WDT 661ISP

[redacted]

[redacted]

Independent Facilities Study Report

Revised May 08, 2012

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Attachments:

1. Attachment A – Independent System Impact Study

1. Executive Summary

On [redacted], the Southern California Edison Company ("SCE") received an Interconnection Request from [redacted] for its proposed [redacted] under the terms of SCE's Wholesale Distribution Access Tariff ("WDAT"). The project is energy only comprised of [redacted] 4.393 MW [redacted] synchronous generators and [redacted] 5500 kVA 13.8/16 kV transformers, would receive interconnection service from a new SCE 16 kV circuit out of Estero Substation via a new overhead line to the interconnection facility. The generated power would be delivered to the California Independent System Operator ("CAISO") grid at the 220 kV bus of SCE's Santa Clara Substation. The Interconnection Customer's (IC) targeted Commercial Operation Date of the Project is [redacted][1].

This Facility Study Report is composed of two parts:

Project Phase I

Describes the scope of work that is being performed as requested by the Interconnection Customer via a letter agreement which was executed on [redacted]. Under this letter agreement, SCE will install the required interconnection facilities to allow the project to export a maximum of 2.0 MW of generation to the existing Ramac 16 kV circuit. These interconnection facilities are identified in this report as Phase I scope of work. The cost of Phase I was incorporated to the total cost of the project.

Project Phase II

Describes the scope of work that is being performed to allow this project to export up to 13.2 MW of generation to a new circuit out of Estero Substation.

The report provides the following:

1. Summary of the Transmission and Distribution System impacts which were identified during the Independent System Impact Study.

2. Summary of the Transmission and Distribution System upgrades necessary to mitigate those impacts identified in the Independent System Impact Study.

3. The Interconnection Facilities required to interconnect the proposed project to the Distribution System.

4. A non-binding, good faith cost estimate for the identified Distribution System Upgrades and Interconnection Facilities.

5. A non-binding time to design, procure and construct the identified Distribution Upgrades System Upgrades and Interconnection Facilities.

The Independent System Impact study was performed to determine problems for which mitigation plans may be proposed for the Project. Mitigation plans for the Project are detailed in the Independent System Impact Study report (attached).

[1] Date as requested in the application. Actual operating date depends on design, procurement, and construction requirements. Interconnection Studies will ultimately determine in-service date.

The non-binding SCE cost estimates[2] Phase II to interconnect the Project are:

Interconnection Facilities[3]	$1.836 M
Interconnection Facilities ITCC[4]	$0.643 M
Distribution Upgrades	$1.982 M
Distribution Upgrades ITCC[3]	$0.694 M

The estimated costs have been provided in 2012 constant dollars. Table 10.1 provides the estimated costs escalated to the estimated Operating Date year of the upgrade, which would be the basis for the Interconnection Customer's financial responsibilities.

