management section

- Special protection systems (SPS), in lieu of facility upgrades, will be recommended if the system is simple and effective, does not jeopardize system integrity, does not exceed the current CAISO single and double contingency tripping limitations, does not adversely affect existing or proposed special protection systems in the area, and can be readily implemented

- Facility upgrades will be required if implementation of a special protection system is determined to be complex, ineffecttive, or the amount of tripping exceeds the current CAISO single and double contingency tripping limitations

- Facility upgrades will also be required if adverse impacts are identified on existing or currently proposed special protection systems

- Congestion management in preparation for the next contingency will be required, with CAISO concurrence, if no facility upgrades or special protection systems are implemented

Congestion Assessment

The following study method was implemented to assess the extent of possible congestion:

a). Under Base Case with all transmission facilities in service, the system was evaluated with all existing interconnected generation and all generation requests in the area that have a queue position ahead of this request (pre-project) and all transmission upgrades necessary to interconnect these queued ahead projects modeled in service

b). Under Base Case with all transmission facilities in service, the system was reevaluated with the inclusion of the [redacted] (post-project)

If the normal loading limits of facilities including those new ones modeled to interconnect queued generation projects ahead in the queue are exceeded in (a), the overload is identified as a "pre-project" overload that was triggered by a project in queue ahead of the [redacted]. If the normal loading limits of facilities are exceeded in (b) and were not exceeded in (a), the overload is identified as triggered with the inclusion of the [redacted] Overloads identified in (a) should only exist if the CAISO allowed for the use of congestion management as an acceptable means to mitigate identified "pre-project" overloads for queued ahead generation project. [redacted] Project and other market participants in the area may be subjected to congestion management, potential upgrade cost and/or participation in any proposed special protection system(s) if the inclusion of the [redacted] aggravates or triggers overloads. Additionally, the [redacted] may have to participate in mitigation of overloads triggered by subsequent projects in queue, subject to FERC protocols and policies.

In order for congestion management to be a feasible alternative to system facilities, all of the following factors need to be satisfied:

- Time requirements necessary for coordination and communication between the CAISO operators, scheduling operators and SCE operators

- Distinct Path/Corridor rating should be adequately defined so monitoring and detecting congestion and implementing congestion of the contributing generation resources can be performed when limits are exceeded

- Sufficient amount of market generation in either side of the congested path/corridor should be available to eliminate market power

- Manageable generation in the affected area is necessary so that operators can implement congestion management if required (i.e. the dispatch schedule is known and controllable).

The results of these studies should be able to identify:

- if capacity is available to accommodate the proposed [redacted] and all projects ahead in queue without the need for congestion management, special protection systems, and/or facility upgrades

- if overloads exist in the area after the addition of all projects in queue ahead of the Orion and all facilities in service

- if congestion exists in the area with the inclusion of the [redacted] and all projects ahead in queue under single and double element outage conditions assuming no new special protection systems are in place

- if sufficient capacity is maintained to accommodate all Must-Run and Regulatory Must-Take generation resources with all facilities in service

- if sufficient capacity is maintained to accommodate the total output of any one generation resource which is not classified as Must-Run.

Use of special protection systems will be deemed inappropriate if the total amount of generation reduction is found to exceed 1,150 MW under loss of one transmission element and 1,400 MW under loss of two transmission elements. These limits are established by the CAISO utilizing the current Spinning Reserve Criteria.

B. Generation and Load Assumptions

To simulate the SCE transmission system for analysis, the study used databases that were used to conduct the SCE System Impact Study for all new interconnection requests. The bulk power study considered scenarios that evaluated maximum North of Lugo generation and maximum North of Lugo transmission line loading.

In addition, the study considered two load conditions: 2008 peak summer and 2008 off-peak load condition. Peak summer load and off-peak load assumptions are provided below in Tables 1-1 and 1-2 respectively.

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C. Transmission Project

Generation interconnection requests in the North of Lugo area ahead of the [redacted] have triggered the need for additional transmission projects or upgrades in the North of Lugo area. These upgrades include the new/upgraded transmission facilities between the SCE Lugo Substation to the SCE Kramer and SCE Victor Substations.

