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**Project No. 35077**



# First Amendment to

# INTERCONNECTION AGREEMENT

# Between

# City Public Service Board

# and

# LCRA Transmission Services Company

**February 19, 2010**



159

# FIRST AMENDMENT TO
# INTERCONNECTION AGREEMENT

This First Amendment ("Amendment") to the Interconnection Agreement, dated January 12, 2007 between City Public Service Board ("CPS Energy") and the LCRA Transmission Services Corporation ("LCRA TSC") (the "Agreement") is made and entered into this 19th day of February, 2010, between CPS Energy and the LCRA TSC, hereinafter individually referred to as "Party" and collectively referred to as "Parties". In consideration of the mutual promises and undertakings herein set forth, the Parties agree to amend the Agreement as follows:

1. Exhibit "A" attached to the Agreement is deleted in its entirety and Exhibit "A" attached to this Amendment is hereby added to the Agreement in lieu thereof.

2. Facility Schedule No. 3 (including the diagrams attached thereto) attached to this Amendment is hereby added to the Agreement. Facility Schedule No. 3 will become effective upon execution of this Amendment by the Parties.

3. The Parties agree to interconnect their facilities at the Points of Interconnection in accordance with the terms and conditions, specified on the attached Facility Schedule No. 3.

Except as otherwise expressly provided for herein, the Agreement will continue in full force and effect in accordance with its terms.

IN WITNESS WHEREOF, the Parties have caused this Amendment to be executed in several counterparts, each of which shall be deemed an original but all shall constitute one and the same instrument.

CITY OF SAN ANTONIO, TEXAS ACTING BY AND THROUGH THE CITY PUBLIC SERVICE BOARD

By: _____

Name: Frederick A. James

Title: Vice President, Engineering Services

Date: 2/19/10

LCRA TRANSMISSION SERVICES CORPORATION

By: _____

Name: Ray Pfefferkorn, P.E.

Title: LCRA Transmission Engineering Manager

Date: 2/5/10

**CPS ENERGY - LCRA TRANSMISSION SERVICES CORP.**
**INTERCONNECTION AGREEMENT**

**EXHIBIT A- Amendment No. 1**

**LIST OF FACILITY SCHEDULES AND POINTS OF INTERCONNECTION**

| FACILITY SCHEDULE NO. | NAME OF POINT OF INTERCONNECTION | INTERCONNECTION VOLTAGE (KV) | Effective Date (anticipated) |
|---|---|---|---|
| 1 | Kendall - Cagnon | 345 | 1/12/2007 |
| 2 | Boerne Cico - Helotes | 138 | 1/12/2007 |
| 3 | Medina Lake - Texas Research | 138 | Date of Amendment |

**CPS ENERGY - LCRA TRANSMISSION SERVICES CORP.**
**INTERCONNECTION AGREEMENT – AMENDMENT NO. 1**

**FACILITY SCHEDULE NO. 3**

1. **Name:** Medina Lake to Texas Research 138 kV Transmission Line

2. **Point of Interconnection Location:** The Point of Interconnection is located in Medina County at the LCRA TSC transmission line structure #69 where the Medina Lake to Texas Research 138kV transmission line changes ownership between CPS Energy and LCRA TSC along Hwy 1283 approximately 3.4 miles west of the Bexar County and Medina County line. The "Point of Interconnection" shall be defined as the points where LCRA TSC's jumpers connect to CPS Energy's Transmission Line (defined below) which terminates on LCRA TSC's transmission line structure #69. The attached diagram provides details regarding the Point of Interconnection.

3. **Facilities to be furnished by LCRA TSC:** LCRA TSC's facilities associated with the Point of Interconnection shall include, but not be limited to, the following facilities: 138kV circuit breaker, disconnect switches, protective relaying and associated terminal facilities at Medina Lake substation; the 138kV transmission line from Medina Lake Substation to the Point of Interconnection ("LCRA TSC's Transmission Line"), including foundations, structures, insulators, connectors, transmission line conductors, shield wire and associated hardware and assembly to terminate LCRA TSC's Transmission Line on LCRA TSC's transmission line structure #69; jumpers to the Point of Interconnection; and telemetry and communication facilities at Medina Lake Substation, including a Remote Terminal Unit ("RTU") and a four-wire communication circuit from the RTU to the LCRA TSC's control center.