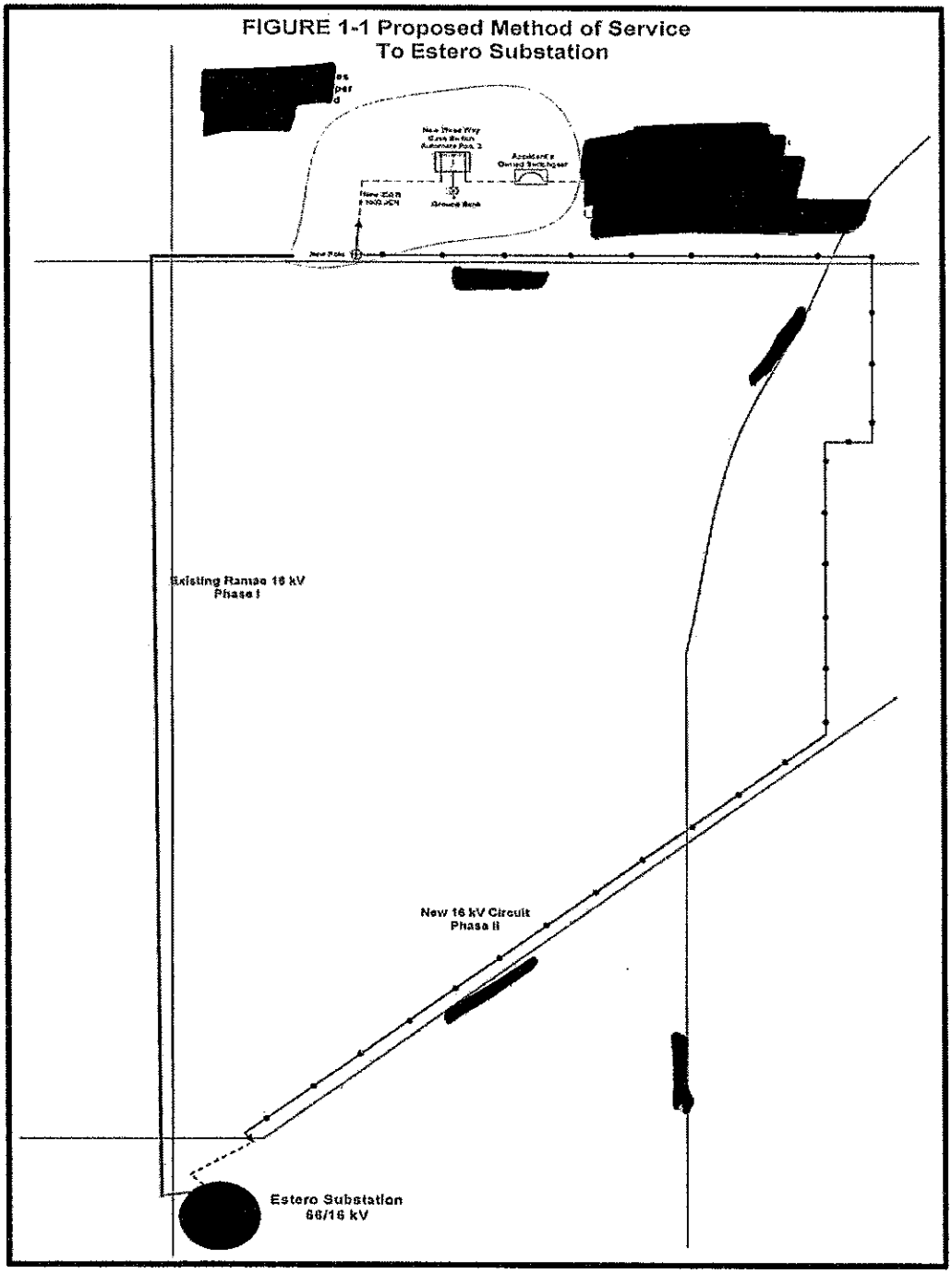
The non-binding schedule to license, engineer, and construct the Interconnection Facilities, Distribution Upgrades, is approximately 24 months from the execution of the Generator Interconnection Agreement (GIA) and from SCE-specified milestones associated with Interconnection Customer's responsibilities.

[2] These upgrades are not reimbursable.

[2] The electrical facilities installed and maintained by SCE necessary to physically and electrically interconnect the Project to the SCE Distribution System from the Point of Change in Ownership to the Point of Interconnection.

[3] Includes Income Tax Component of Contribution. The ITCC included in this cost estimate was computed using a 35% rate. Due to the enactment of H.R. 4853, the Tax Relief, Unemployment Insurance Reauthorization and Job Creation Act of 2010, and upon formal acceptance by the CPUC of SCE's advice letter (filed on December 27, 2010), this rate may change for electric CIAC recorded or received after September 8, 2010 through December 31, 2011.

Figure 1: Proposed Single Line Diagram



See Attachment A – Independent System Impact Study for project information.

2. Independent Facilities Study Assumptions

The following assumptions are only specific to the Project.

A. The following SCE Distribution System Design Criteria were included in the Facility Study:

- The design and construction of the electrical facilities will take approximately 24 months. The Interconnection Customer is responsible to perform the underground civil work per SCE's design.
- SCE will approve and release the Interconnection Customer installed underground infrastructure prior to SCE initiating the construction of the electrical facilities.
- The underground civil work includes but it is not limited to excavation (all necessary trenching, backfilling, and other digging as required), and installation of conduits and vaults for the required interconnection facilities
- Where formal rights of way, easements, land leases, or permits are required by SCE for installation of facilities, on or over Interconnection Customer's property, or the property of others, the Interconnection Customer shall grant SCE the rights of way and easements for the electrical facilities.
- Current distribution standards are being updated to address generation interconnection systems. The proposed method of service in this report may change according on final design to comply with the updated distribution design standards.