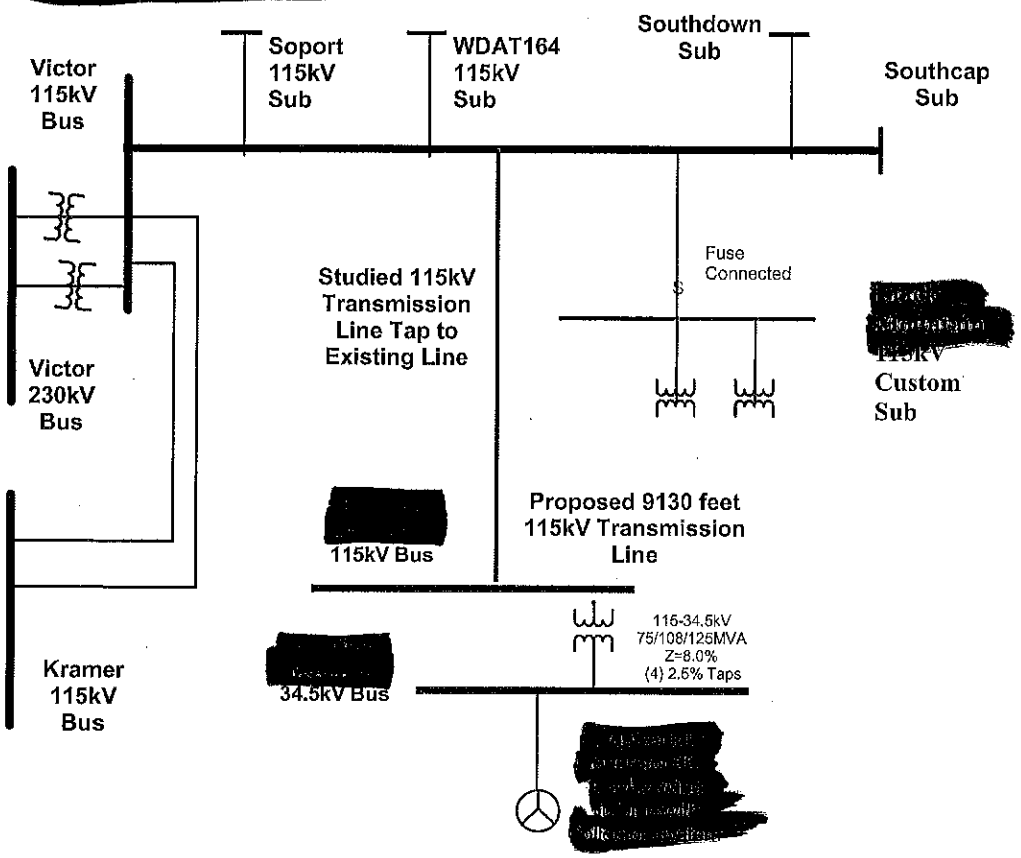
[redacted]

The proposed Project is anticipated to impact flows on the North of Lugo area transmission system, including 115kV and 230kV circuits between Lugo, Kramer, Victor substations and the radial circuit from Victor to the [redacted] site.

The Project is geographically located in the [redacted] area northeast of Victorville, California. T[redacted] is to be connect to a tap on the Victor-Black Mountain-Soport-Southcap-Southdown 115kV line between Black Mountain Substation and Soport Substation. Additional facilities will be necessary to connect the Project back to the Black Mountain Sub. Figure 1 provides the single line diagram showing the additional facilities required for the proposed [redacted]

FIGURE – 1

[redacted]



E. Power Flow Study

The technical assessment study evaluated a total of four different power flow study scenarios. Transmission projects were included in order to identify if the need for additional delivery upgrades are necessary. Further description of the additional case assumptions follows and in Table 1-3.

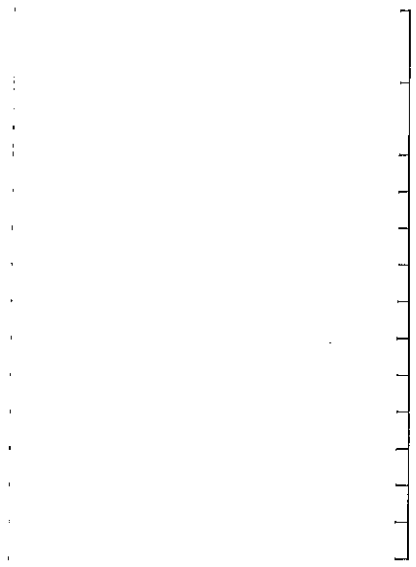
1. Stressed peak summer load condition with all currently planned transmission upgrades, generation projects in queue ahead of the Project, Case PeakLoad-PreSM.

