Southern California Edison

[redacted]

# WDAT 1286

# Facility Study

May 4, 2016

SOUTHERN CALIFORNIA
EDISON
An EDISON INTERNATIONAL Company

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**SOUTHERN CALIFORNIA EDISON COMPANY**

# Executive Summary

Southern California Edison applied to Southern California Edison (SCE) for interconnection and wholesale distribution service for its proposed [redacted] pursuant to SCE's Wholesale Distribution Access Tariff (WDAT). SCE performed a Facility Study as requested by Southern California Edison for a 12 kV interconnection out of [redacted] The interconnection is an applicant owned 12 kV Switchgear, which will be located inside of [redacted] The request is for a WDAT Energy Storage facility with the ability to export and import a total capacity of 8.0 MW. The initial request is for service to commence by May 1, 2017.[1]

The new energy storage facility, [redacted] will receive interconnection service from SCE's existing [redacted] via an underground line extension to the applicant owned 12 kV Switchgear, where their protective device(s) will be installed. The generated power would be delivered to the California Independent System Operator (CAISO) grid at the 220 kV bus of SCE's [redacted]

The purpose of the Facility Study is to determine:

- The estimated cost for the Distribution Upgrades and Interconnection Facilities that were identified in the System Impact Study.[2]
- The estimated time required to complete the design and construction of the Distribution Upgrades and Interconnection Facilities that were identified on the System Impact Study.

[1] Date as requested in the application. Actual operating date depends on design and construction requirements.
[2] A copy of the System Impact Study is provided as Attachment A.

# Non-Binding Order of Magnitude Cost Estimate[3][4]

Non-binding order of magnitude cost estimates for the required interconnection facilities and system upgrades are as follows:

## Cost Estimate

| | |
|---|---|
| **Distribution Upgrades** | $688.5 k |
| • Storage Control System Programming/In-Service Testing | |
| • Packet Radio | |
| • Data Point additions | |
| • Central RTU for Storage Control System | |
| • Ground Grid Study | |
| **Interconnection Facilities** | $809.81 k |
| • New 12 kV line position and associated substation equipment | |
| • New Relay's to provide line protection | |
| • 12 kV primary metering and associated wiring | |
| **CEH&S** | $3.22 k |
| • Activities for equipping 12 kV line position | |
| **Telemetry** | $6.1 k |
| Total non-binding order of magnitude cost estimate | $1.51 M |

[3] The Cost Estimate does not include the cost required for civil work completed by the customer
[4] The Cost Estimates are in 2016 constant dollars

# Contents

# Introduction

Southern California Edison applied to Southern California Edison (SCE) for interconnection and wholesale distribution service for its proposed [redacted] pursuant to SCE's Wholesale Distribution Access Tariff (WDAT). SCE performed a Facility Study as requested by Southern California Edison for a 12 kV interconnection out of [redacted] The interconnection is an applicant owned 12 kV Switchgear, which will be located inside of [redacted] The request is for a WDAT Energy Storage facility with the ability to export and import a total capacity of 8.0 MW. The initial request is for service to commence by May 1, 2017.[5]

The new energy storage facility, consisting of [redacted] will receive interconnection service from SCE's existing [redacted] via an underground line extension to the applicant owned 12 kV Switchgear, where their protective device(s) will be installed. The generated power would be delivered to the California Independent System Operator (CAISO) grid at the 220 kV bus of SCE's [redacted]

The purpose of the Facility Study is to determine:

- The estimated cost for the Distribution Upgrades and Interconnection Facilities that were identified in the System Impact Study.[6]
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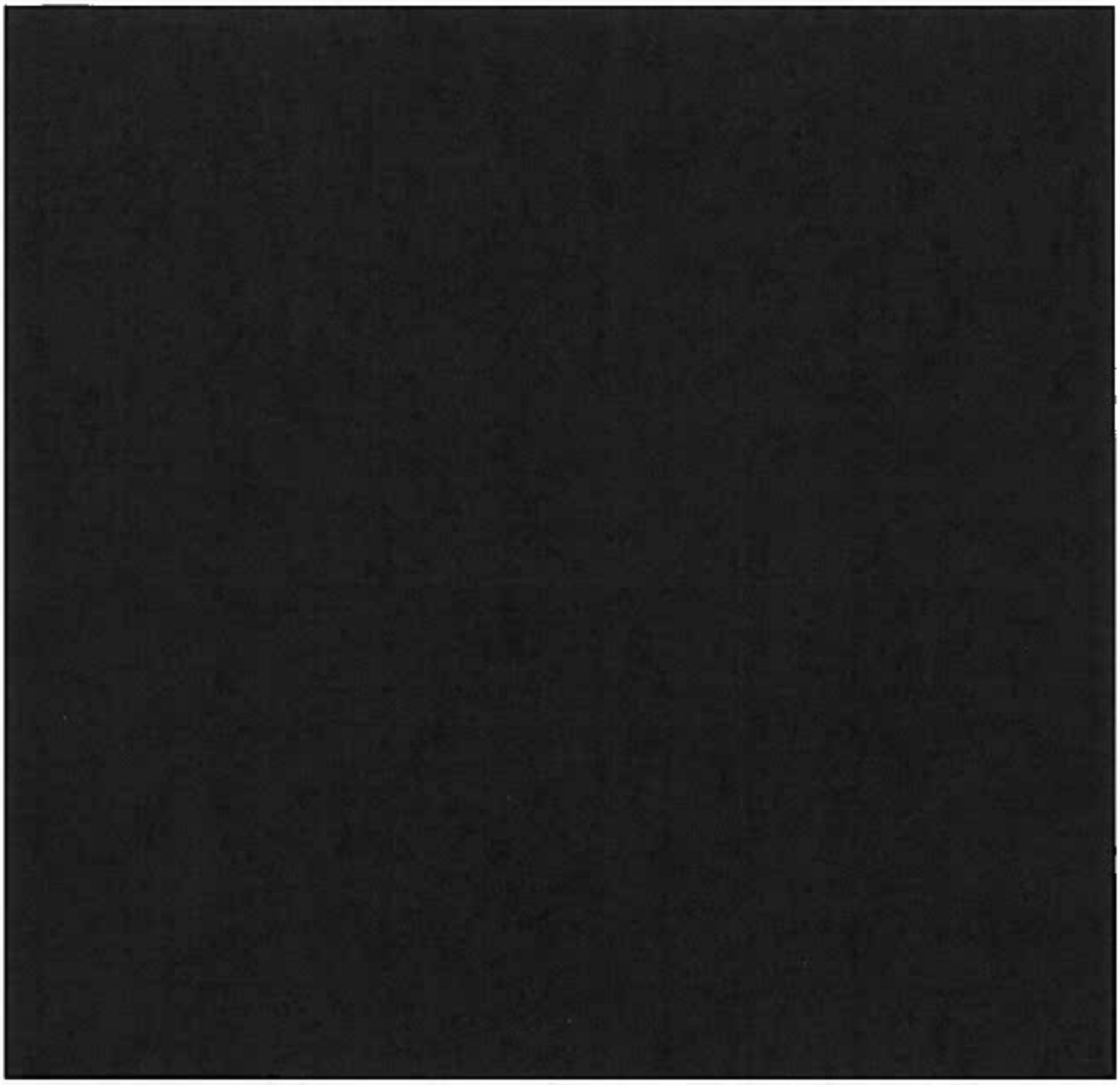