B. The following facilities are to be installed by the Interconnection Customer and are not included in this Independent Facilities Study:

- Ducts
- Underground Structures
- Point of Interconnection Breaker
- CAISO metering as required
- Protection Systems required to comply with SCE Interconnection requirements
- Transformation as required
- Metering Equipment compliant with SCE Electrical Service Requirements (ESR) (http://www.sce.com/AboutSCE/Regulatory/distributionmanuals/esr.htm)

3. Independent Facilities Study Scope

Phase I: The facilities already installed during the Phase I of the project and paid for by the Interconnection Customer.

And

Phase II: The facilities included in Phase II are those additional facilities required to interconnect the remaining 11.2 MW of generation for the Houweling Nurseries Oxnard Project under Phase II.

Phase I:

SCE'S INTERCONNECTION FACILITIES

1. **Distribution:**
   - Three Way Gas Switch
   - Approximately 250 feet of 1000 JCN cable
   - Approximately 100 feet of 1/0 ACSR overhead conductor
   - Approximately 2800 feet of 1/0 ACSR 4th wire line extension
   - RCS Controller
   - 16 kV Metering, CTs, PTs, and associated wiring
   - 3 Way Padmounted Gas Switch
   - Ground bank
   - Automation
   - Remote Terminal Unit (RTU)
   - Telecommunication System for RTU

   An initial deposit of $315,000 has been paid by the Interconnection Customer to design, procure and construct the Phase 1 interconnection facilities.

2. **Telecommunications**
   It is assumed that the local phone company can provide a T1 service to the project location. If a local phone company cannot provide T1 line service, then the cost for telecommunications may increase.

3. **Metering Services Organization**
   Install revenue metering cabinet for the SCE revenue meters required to meter the retail load at the generating facility. The SCE meter will be installed in tandem with the CAISO meter circuit.

4. **Power System Control**
   It will be required to install one RTU at the generating facility to monitor Watts and VAR flow from the generation facility to SCE's distribution system as well as other customer status including breaker status and bus voltage.[5]

5. **Real Properties**
   It is assumed that Interconnection Customer will provide all rights of way, and easements satisfactory for installation of SCE facilities without cost to SCE, based on SCE's design.

6. **Corporate Environmental Health & Safety Organization**
   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 perform all required environmental activities for SCE facilities and scope of work from the siting through the post-construction phases. However, it is recommended for SCE facilities and scope of work to be included in the

[5] Reference the Interconnection Handbook for all requirements for telemetry installation. The Interconnection Handbook can be downloaded at: http://www.sce.com/AboutSCE/Regulatory/openaccess/.

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.

DISTRIBUTION UPGRADES

1. **Distribution**
   - None

2. **Sub-Transmission**
   - None

3. **Substation**
   - None

4. **Real Properties**

   It is assumed that Interconnection Customer will provide all rights of way, and easements satisfactory for installation of SCE facilities without cost to SCE, based on SCE's design.

5. **Corporate Environmental Health & Safety Organization**

   For SCE facilities and scope of work not subject to [redacted], 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 perform all required environmental activities for SCE facilities and scope of work 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.

<u>Phase II:</u>

SCE'S INTERCONNECTION FACILITIES

1. **Distribution:**

- Overbuild approximately 20,750 feet of existing 16 kV circuit with new overhead line.
- Three-phase Bi-direction Transducer on the new 16 kV line
- Installation of a new 16 kV switchrack with foundations, one circuit breaker and foundation, three sets (nine total) group operated disconnect switches, and a pair of line protection relays.

- Obtain licensing and permits and perform all required environmental activities for the construction of a new 16 kV line between the Houweling Nurseries Oxnard Project and Estero 66/16 kV Substation.
- Extend approximately 130 feet of new duct system.
- Installation of a new vault around existing duct system.

SCE'S DISTRIBUTION UPGRADES

1. **Distribution**

- Replacement of approximately [redacted] distribution poles on existing 66 kV pole line.

2. **Subtransmission**

- Replace approximately [redacted] subtransmission poles on existing 66 kV pole line.

3. **Substation**

Install one 16 kV switchrack with foundations, one circuit breaker and foundation, three sets (nine total) of group operated disconnect switches and a pair of line protection relays.

4. **Real Properties**

It is assumed that Interconnection Customer will provide all rights of way, and easements satisfactory for installation of SCE facilities without cost to SCE, based on SCE's design.

5. **Corporate Environmental Health & Safety Organization**

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 perform all required environmental activities for SCE facilities and scope of work 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.

4. Facility Study Cost Estimates

Phase I: Identifies the cost of all facilities already installed and paid for by the Interconnection Customer.

