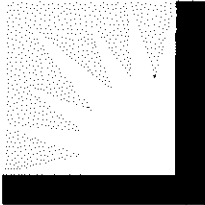


[REDACTED]  
[REDACTED]

WDT1266ISP

Facility Study

April 1, 2016



SOUTHERN CALIFORNIA  
**EDISON**

An EDISON INTERNATIONAL Company

**Prepared by**  
Brian E. Lau, Substation Engineer  
Added/Interconnections Facilities

Handwritten signature of Brian E. Lau in black ink.

**Approved by**  
Lindsey A. Sayers, Lead Engineer  
Added/Interconnections Facilities

Handwritten signature of Lindsey A. Sayers in black ink.

Confidential. Contains Critical Energy Infrastructure Information (CEII)

**Southern California Edison**

**Table of Contents**

Description	Page
I. Executive Summary.....	3
II. System Impact Study Conclusions.....	3
III. Facilities Study Assumptions.....	3
IV. Facilities Study Scope and Cost Estimate.....	3
IV – A Facilities Study Scope.....	3
IV – B Facilities Study Cost Estimate.....	5
V. Conclusions.....	5
VI. Exhibit	
Exhibit A	Cost Summaries

**I. Executive Summary**

[REDACTED] ("Interconnection Customer") applied to Southern California Edison ("SCE") for interconnection and distribution service under the terms of SCE's Wholesale Distribution Access Tariff ("WDAT"). The Interconnection Customer will construct, own, and operate [REDACTED] a [REDACTED] utilizing [REDACTED]. The [REDACTED] is to be located at the [REDACTED] [REDACTED] in the SCE Northern area and is proposing to connect to the existing [REDACTED]. The requested in-service date for the [REDACTED] is December 31, 2020.

A System Impact Study (SIS) dated October 21, 2015 was prepared to address the impacts of the [REDACTED] to the SCE Subtransmission System.

**II. System Impact Study Conclusions**

- a. Distribution Upgrades and Network Upgrades in the form of a third [REDACTED] [REDACTED] is required to interconnect the [REDACTED]. The need for the [REDACTED] will disappear if [REDACTED] a [REDACTED] project ahead of the [REDACTED] in SCE's generation interconnection queue ultimately reduces project size down to [REDACTED].
- b. A [REDACTED] was performed. No base case nor contingency overloads were identified.
- c. Under outage conditions, [REDACTED] will need to be added to the existing [REDACTED]. No additional upgrades are required as this [REDACTED] is in place.
- d. Short Circuit Duty assessment was performed and showed no impacts to the [REDACTED] that would necessitate mitigation.

**III. Facilities Study Assumptions**

- a. [REDACTED] will be connecting on the existing customer owned portion of the [REDACTED].
- b. Any required upgrades at facilities not owned by SCE are not included in the Facilities Study.
- c. [REDACTED] is not required at this time.

**IV. Facilities Study Scope and Cost Estimate**

**IV – A Facilities Study Scope**

Pursuant to FERC's orders [REDACTED] and [REDACTED] 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

[REDACTED]  
[REDACTED]  
FACILITY STUDY

not yet constructed that were assumed in the interconnection studies for the Interconnection Customer but are, at the time of the estimate, an obligation of an entity other than the Interconnection Customer.”

To comply with the FERC orders, the Scope of Work and Cost Estimate for all elements required for the interconnection are presented for the following two cases:

**CASE A: All facilities required exclusively by the Project**

And

**CASE B: All additional facilities that may be required by the Project**

The facilities included as Case B are those additional facilities triggered by [REDACTED] in the event [REDACTED] does not downsize to [REDACTED] and/or if [REDACTED] is determined to require a [REDACTED]

In the event that [REDACTED] does downsize to [REDACTED] [REDACTED] will not be responsible for the additional facilities associated with the [REDACTED]

**CASE A:**

**Windhub Substation:**

Perform a relay coordination study and re-set/test protection relays, as required, to account for the [REDACTED]

**Telecommunication:**

1. [REDACTED]
2. [REDACTED]

**Real Properties:**

Provide mapping, survey, title work, land acquisition labor, licensing, and other activities related to [REDACTED] gen-tie, and telecommunication requirements.

**Power Systems Control:**

Install one [REDACTED] at the customer's facility to monitor generation data, weather data, and relay protection status alarms.

**Metering Services Organization:**

Install a SCE retail meter in tandem with the customer's ISO meter and wholesale meter.

**CASE B1** [REDACTED]

[REDACTED]  
Install a [REDACTED] leads, and foundation. Equip a [REDACTED] and install associated equipment and materials.