4. **Facilities to be furnished by CPS Energy:** CPS Energy's facilities associated with the Point of Interconnection shall include, but not be limited to, the following facilities: 138kV circuit breakers, disconnect switches, protective relaying and associated terminal facilities at Texas Research substation; the 138kV transmission line from Texas Research Substation to the Point of Interconnection ("CPS Energy's Transmission Line"), including foundations, structures, insulators, connectors, transmission line conductors, shield wire and associated hardware and assembly to terminate CPS Energy's Transmission Line on the LCRA TSC's transmission line structure #69; and telemetry and communication facilities at Texas Research Substation, including an RTU and a communication circuit from the RTU to CPS Energy's designated control center.

5. **Facility Connection Requirements:**

**VOLTAGE:** 138 kV
Determined in accordance with R2.1.3 of CPS Energy Facility Connection Requirements and Section 2.3 of LCRA TSC Facility Connection Requirements.

**POWER CAPACITY:** 215 MVA – normal continuous static rating

Determined in accordance with R2.1.3 of CPS Energy Facility Connection Requirements and Sections 2.3 and 2.11 of LCRA TSC Facility Connection Requirements.
The capacity of each owner's line section was determined by the Facilities Rating methodology of that Party, and each Party communicates their rating to ERCOT.
Upon request by ERCOT, both Parties will coordinate on dynamic ratings for the overall line.

**BREAKER DUTY:**
Medina Lake Substation Terminal: 40 kA
Texas Research Substation Terminal: 63 kA
Determined in accordance with R2.1.4 of CPS Energy Facility Connection Requirements and Section 2.4 of LCRA TSC Facility Connection Requirements.

**SURGE PROTECTION:**
Medina Lake Substation Terminal: 108 kV
Texas Research Substation Terminal: Station Arrestors, 108 kV
LCRA TSC Transmission Line: N/A
CPS Energy Transmission Line: N/A
Determined in accordance with R2.1.4 of CPS Energy Facility Connection Requirements and Section 2.4 of LCRA TSC Facility Connection Requirements.

**SYSTEM PROTECTION & COORDINATION**
The primary protection scheme for protection of the Medina Lake to Texas Research line shall be directional comparison blocking utilizing on-off power line carrier signal.

Medina Lake Substation Terminal:
Primary Line & Breaker Protection
Protective Functions: Directional Comparison Blocking Protection, Phase and Ground Impedance Protection, Breaker Failure Protection, Instantaneous Ground Over Current Protection, Directional Ground Over Current Protection, Reclosing.

Backup Line & Breaker Protection
Protective Functions: Phase and Ground Impedance Protection, Instantaneous Ground Over Current Protection, Directional Ground Over Current Protection, Breaker Failure Protection.

All manual or automatic synchronization check functions shall be conducted at the Texas Research terminal, prior to closing the transmission line.

To ensure proper coordination and reliability, CPS Energy shall provide LCRA TSC with the following information before the energization of the Medina Lake to Texas Research line:

1. Texas Research Substation Operation One-Line;
2. Texas Research Substation Relay One-Line; and
3. Texas Research Substation Relay Settings for the new line terminal protective relays.

Texas Research Substation Terminal:

Primary Line & Breaker Protection
Protective Functions: Directional Comparison Blocking Protection, Phase and Ground Impedance Protection, Breaker Failure Protection, Reclosing, Synch Check.

Backup Line & Breaker Protection
Protective Functions: Phase and Ground Impedance Protection, Breaker Failure Protection

To ensure proper coordination and reliability, LCRA TSC shall provide CPS Energy with the following information before the energization date of the Medina Lake to Texas Research line:

1. Medina Lake Substation Operation One-Line;
2. Medina Lake Substation Relay One-Line; and
3. Medina Lake Substation Relay Settings for new line terminal protective relays.

Determined in accordance with R2.1.5 of CPS Energy Facility Connection Requirements and Section 2.5 of LCRA TSC Facility Connection Requirements.