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

Phase I:	$0.315 M
Phase II: (to be added to Phase I):	$5.155 M
Total cost estimate:	$5.470 M

5. Facility Study Summary

5.1 Cost Estimates

Non-binding order of magnitude cost estimates for the required interconnection facilities and system upgrades are as follows, these costs do not include the cost for the civil construction which is required to install the interconnection facilities.

Phase II:

SCE's Distribution Upgrades

Distribution Upgrades $2.167 M[5]

- Replacement of approximately 45 distribution poles on existing 16 kV pole line
- Replacement of approximately 20 subtransmission poles on existing 66 kV pole line.
- Installation of a new vault around existing duct system
- Extend approximately 130 feet of new duct system

Environmental Health and Safety

Distribution Upgrades $0.470 M[5]

- Obtain licensing and permits and perform all required environmental activities for the construction of a new 16 kV line between the [redacted] Project and Estero 66/16 kV Substation.

Real Properties

Distribution Upgrades $0.039 M[5]

- Obtain licensing and permits and perform all required environmental activities for the construction of a new 16 kV line between the [redacted] Project and Estero 66/16 kV Substation.

SCE's Interconnection Facilities

Interconnection Facilities $2.188 M[5]

- Installation of approximately 20,750 feet of new 653 ACSR overhead conductor
- Installation of a new 16 kV switchrack with foundations, one circuit breaker and foundation, three sets (nine total) of group operated disconnect switches, and a pair of line protection relays
- New bi-directional Transducer

Environmental Health and Safety

Interconnection Facilities $0.291 M[5]

- Obtain licensing and permits and perform all required environmental activities for the construction of a new 16 kV line between the [redacted] Project and Estero 66/16 kV Substation.

Total **Phase II** non-binding order of magnitude cost estimate $5.155 M[5]

[5] Cost estimates include 35% ITCC. Cost estimates are in 2012 dollars.

5.2 Design Schedule Estimates

Once the GIA is executed, the design of the Interconnection Facilities will take approximately 9 months from the time the Interconnection Customer has provided the following to SCE:

- *Approved panel drawings which shall comply with SCE ESR. These requirements can be downloaded at : http://www.sce.com/AboutSCE/Regulatory/distributionmanuals/esr.htm*
- *Customer information sheet.*
- *Street improvement plans (if available)*
- *Unique address for point of interconnection*
- *Site plot plan on a 30:1 scale or digital file required*
  - *Easements/Lease Agreement*
  - *Grading plans – if project area is not graded*
  - *Sewer and storm plot plans – if facilities are existing at the project location*
  - *Landscape, sprinkler, pedestal locations – if facilities are existing at the project location.*

5.3 Construction Schedule Estimates

The construction of the Interconnection Facilities will take be approximately 15 months from the time the design is complete and from the time the underground civil construction has been completed by Interconnection customer and released by SCE inspectors.

5.4 Conceptual Method of Service

The results provided in this study are based on conceptual engineering and a preliminary plan of service and are not sufficient for permitting of facilities. The Plan of Service is subject to change during the actual design and construction of the project

5.5 Relocations and Other Use of SCE Facilities

The Interconnection Customer is responsible for all costs associated with necessary relocation of any SCE facilities as a result of this project and acquiring all property rights necessary for the Interconnection Customer's Interconnection Facilities, including those required to cross SCE facilities and property. The relocation of SCE facilities or use of SCE property rights shall only be permitted upon written agreement between SCE and the Interconnection Customer. Any proposed relocation of SCE facilities or use of SCE property rights may require a separate study and/or evaluation to determine whether such use may be accommodated, and any associated cost would be non-refundable.

5.6 SCE Interconnection Handbook

The Interconnection Customer shall be required to adhere to all applicable requirements in the SCE Interconnection Handbook. These include, but are not limited to, all

applicable protection, voltage regulation, VAR correction, harmonics, switching and tagging, and metering requirements.

5.7 System Protection Coordination

In addition to the typical distribution line protection requirements, a ground bank will be required to sense phase-ground faults in the SCE distribution system and open the generator breaker. The Interconnection Customer will be required to install a relay with adequate elements to incorporate the ground bank into the Interconnection Customer's relay protection scheme.

5.8 Construction Schedule

The estimated time to construct (ETC) is for a typical project; schedules duration may change due to number of projects approved and release dates. Stacked projects impact resources, system outage availability, and environmental windows of construction.

ATTACHMENT A

Independent System Impact Study