2. The previous case (PeakLoad-PreSM) was modified to include the Project, Case PeakLoad-PostSM.

3. Stressed off-peak load condition with all currently planned transmission upgrades, generation projects in queue ahead of the Project, Case OffPeak-PreSM.

4. The previous case (OffPeak-PreSM) was modified to include the Project, Case OffPeak-PostSM.

TABLE 1-3
POWER FLOW STUDY ASSUMPTIONS (MW)



Refer to Appendix A power flow diagrams for detailed system conditions.

F. Post Transient Voltage Stability Study

Those contingencies that show significant voltage deviations in the power flow analysis are selected for further analysis using governor power flow analysis. The voltage deviations are compared to the SCE guidelines of 7% for single contingency outages and 10% for double contingency outages.

G. Transient Stability Study

WECC currently is in the process of adopting Generator Electrical Grid Fault Ride Through Capability Criteria. SCE currently supports a Low Voltage Ride-Through Criteria to ensure continued reliable service. A proposed Criteria that SCE supports, is as follows:

1. Generator is to remain in-service during system faults (three phase faults with normal clearing and single-line-to-ground with delayed clearing) unless clearing the fault effectively disconnects the generator from the system.

2. During the transient period, generator is required to remain in-service for the low voltage and frequency excursions specified in WECC Table W-1 (provided below) as applied to load bus constraint. These performance criteria are applied to the generator interconnection point, not the generator terminals.

3. Generators may be tripped after the fault period if this action is intended as part of a special protection scheme.

4. This Standard will not apply to individual units or to a site where the sum of the installed capabilities of all machines is less than 10MVA, unless it can be proven that reliability concerns exist.

5. The performance criteria of this Standard may be satisfied with performance of the generators or by installing equipment to satisfy the performance criteria.

6. The performance criterion of this Standard applies to any generation independent of the interconnected voltage level.

7. No exemption from this Standard will be given because of minor impact to the interconnected system.

8. Existing generators that go through any refurbishments or any replacements are then required to meet this Standard.

Table W-1
WECC DISTURBANCE-PERFORMANCE TABLE (in addition to NERC requirements)
OF ALLOWABLE EFFECTS ON OTHER SYSTEMS

NERC and WECC Categories	Outage Frequency Associated with the Performance Category (Outage/Year)	Transient Voltage Dip Standard	Minimum Transient Frequency Standard	Post-Transient Voltage Deviation Standard (See Note 2)
A	Not Applicable	Nothing in Addition to NERC		
B	≥ 0.33	Not to exceed **25%** at load buses or **30%** at non-load buses. Not to exceed **20% for more than 20 cycles** at load buses.	Not below **59.6 Hz** for 6 cycles or more at a load bus	Not to exceed **5%** at any bus
C	0.033 – 0.33	Not to exceed 30% at any bus. Not to exceed **20% for more than 40 cycles** at load buses.	Not below **59.0 Hz** for 6 cycles or more at a load bus	Not to exceed **10%** at any bus
D	< 0.033	Nothing in Addition to NERC		

Note 2: As an example in applying the WECC Disturbance-Performance Table, Category B disturbance in one system shall not cause a transient voltage dip in another system that is greater than 20% for more than 20 cycles at load buses, or exceed 25% at load buses or 30% at non-load buses at any time other than during the fault.

H. Short -Circuit Duty

To determine the impact on short-circuit duty after inclusion of the Project and any necessary facility upgrades, the study calculated the maximum symmetrical three-

phase-to-ground short-circuit duties at the most critical locations. Bus locations where short-circuit duty is increased with the Project and any necessary facility upgrades by at least 0.1 kA and the duty is in excess of 60% of the minimum breaker nameplate rating are flagged for further review. Generation and transformer data as provided by the customer was used according to the generator and transformer data sheets.