**Corporate Environmental Services:**

Provide activities related to installing the third [REDACTED] at [REDACTED]

[REDACTED]  
[REDACTED]  
FACILITY STUDY

**Power Systems Control:**

[REDACTED] at [REDACTED] for the new transformer bank.

**CASE B2 (SMS):**

[REDACTED]  
Perform in service testing.

[REDACTED]  
Perform [REDACTED]

**IV – B Facilities Study Cost Estimate**

**CASE A** Identifies the cost of all facilities that are required exclusively by the [REDACTED]

**CASE B** Identifies the cost of all additional upgrades triggered by [REDACTED] if [REDACTED] does not downsize to [REDACTED] and/or if the [REDACTED] is determined to require a [REDACTED]

The total estimated cost of all elements of the interconnection as identified above in the Facilities Study Scope is as follows (shown in 2016 Constant Dollars):

CASE A:	\$	967,652
CASE B1 [REDACTED]	\$	24,936,384
CASE B2 [REDACTED]:	\$	796,894
<b>TOTAL MAXIMUM COST EXPOSURE:</b>	\$	<b>26,700,930</b>

**SEE EXHIBIT B: COST SUMMARY**

**V. Conclusions**

- A. The estimated cost for the interconnection is approximately \$967,652 for Case A with the potential additional cost of \$24,936,384 for Case B1 and \$796,894 for Case B2 for a total Maximum Cost Exposure of \$26,700,930.
- B. For Case A and Case B2, the time required to complete the proposed project will be 27 months after receiving project authorization and funding. This time includes engineering, material procurement and construction. This timeframe is subject to final verification by SCE of available resources at the time of the project work. The 27 month period does not include the time required for the preparation of the Environmental Impact Statement and/or Environmental Impact Report as required per CEQA and NEPA, if required, as well as any other approvals and permits to be provided by the CPUC or other regulatory agencies.  
**A detailed Project Schedule will be provided during the Engineering and Design Phase of the Project.**
- C. For Case B1, the time required to complete the proposed project will be 33 months after receiving project authorization and funding. This time includes engineering, material procurement and construction. This timeframe is subject to final verification by SCE of available resources at the time of the project work. The 33 month period does not include the time required for the preparation of the Environmental Impact Statement and/or Environmental Impact Report as required per CEQA and NEPA, if

[REDACTED]  
[REDACTED]  
FACILITY STUDY

required, as well as any other approvals and permits to be provided by the CPUC or other regulatory agencies.

**A detailed Project Schedule will be provided during the Engineering and Design Phase of the Project.**

- D. The costs indicated in the attached tables are shown 2016 Constant 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.
- E. The estimated project cost will be reconciled to actual costs upon closure of the subject work orders. The necessary billing adjustments will be made at that time.
- F. Study results may be affected by changes in other projects ahead of the [REDACTED] [REDACTED] in 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.
- G. Although study results reflect no adverse impact on the high-voltage CAISO controlled transmission system with the addition of the [REDACTED] the Interconnection Customer will still be required to adhere to all applicable WECC policies including, but not limited to, the WECC Generating Unit Model Validation Policy. For example, the Interconnecting Customer will be required to provide validated dynamic models for the proposed project within the timelines identified in the WECC policy. The latest policy is available on the WECC website at [www.wecc.biz](http://www.wecc.biz).

**EXHIBIT A**

**COST SUMMARIES**

# WDT1266ISP CASE A

Cost Estimate Summary (2016 Dollars)

Scope: [REDACTED] through the existing [REDACTED]

No.	Element	Interconnection Facilities (Subject to ITCC)	IF One Time Cost (Not Subject to ITCC)	ITCC** (35%)	Total	2016 Constant Dollars Escalated to 00 Year 2020
	1 Relay coordination study	\$ -	\$ 54,400	-	\$ 54,400	\$ 60,253
	Subtotal				\$ 54,400	\$ 60,253
	Telecommunication					
	Install lightwave, channel bank, CRIAR and equip at WDT1266ISP to support loop-in					
	1 of Winhub-Kalama FO cable for SCADA & diverse gen-tie protection.	\$ 385,206	-	\$ 134,822	\$ 520,028	\$ 575,976
	Remove lightwave, channel banks, and CRIARs at Kalama to reflect use of					
	2 WDT1266ISP as a collector sub for projects connected to Kalama.	-	\$ 96,328	-	\$ 96,328	\$ 105,692
	Subtotal				\$ 618,356	\$ 682,667
	Real Properties					
	1 Access easement and rights check	\$ 8,668	-	\$ 3,034	\$ 11,702	\$ 12,981
	Subtotal				\$ 11,702	\$ 12,981
	Metering Services					
	1 Retail meter at the storage facility	\$ 34,610	-	\$ 12,114	\$ 46,724	\$ 51,750
	2 Wholesale meter at the storage facility	\$ 34,610	-	\$ 12,114	\$ 46,724	\$ 51,750
	Subtotal				\$ 83,447	\$ 103,501
	Power System Control					
	1 Install RTU at gen facility	\$ 72,439	-	\$ 25,343	\$ 97,782	\$ 108,209
	Subtotal				\$ 97,782	\$ 108,209
	<b>Total</b>	<b>\$ 535,503</b>	<b>\$ 150,728</b>	<b>\$ 187,428</b>	<b>\$ 873,657</b>	<b>\$ 967,652</b>