**METERING**
Medina Lake Substation Terminal: N/A for metering. Line Telemetry (MW, MVAR, Volt) provided by protective relays.

Texas Research Substation Terminal: CPS Energy shall install ERCOT Settlement Metering at the Texas Research Substation. Line Telemetry (MW, MVAR, Volt) provided by protective relays.
Determined in accordance with R2.1.6 of CPS Energy Facility Connection Requirements and Section 2.6 of LCRA TSC Facility Connection Requirements..

**TELECOMMUNICATIONS, INCLUDING PROTECTION COMMUNICATIONS**
Medina Lake Substation Terminal: LCRA TSC shall provide all LCRA TSC required communication circuits using Frame Relay Access Device ("FRAD") over a dedicated telephone line. For protection communications, LCRA TSC shall provide wave trap, tuner, and power line carrier equipment to perform directional comparison blocking scheme.

Texas Research Substation Terminal: CPS Energy shall provide all CPS Energy required communication circuits over microwave. For protection communications, CPS Energy shall provide wave trap, tuner, and power line carrier equipment to perform directional comparison blocking scheme.
Determined in accordance with R2.1.6 of CPS Energy Facility Connection Requirements and Section 2.6 of LCRA TSC Facility Connection Requirements.

**REMOTE SCADA SYSTEMS**
Medina Lake Substation Terminal: RTU for communication of data and control to the LCRA TSC SCADA system.
Texas Research Substation Terminal: RTU for communication of data and control to the CPS Energy SCADA system.
Determined in accordance with R2.1.6 of CPS Energy Facility Connection Requirements and Section 2.6 of LCRA TSC Facility Connection Requirements.

**GROUNDING AND SAFETY ISSUES**

Medina Lake Substation Terminal: Terminal and incoming static conductor will be connected to the substation ground grid.

Texas Research Substation Terminal: Terminal and incoming static conductor will be connected to the substation ground grid.

LCRA TSC Transmission Line: One Shield Wire, grounded at every structure through an 8' ground rod or grounding loop with Ground Enhancement Material.

CPS Energy Transmission Line: One Shield Wire, grounded at every structure through the foundation footing, except from structure #33 to #95 where static wire is floating.

Determined in accordance with R2.1.7 of CPS Energy Facility Connection Requirements and Section 2.7 of LCRA TSC Facility Connection Requirements.

**INSULATION AND INSULATION COORDINATION**

Medina Lake Substation Terminal: 650 kV BIL

Texas Research Substation Terminal: 650 kV BIL

LCRA TSC Transmission Line: CFO values: 760kV – polymer insulators, 2500kV - glass/porcelain insulators

CPS Energy Transmission Line: CFO values: 745kV – polymer insulators, 2500kV - glass/porcelain insulators

Coordinated in accordance with R2.1.8 of CPS Energy Facility Connection Requirements and Section 2.8 of LCRA TSC Facility Connection Requirements.

**VOLTAGE, REACTIVE POWER, AND POWER FACTOR CONTROL**

NA

**POWER QUALITY**

NA

**EQUIPMENT RATINGS**

Medina Lake Substation Terminal: 138 kV, 1200 A, 40 kA, 650 kV BIL

Texas Research Substation Terminal: 138 kV, 2000 A, 63 kA, 650 kV BIL

LCRA TSC Transmission Line: 138 kV, 923 A, 220 MVA at 105° F ambient.

CPS Energy Transmission Line: 138 kV, 900 A, 215 MVA

Determined in accordance with R2.1.11 of CPS Energy Facility Connection Requirements and Section 2.11 of LCRA TSC Facility Connection Requirements.

**SYNCHRONIZING OF FACILITIES**

All manual or automatic synch check functions shall be conducted at the Texas Research terminal, prior to closing the transmission line.

Determined in accordance with R2.1.12 of CPS Energy Facility Connection Requirements and Section 2.12 of LCRA TSC Facility Connection Requirements.

**MAINTENANCE COORDINATION**

Maintenance Coordination will be performed in accordance with Section 2.7 of the ERC|OT Operating Guides and Section 8 of the ERCOT Protocols. If any maintenance outage has the potential to impact the other, the entity that will be affected must be contacted and given approval prior to the device(s) being removed from service.