I. Cost Estimates

Conceptual studies previously performed for integrating renewable resources in the North of Lugo area have examined transmission requirements necessary to interconnect and deliver energy to the SCE load center (LA Basin). These studies included conceptual cost estimates derived from standard off-the-shelf unit cost guides. To the extent any upgrades identified in this study are the same as those evaluated in the conceptual studies, the cost estimates derived for the conceptual studies will be updated and used as a **non-binding** cost estimate. Cost of facilities not previously estimated will be estimated utilizing standard off-the-shelf unit-cost guides.

J. Project Timelines

Timelines for new projects will be based on a number of factors. For the most part, the driving factors include the following:

- Time requirements to prepare the Proponents Environmental Assessment (PEA) in support of an application for a Certificate of Public Convenience and Necessity (CPCP) or Permit to Construct (PTC)
- CPCN or PTC Application review and approval process
- Estimated material acquisition lead times
- Construction of facilities

III. POWER FLOW STUDY RESULTS

Without any transmission line upgrades necessary to support generation projects in queue ahead of the Project, new base case overload problems were identified under either heavy summer or light spring load conditions. Further more, a significant number of single and double contingency overloads were identified. The following presents the power flow study results. Power flow plots are provided in Appendix A. Details of the results are provided in Table 2.

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IV. POST TRANSIENT VOLTAGE STUDY RESULTS

No additional post transient voltage criteria violation was identified caused by the addition of the [redacted]. Refer to Appendix B for a list of contingencies performed and results of post-transient study in Appendix C.

V. TRANSIENT STABILITY STUDY RESULTS

A. GE PSLF Version 16.04 Models

GE PSLF Version 16.04, recently adopted by WECC, supports updated system configurations and the GE wind turbine generation turbine type proposed by [redacted]

GEWTG

This model is used to represent the generator/converter model for the GE wind turbines.

EXWTGE

This model is used to represent the excitation (converter) control model for GE wind turbine generators.

WNDTGE

This model is used to represent the wind turbine and turbine control model for GE wind turbine.

The parameter values for each of the 3 models were provided by [redacted]

B. Transient Stability Study Results

Transient stability sensitivity studies were performed with a time delay assumption to allow for fault clearing and voltage recovery. These transient studies determined that the system remained stable under both single and double contingency outage conditions with the addition of th[redacted] Transient stability studies shared the same list of contingencies as in Appendix B. Only offpeak conditions were studied as system response for this condition is considered as the worst condition.

Transient stability plots including the [redacted] were provided in Appendix D, E.

Appendix D illustrated Off Peak Load condition system response plots after contingencies for Pre-project case.

Appendix E illustrated Off Peak Load condition system response plots after contingencies for Post-project case.

C. Transient Stability Study Conclusions

There is no significant impact on system responses to contingencies with the addition of the [redacted]

The Project generators ride through [redacted] 12 cycle-SLG contingencies, and remained on-line, thus the Project meets the Generator Electrical Grid Fault Ride Through Capability Criteria.

VI. SHORT CIRUIT DUTY STUDY RESULTS

Historically, SCE has not conducted short-circuit duty studies were the generation project involved the use of induction machines. Recently, the CAISO has requested SCE to produce documentation that such machines do not contribute short-circuit duty under faulted conditions or perform such analysis. Short-circuit duty analysis for wind turbines will be based on subsynchronous reactance provided and include the corresponding multiplication factor as identified in IEEE C.37.010.

Table – 3a. 3-phase Short Circuit Duty Study Results

	PRE CASE		POST CASE		
Bus Name	Bus kV	X/R	KA	X/R	KA	DELTA KA
SE						1
CI						1
DE						1
EI						1
LL						2
MI						1
PA						1
VI						1
BL						1
DA						3
KF						1
OF						1
SC						1
TA						1
TA						
TA						1
VA						
VI(						1

3 - phase to ground short circuit Duty Study Results

	PRE CASE	POST CASE

Note:
1. The subtransient reactance is missing from both projects so the typical value from GE is used
2. According to IEEE C.37.010, a 1.5 multiplier to the subtransient reactance for induction machine which is consistent with all the GE wind turbines modeled in the case.