**Figure 1 – Proposed method of service**

***Note:** The battery storage component of the project will need to be metered separately from the retail load components. The IC should be prepared to install multiple sets of metering (i.e. separate sets of PT's & CT's and supporting metering equipment) for the project. Additional facilities will be required to accommodate the separate meter service for the retail load component of the project.

## Summary

1. Distribution Upgrades will be required to interconnect the system. Distribution Upgrades include the installation of a Central Remote Terminal Unit, Storage Control System Programming, and Data Point additions.

2. Interconnection facilities Interconnection facilities will be required to interconnect the system. Interconnection facilities include the installation of a new 12 kV line position and associated substation equipment, new relays to provide line protection, 12 kV metering and associated wiring.

3. Real time telemetry will be required for this project to provide Watts and VARs flow from the generating facility to the SCE distribution system.

4. Interconnection service pursuant to the WDAT would be expected to commence approximately 27 months from the execution of a Generator Interconnection Agreement (GIA). However, schedules and duration may change due to the number of projects approved and release dates. Stacked projects may impact resources, system outage availability, and environmental windows of construction.

5. Upgrades identified are general and preliminary descriptions only. The costs indicated are non-binding order of magnitude only. The schedule is projected and preliminary.

6. Applicant is responsible for the installation of Underground Structures and conduits needed for the interconnection in accordance with SCE design.

7. Current distribution standards are being updated to address generation interconnection systems. The proposed method of service on this report may change according on final design to comply with the updated distribution design standards.

8. This report does not include all Real Properties evaluations and cost estimates. Where formal rights of way, easements, land leases, or permits are required by SCE for installation of facilities, on or over Applicant's property, or the property of others, the Applicant shall grant SCE the rights of way and easements for the electrical facilities.

9. For SCE facilities and scope of work not subject to CPUC's GO 131-D, SCE will follow the requirements of all applicable environmental laws and regulations and issue an in-house Environmental Clearance before commencement of construction activities. The cost estimates provided assume that SCE will provide oversight on facilities and scope of work on the customer's property and/or SCE will perform all required environmental activities for SCE facilities and scope of work, located outside of the customer's property, from the siting through the post-construction phases. However, it is recommended for SCE facilities and

scope of work to be included in the Generator's Environmental Licensing and Permitting documents to streamline the environmental process and avoid unnecessary delays in construction. The responsibilities for performing certain environmental activities may be negotiated during or after the Interconnection Agreement process.

10. This report does not consider potential milestone setbacks that could result from the local jurisdiction requiring underground construction of distribution facilities. SCE encourages the Interconnection Customer to consult with the local jurisdiction to identify existing underground ordinance to reduce the risk of complication associated with said ordinance.

11. Applicable to projects requesting primary service: This study does not include analysis related to coordination of system protection equipment. A coordination study may be required during final engineering. The coordination study may identify additional interconnection requirements such as installing new protection equipment, reprogramming and/or relocating existing protection equipment. The additional scope of work may have an effect on the Interconnection Customer's requested in-service date.

12. In order to supply and maintain proper voltages for SCE's customers as required by the CPUC, SCE's primary distribution voltage may fluctuate by as much as ±5% from the nominal values. SCE uses various voltage regulation techniques to raise or lower primary distribution voltages in order to maintain the customer's service voltage at the desired level. Producers interconnected at primary distribution voltage levels must be able to withstand such voltage changes. The step-up transformer ratio must be chose such that the Producer can meet its voltage regulation obligations over the expected SCE system voltages. In the event, the customer is changing, replacing, or purchasing new equipment the customer shall acquire equipment to properly function with SCE's voltage regulation techniques.

# Attachment A – System Impact Study