When switching is required to isolate equipment involving both parties, appropriate switching orders will be issued by each entity. CPS Energy will issue a "Clearance" if protective grounds are to be installed. Otherwise, a "Procedure" will be issued to document the abnormal state. Both parties will install tags and locks on the associated field equipment and install tags on all SCADA controlled points. Recloser relays may be disabled for the Safety of Field Personnel or System Reliability when agreed to by both Parties. This will be accompanied by the appropriate documentation and tags installed if applicable. In this particular instance, CPS Energy will issue a "Procedure".

The Parties will coordinate, consistent with maintaining good operating practices, their operations to maintain continuity of services to their respective customers to the extent practicable. Planned facility maintenance by either Party that will cause a deviation from the normal power and energy flow at a Point of Interconnection will be scheduled at a mutually agreeable time. No changes will be made in the normal operation of a Point of Interconnection without the mutual agreement of the Parties. The Parties will coordinate, to the extent necessary to support continuity of operations, the operation of protective devices on the facilities they operate in the proximity of the Points of Interconnection which might reasonably be expected to affect the operation of facilities on the other Party's system.

Stated in accordance with R2.1.13 of CPS Energy Facility Connection Requirements and Section 2.13 of LCRA TSC Facility Connection Requirements.

**ABNORMAL OPERATING CONDITIONS**

See Article 4 of Interconnection Agreement.

Both Parties must operate during abnormal conditions (frequency and voltage) as specified by section 4 of the ERCOT Operating Guides.

Determined in accordance with R2.1.14 of CPS Energy Facility Connection Requirements and Section 2.14 of LCRA TSC Facility Connection Requirements.

**INSPECTION REQUIREMENTS FOR EXISTING OR NEW FACILITIES**

Each Party has discretion over the inspection requirements of its own facilities, in accordance with good utility practices and the ERCOT Operating Guides.

Each Party reserves the right, upon request, to review the other Party's design schemes, equipment placement and ratings.

Determined in accordance with R2.1.15 of CPS Energy Facility Connection Requirements and Section 2.15 of LCRA TSC Facility Connection Requirements.

**COMMUNICATION PROCEDURES DURING NORMAL & EMERGENCY CONDITIONS**

Each Party must be registered and in good standings with ERCOT.

Normal and emergency operating procedures must be followed as specified in the ERCOT Guides and ERCOT Protocols. Each Party must provide each other with a 24 hour primary and secondary contact number to discuss any operational issues on a real time basis.

The LCRA TSC Transmission System Operator shall assist CPS Energy in implementing all transmission switching functions as necessary according to this interconnect agreement, good utility practice, and to safely and efficiently operate the transmission bulk system.
The LCRA TSC Transmission System Operator shall notify ERCOT and CPS Energy of any abnormal relaying configuration that may affect reliability.
The LCRA TSC Transmission System Operator shall render available emergency assistance to CPS Energy provided CPS Energy has completed implementation of its own emergency procedures. These actions by the LCRA TSC Transmission System Operator shall not, however, violate safety, equipment, or regulatory or statutory requirements.
The LCRA TSC Transmission System Operator shall not remove any facilities from service that would burden CPS Energy. If removal is necessary, the LCRA TSC Transmission System Operator shall contact ERCOT and CPS Energy at the earliest possible time and explain the impact of removing such facilities.
Determined in accordance with R2.1.16 of CPS Energy Facility Connection Requirements and Section 2.16 of LCRA TSC Facility Connection Requirements.

**SUPPLEMENTAL TERMS AND CONDITIONS:**

- Each Party will be responsible for the operation and maintenance of the facilities it owns.
- Each Party will be responsible for all costs each incurs in connection with this Point of Interconnection.
- CPS Energy will be the "TO with TADS Reporting Responsibility" for NERC TADS reporting associated with the Medina Lake to Texas Research 138kV line.