With generation interconnection requests queued ahead of the Project, engineering investigation based on the results above indicated the need to replace [redacted] breakers in [redacted] substations and upgrade [redacted] breakers in [redacted] substations.

VII. COST ESTIMATES

Based on the study results, the Project does trigger new overloads for the line segment between Victor – Soport (Tap 602) section and the Soport – New generation tap (Tap 603) section, of the Victor-Black Mountan-Soport-Southcap-Southdown 115kV line. The project also aggravates identified pre-project overloads, including Kramer – Lugo 230kV lines #1 and #2, Victor – Lugo 230kV lines #1 and #2, Lugo 500/230kV transformer bank #1 and #2.

Since the current interconnection policy requires the project which triggers the need for an upgrade to be cost responsible, the amount of cost responsibility for the Project should be based on the actual system upgrade requirements needed to meet the operating date. Assuming that projects in queue ahead of the Project precede forward, cost responsibility for the Project will be limited to the facilities needed to interconnect and deliver the Project's output. Pre-project facility upgrades, total $38.999 million and are summarized in Table 4.

The Black Mountain Customer Substation is not suitable for interconnection and the limited space at Victor substation does not allow for new interconnection position without major reconfiguration of the entire 230/115kV station. SCE proposed and the Project agreed to tap the Project to and upgrade the existing 115kv line. The cost estimate for the Project's Interconnection Facilities and Reliability Upgrades reflects the proposed interconnection solution:

1. Tap to existing Victor-Black Mountain-Soport-Southcap-Southdown 115kV line near Black Mountain customer substation.
2. Build and install associated relay protection, metering and communication equipment.
3. Build approximately 1.7 miles of 115kV single circuit transmission line from the new tap position t[redacted]
4. Rebuild and upgrade the line segments (about 16 miles) from Victor 115kV substation to tapped point to another wind project on the existing Victor-Black Mountain-Soport-Southcap-Southdown 115kV line.
5. (Triggered by prior queued projects) Upgrade Kramer-Lugo 230 kV #1 and Kramer-Lugo 230 kV #2 lines to 2500Amps emergency rating.
6. (Triggered by prior queued projects) Upgrade Victor-Lugo 230 kV #1 and Victor-Lugo 230 kV #2 lines to 2500Amps emergency rating.
7. (Triggered by prior queued projects) Install 3rd 500/230kV transformer at Lugo substation.
8. SPS required to mitigate overloads under single and double outage conditions as part of the exiting Kramer RAS, High Desert Power Project RAS
9. Replace 27 and upgrade 24 breakers at 4 substations based on short circuit duty results.

However, the Project may be responsible for cost of additional upgrades if projects triggering the need for an upgrade drop out of queue and the Project subsequently triggers the need or the facilities are necessary to meet the operating date of the Project in advance of the operating date

for a project in queue ahead of the Project. Additional facility costs of $147.88, triggered by other projects ahead, may be allocated to the project. The preliminary cost estimates are provided below in Table 4. These cost estimates are good-faith non-binding estimates based on results of the System Impact Study.

Table 4
Cost Estimates Provided in Millions

Facility Upgrade	Pre-Project	Post Project
New 115kV Interconnection Facility to serve an [redacted] (item 1)		$4.5
Protection upgrades at other stations (item 2)		$0.5
1.7 mile tap line consisting of 336.4 ACSR conductors to the sidewinder site (item 3) 16 miles of new 115kV overhead construction utilizing 954 sac conductors, rebuilding the existing Victor leg of the Victor-Black Mountain -Soport-Southcap-Southdown 115kV transmission line on new light weight steel poles on a new right of way. (This is required due to outage and loading limitations on the existing line.) (item 4)		$15.287
Upgrade Kramer-Lugo 230 kV #1 and Kramer-Lugo 230 kV #2 lines to 2500Amps emergency rating. (item 5) Remove the existing 47.9 mile double-circuit transmission line, consisting of 1B-1033kcmil "Curlew" conductor and "N,O,P,Q"-type towers. Construct a new 47.9 mile double-circuit transmission line with 2B-1033kcmil "Curlew" conductor and "W" family of towers. Some structures may need to be modified for sleet crossarms and a double-groundwire peak.	$80.0	
Upgrade Victor-Lugo 230 kV #1 and Victor-Lugo 230 kV #2 lines to 2500Amps emergency rating. (item 6) Remove the existing 10.8 mile double-circuit transmission line, consisting of 1B-1033kcmil "Curlew" conductor and "N,O,P,Q"-type towers. Construct a new 10.8 mile double-circuit transmission line with 2B-1033kcmil "Curlew" conductor and "W" family of towers. Some structures may need to be modified for sleet crossarms and a double-groundwire peak.	$20.0	
Install 3rd 500/230kV transformer at Lugo substation. (item 7)	$47.88	
SPS required to mitigate overloads under single and double outage conditions as part of the exiting Kramer RAS, High Desert Power Project RAS (item 8)		$1.0
Circuit Breaker Replacements (item 9, based on short circuit results) Replace 27 and upgrade 24 Breakers. Costs of upgrading Mira Loma 220kV Switchyard to 83kA not included		$17.712

