
Addendum to Phase II Report- WDAT940

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ADDENDUM TO QUEUE CLUSTER 5 PHASE II REPORT

January 13, 2014

This study has been completed in coordination with California Independent System Operator Corporation (CAISO) per CAISO Tariff Appendix DD Generator Interconnection and Deliverability Allocation Procedures (GIDAP) for Interconnection Requests in a Queue Cluster Window.

Executive Summary

██████████ the Interconnection Customer (IC), has submitted a completed Interconnection Request (IR) to the Southern California Edison Company (SCE) for their proposed ██████████ under the terms of SCE's Wholesale Distribution Access Tariff (WDAT), WDAT940.

Subsequent to the release of the QC5 Phase II report package for the Project, it was determined that the additional language below needed to be inserted at the end of Section A, Introduction, of the Appendix A report to address Protein Substation being a customer-dedicated facility with property and other non-electrical facilities being owned by a third party.

This study identifies only technical impacts and technical requirements for interconnection. The requested POI is a retail customer dedicated facility for which SCE cannot at its sole discretion direct or grant rights for IC access or use for other parties. Permission to interconnect at the requested POI will be subject to final agreement by all parties independent of this study and/or the WDAT, in accordance with applicable SCE and CPUC rules, policies and practices. The transfer to SCE of the Protein Substation property, the non-SCE owned facilities within the substation property, and the access roads to the substation, along with any requirements to convert Protein Substation to a multi-customer system facility, will be required for the interconnection of WDAT940 at the IC's cost.

Subsequent to the release of the QC5 Phase II report package for the Project it was also determined that the following items in the QC5 Phase II report package for the Project needed to be updated to reflect the treatment of the one-time costs as applicable per the specified upgrade classification.

1. Cost and Construction Duration Estimates for Upgrades in Area (Appendix E) of the Area report dated December 3, 2013.

In addition, Escalated Cost and Time to Construct for Interconnection Facilities, Reliability Network Upgrades, Delivery Network Upgrades, and Distribution Upgrades (Attachment 3) was adjusted to reflect the appropriate estimated costs for the required Elcans fuse replacement (Distribution Short Circuit Duty mitigation) and the line item for the one-time cost under Interconnection Facilities for a ground grid analysis (\$11K) was moved under the Distribution Provider's Interconnection Facilities to reflect the appropriate upgrade classification for the study costs.

Lastly, the Interconnection Facilities, Network Upgrades and Distribution Upgrades (Attachment 2) of the Appendix A report for the Project was updated to reflect the following:

1. The scope of work for the required Elcans fuse replacement (Distribution Short Circuit Duty mitigation)
2. Section 1(a)(xV), which states "Install all equipment and controls necessary to maintain the Generating Facility's output ramp rate within the parameters set forth, and provided to the Interconnection Customer, by the Distribution Provider." was deleted since this section does not apply to synchronous generators.
3. The sentence in Section 3(d)(i) is missing some language and should be separated into two separate items as follows:
 - (i) Install lightwave, channel banks and associated equipment at Dairymans Substation, Protein Substation, Tulare Substation, San Joaquin Valley District Office ("SJVDO"), and Rector Substation.
 - (ii) Install communications shelter enclosures at Dairymans and Protein Substations.

These items have been updated accordingly, and are attached as part of this Addendum report package. The corresponding changes replace and supersede those same sections in the Project's QC5 Phase II Appendix A report dated December 6, 2013 and Area report dated December 3, 2013.

Summary of changes:

1. Add language regarding additional requirements for interconnection to Protein Substation as mentioned above to Section A of the Appendix A report dated December 6, 2013.
2. Replace the following in the QC5 Phase II report package:
 - a. Escalated Cost and Time to Construct for Interconnection Facilities, Reliability Network Upgrades, Delivery Network Upgrades, and Distribution Upgrades (Attachment 3) of the Appendix A report dated December 6, 2013 to reflect the updated estimated costs for the Project to reflect the change(s) mentioned above.
 - b. Cost and Construction Duration Estimates for Upgrades in Area (Appendix E) of the Area report dated December 3, 2013 to reflect the updated estimated costs as stated above to reflect the change(s) mentioned above.
3. Replace the Interconnection Facilities, Network Upgrades and Distribution Upgrades (Attachment 2) of the Appendix A report for the Project dated December 6, 2013 to reflect the change mentioned above.

The remainder of the original report is unchanged.