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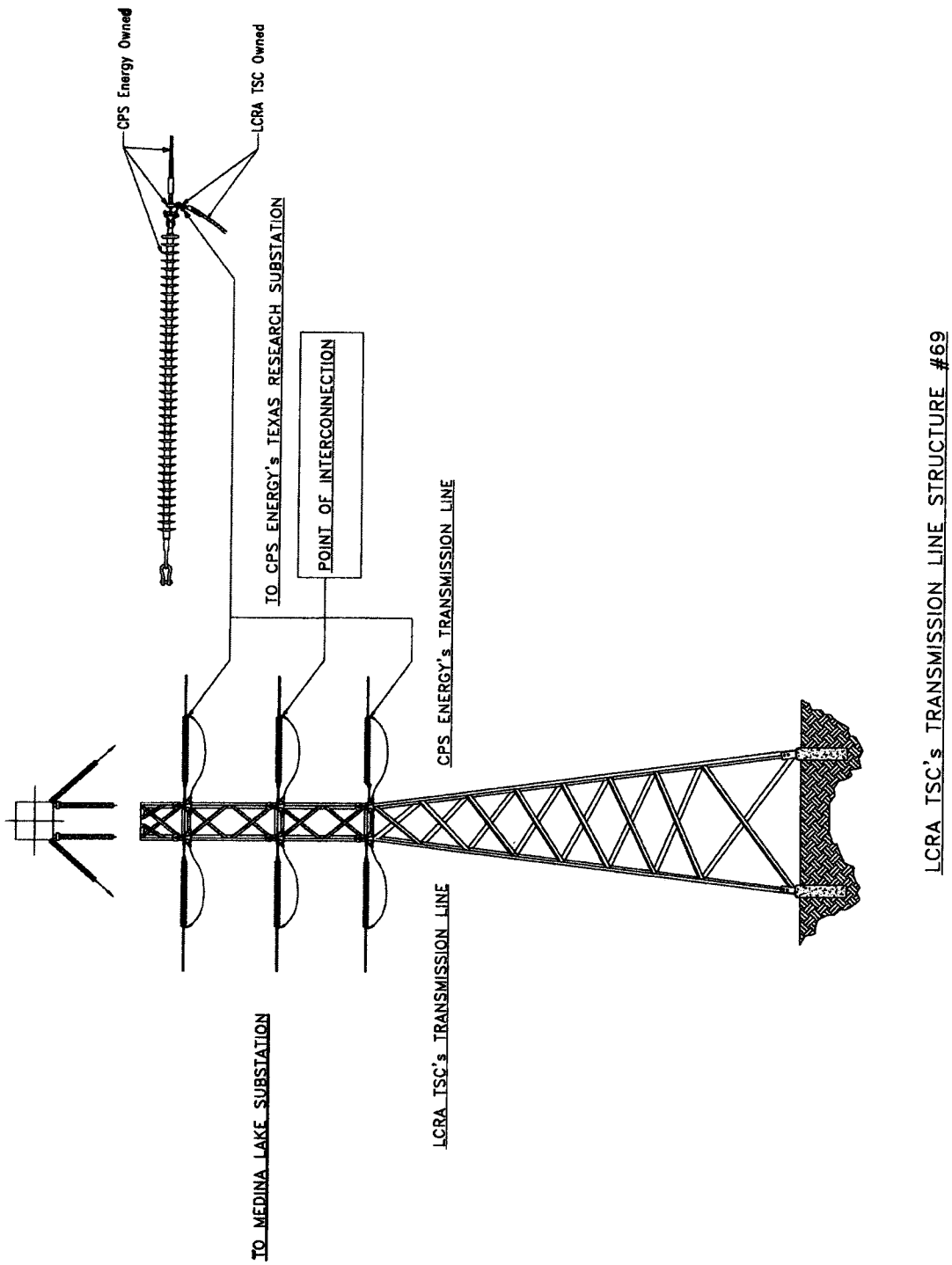
CPS Energy Owned
LCRA TSC Owned
TO CPS ENERGY's TEXAS RESEARCH SUBSTATION
POINT OF INTERCONNECTION
CPS ENERGY's TRANSMISSION LINE
TO MEDINA LAKE SUBSTATION
LCRA TSC's TRANSMISSION LINE
LCRA TSC's TRANSMISSION LINE STRUCTURE #69