In addition, real properties will be required to upgrade, secure and procure all necessary easements and rights of ways.

A thorough G.O. 131 filing will be required for additional right of way, which could take up to 30 months and $400,000, no G.O. 131D cost were included in this estimate.

Construction cannot commence without all easements, permits and regulatory issues finalized. Once the route's right-of-way has been secured and regulatory approvals have been obtained, there will be a 24 month lead time to procure materials and construct the project.

VIII. FACILITIES STUDY

A Facilities Study is required for th[redacted] The scope of the Facilities Study will need to include the following:

1. Develop the cost for SCE system and direct assignment facilities that are required to interconnect[redacted] These facilities include:
   - Build approximately 1.7 miles of 115kV single circuit transmission line from the new tap position to[redacted] substation.
   - Rebuild and upgrade the line segments (about 16 miles) from Victor 115kV substation to tapped point to another wind project on the existing Victor-Black Mountain-Soport-Southcap-Southdown 115kV line.

2. Verify need and evaluate the feasibility and cost of upgrading
   - Upgrade Kramer-Lugo 230 kV #1 and Kramer-Lugo 230 kV #2 lines to 2500Amps emergency rating.
   - Upgrade Victor-Lugo 230 kV #1 and Victor-Lugo 230 kV #2 lines to 2500Amps emergency rating.
   - Install 3rd 500/230kV transformer at Lugo substation.

3. Evaluate the feasibility and cost of implementing system upgrades/SPS for mitigation of the incremental impact of the[redacted]nder single and double outage conditions as part of the exiting Kramer RAS, High Desert Power Project.

4. Evaluate the need for 51 circuit breaker replacement or upgrades at 4 bulk power substations.

Notes: Study results may be affected by changes in other projects ahead of the queue in the area. A re-study may be required if there are changes in the project queue or the scope of projects ahead in the queue. All cost estimates are rough order of magnitude, and are non binding cost estimates.

In addition, an operational study is required to identify which upgrades need to be completed by the proposed operating date of the[redacted]

APPENDIX A

POWER FLOW PLOTS

PEAK LOAD AND OFF PEAK LOAD CONDITIONS
PRE- AND POST- PROJECT

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APPENDIX D

STABILITY PLOTS
FOR
OFF PEAK LOAD CONDITIONS PRE-PROJECT

No Fault – Dynamic Data Check

LUGO 1AA 2AA-RAS

HDPP-LUGOAA-STO

HDPP-VIC-LUG-DLO

HDPP-VIC-LUG-SLO

KRAMER-INYKN-INTIEOP-SLO

KRAMER-INYOKERN-DLO

KRAMER-LUGO-DLO

KRAMER-LUGO-SLO

KRAMER-LUGO-VIC-LUGO-DLO

KRAMER-VICTOR-DLO

Lugo-Miraloma-dlo-12slg

Lugo-Vincent-dlo-slg

McCullgh-Victorvl-dlo

Midway-Vincent-12-dlo

Note: For each contingency, the set of output includes 2 pages, 2 plots per page, 5-6 traces per plot.
Plot 1: SCE Area 500kV bus voltage
Plot 2: SCE North of Lugo Area 230kV Bus voltage
Plot 3: SCE North of Lugo Area 115kV Bus voltage
Plot 4: [redacted] bus voltage (no output for pre-project case)

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