Attachment 2

Interconnection Facilities, Network Upgrades, and Distribution Upgrades

Please refer to separate document.

Attachment 3

Escalated Cost and Time to Construct for Interconnection Facilities, Reliability Network Upgrades, Delivery Network Upgrades, and Distribution Upgrades

Please refer to separate document.

Appendix E

Cost and Construction Duration Estimates for Upgrades in Area

Please refer to separate document.

Attachment 2 to Queue Cluster 5 Phase II Addendum Report



Interconnection Facilities, Network Upgrades and Distribution Upgrades

Interconnection Facilities, Network Upgrades and Distribution Upgrades

Distribution Provider's Interconnection Facilities, Network Upgrades and Distribution Upgrades described in this Appendix A to the GIA are based on the Distribution Provider's preliminary engineering and design. Such descriptions are subject to modification to reflect the actual facilities that are constructed and installed following the Distribution Provider's final engineering and design, identification of field conditions, and compliance with applicable environmental and permitting requirements.

1. Interconnection Facilities.

- (a) **Interconnection Customer's Interconnection Facilities.** The Interconnection Customer shall:
- (i) Install a substation with one [REDACTED]
 - (ii) Install a new 100 feet 66 kV generation tie-line from the Generating Facility to the Distribution Provider's Protein Substation. This generation tie-line will be referred to as the Protein – WDT940 66 kV Line. The right-of-way for the Protein – WDT940 66 kV Line shall extend up to the edge of the Protein Substation property line.
 - (iii) Install appropriate fiber optic cables for the diverse telecommunication paths and panels to terminate the telecommunication fiber optic cables for both diverse telecommunication paths, as specified by the Distribution Provider to match the telecommunication equipment used by the Distribution Provider Protein Substation and at the Generating Facility, in order to protect Protein – WDT940 66 kV Line. The telecommunication paths shall meet the Applicable Reliability Standards criteria for diversity.
 - (iv) Own, operate and maintain the telecommunication path (fiber optic cables and appurtenant facilities), with the exception of the terminal equipment at both Protein Substation and at the Generating Facility, which terminal equipment will be installed, owned, operated and maintained by the Distribution Provider.
 - (v) Allow the Distribution Provider to review the Interconnection Customer's telecommunication equipment design and perform inspections to ensure compatibility with the Distribution Provider's terminal equipment and protection engineering requirements; allow the Distribution Provider to perform acceptance testing of the telecommunication equipment and the right to request and/or to perform correction of installation deficiencies.
 - (vi) Provide required data signals, make available adequate space, facilities, and associated dedicated electrical circuits within a secure building having suitable environmental controls for the installation of the Distribution Provider's RTU in accordance with the Interconnection Handbook.
 - (vii) Make available adequate space, facilities, and associated dedicated electrical circuits within a secure building having suitable environmental controls for the installation of the Distribution Provider's telecommunication terminal equipment in accordance with the Interconnection Handbook.
 - (viii) Extend the fiber optic cable for the diverse telecommunication paths to the Distribution Provider's telecommunication terminal equipment specified above.

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- (ix) Install all required ISO-approved compliant metering equipment at the Generating Facility, in accordance with Section 10 of the ISO Tariff.
 - (x) Install a revenue metering cabinet and revenue metering equipment (typically, voltage and current transformers) at the Generating Facility to meter the Generating Facility retail load, as specified by the Distribution Provider. The metering cabinet must be placed at a location that would allow twenty-four hour access for the Distribution Provider's metering personnel.
 - (xi) Allow the Distribution Provider to install, in the revenue metering cabinet provided by the Interconnection Customer, revenue meters and appurtenant equipment required to meter the retail load at the Generating Facility.
 - (xii) Install relay protection to be specified by the Distribution Provider to match the relay protection used by the Distribution Provider at Protein Substation and at the Generating Facility, in order to protect the Protein – WDT940 66 kV Line, as follows:
 - 1. Two (2) current differential relays via diversely routed dedicated digital communication channels to Protein Substation. The make and type of the current differential relays will be specified by the Distribution Provider during final engineering.
 - (xiii) Install one (1) RFL relay as isolation detection.
 - (xiv) Install disconnect facilities in accordance with the Distribution Provider's Interconnection Handbook to comply with the Distribution Provider's switching and tagging procedures.
- (b) **Distribution Provider's Interconnection Facilities.** The Distribution Provider shall:
- (i) **Protein Substation.**
 - 1. Install the following protection requirements on the Protein-WDT940 66 kV Line:
 - a. Two (2) current differential relays.
 - 2. Install 66 kV line drop
 - 3. Perform Ground Grid Study
 - (ii) **Sub-Transmission.**

Install one (1) tubular steel pole and approximately 100 circuit feet of overhead conductor.
 - (iii) **Telecommunications.**

Install cross connects between RTU and IC's circuit to Protein Substation and from Protein Substation to Rector RDAC.
 - (iv) **Real Properties.**

Obtain access easement for RTU.