\* Pursuant to FERC Order 2003A, ITCC is not collected on Reliability Upgrades and One Time Costs.

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

\*\*\* The ITCC included in this cost estimate was computed using a 35% rate.

This document has been prepared by Southern California Edison to be used solely by the interconnection customer in connection with its evaluation of this Study Proposal. Southern California Edison retains all rights to maintain the confidentiality of this information and requests the interconnection customer, pursuant to its confidentiality.



# WDT1266ISP CASE B1

Cost Estimate Summary (2016 Dollars)

Scope: [REDACTED]

No.	Element	Distribution Upgrades (Subject to ITCC)	Distribution One Time Cost (Not Subject to ITCC)	Reliability Network Upgrades (Not Subject to ITCC)	ITCC** (35%)	Total	2016 Constant Dollar Escalated to 00 Year (2020)
1	Install a third A bank and 66kV bank position DU portion	\$ 14,487,687	\$ -	\$ -	\$ 5,071,923	\$ 19,559,610	\$ 21,632,672
2	Install a third A bank/220kV bank position - network portion	\$ -	\$ -	\$ 2,924,419	\$ -	\$ 2,924,419	\$ 3,239,044
	Subtotal	\$ 14,487,687	\$ -	\$ 2,924,419	\$ -	\$ 17,412,106	\$ 24,871,717
	Corporate Environmental Services	\$ -	\$ 23,522	\$ -	\$ 8,233	\$ 31,755	\$ 35,171
1	CEG to support the project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Power System Control	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1	RTU point addition	\$ -	\$ 26,630	\$ -	\$ -	\$ 26,630	\$ 29,485
	Subtotal	\$ -	\$ 26,630	\$ -	\$ -	\$ 26,630	\$ 29,485
	<b>Total</b>	<b>\$ 14,487,687</b>	<b>\$ 26,630</b>	<b>\$ 2,924,419</b>	<b>\$ 5,071,923</b>	<b>\$ 22,514,181</b>	<b>\$ 24,836,264</b>

- \* Pursuant to FERC Order 2003A, ITCC is not collected on Reliability Upgrades and One Time Costs.
- \*\* ITCC cost may be satisfied with a letter of credit in accordance with the tax provisions of the LGCA.
- \*\*\* The ITCC included in this cost estimate was computed using a 35% rate.

This document includes confidential bank, search and privacy information of Southern California Edison in connection with its completion of this Study Project. Southern California Edison retains all rights to this information, including the right to disseminate and require the recipient to protect the information as confidential.

# WDT1266ISP CASE B2

Cost Estimate Summary (2016 Dollars)

Scope: [REDACTED]

No.	Element	Distribution Upgrades (Subject to ITCC)	ITCC** (35%)	Total	2016 Constant Dollars Escalated to OD Year 2020
	Substation 1				
1	In service testing	\$ 26,496	\$ 9,274	\$ 35,770	\$ 40,820
	Subtotal			\$ 35,770	\$ 40,820
	Power System Control				
1	[REDACTED]	\$ 493,306	\$ 172,657	\$ 665,963	\$ 766,273
	Subtotal			\$ 665,963	\$ 766,273
	<b>Total</b>	<b>\$ 519,802</b>	<b>\$ 181,931</b>	<b>\$ 701,733</b>	<b>\$ 796,894</b>

- \* Pursuant to FERC Order 2003A, ITCC is not collected on Reliability Upgrades and One Time Costs.
- \*\* ITCC cost may be satisfied with a letter of credit in accordance with the tax provisions of the LGIA.
- \*\*\* The ITCC included in this cost estimate was computed using a 35% rate.

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