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(v) **Corporate Environmental Health and Safety.**

Obtain licensing and permits, and perform all required environmental activities for the installation of the Distribution Provider's Interconnection Facilities.

(vi) **Transmission Project Licensing.** None.

(vii) **Metering.**

Install SCE retail meter at the Generating Facility in tandem with the IC's ISO meter.

(viii) **Power System Controls.**

Install one (1) RTU at Generating Facility to monitor typical generation elements such as MW, MVAR, terminal voltage and circuit breaker status for the Generating Facility and plant auxiliary load, and transmit the information received thereby to the Distribution Provider's grid control center.

2. Network Upgrades.

(a) **Stand Alone Network Upgrades.** None.

(b) **Other Network Upgrades.**

(i) **Reliability Network Upgrades.** None.

(ii) **Delivery Network Upgrades.**

1. **Area Delivery Network Upgrades.** None.

2. **Local Delivery Network Upgrades.** None.

3. Distribution Upgrades. The Distribution Provider shall:

(a) **Elcans 66 kV Substation.**

Replace 66 kV fuse

(b) **Protein Substation.**

(i) Install one (1) 66 kV circuit breaker

(ii) Install one (1) set of 66 kV disconnect switches

(iii) Install the following protection requirements:

1. Four (4) sync check relays

2. One (1) current differential relay

3. Three (3) zone distance overcurrent relays

4. Six (6) voltage transformers

5. Four (4) steel relay cubicles and foundations

(c) **Dairymans Substation.**

(i) Install three (3) bushing current transformers

(ii) Install three (3) voltage transformers

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- (iii) Install one (1) current differential relay
 - (iv) Install one (1) relay cubicle
 - (v) Install cable trench
 - (vi) Install control cable
 - (d) **Rector Substation.**
 - (i) Install one (1) RFL relay
 - (e) **Telecommunications.**
 - (i) Install lightwave, channel banks, and associated equipment at Dairyman's Substation, Protein Substation, Tulare Substation, San Joaquin Valley District Office ("SJVDO"), and Rector Communications
 - (ii) Install Shelter enclosures at Dairyman's and Protein Substations.
 - (iii) Install approximately 9,400 feet of fiber optic cable between Dairyman's and Protein Substations
 - (iv) Install approximately 1,900 feet of fiber optic cable between Protein Substation and SJVDO.
 - (f) **Real Properties.**
 - (i) Perform rights check for approximately 2 miles of new fiber optic cable.
 - (g) **Corporate Environmental Health and Safety.**
 - (i) Obtain licensing and permits, and perform all required environmental activities for the installation of the Distribution Provider's Distribution Upgrades.
 - (h) **Power System Controls.**
 - (i) Point additions to existing RTU at Rector Substation for relay status and alarm.
- 2. Affected System Upgrades: Not Used.**
- 3. Point of Change of Ownership.**
- (a) Protein – WDT940 66 kV Line: The Point of Change of Ownership shall be the point where the conductors of the Protein – WDT940 66 kV Line are attached to the IC owned dead-end structure ("Last Structure"), which will be connected on the side of the Last Structure facing Protein Substation. The Interconnection Customer shall own and maintain the Last Structure, the conductors, insulators and jumper loops from such Last Structure to the Interconnection Customer's Generating Facility. The Distribution Provider will own and maintain Protein Substation, as well as all circuit breakers, disconnects, relay facilities and metering within Protein Substation, together with the line drop, in their entirety. The Distribution Provider will own the insulators that are used to attach the Distribution Provider-owned conductors to the Last Structure.
 - (b) Telecommunication fiber optic paths: The telecommunication diverse fiber optic cables, between the communication room at WDT940 and communication shelter

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enclosure at Protein Substation, shall be owned, operated, and maintained by the IC in its entirety.

- 4. Point of Interconnection.** The Distribution Provider's Protein 66 kV Substation.

5. One-Line Diagram of Interconnection to Protein 66 kV Substation.

