Control Number: 35077

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Project No. 35077

Amendment No. 5

INTERCONNECTION AGREEMENT

Between

LCRA Transmission Services Corporation

and

Bandera Electric Cooperative, Inc.

September 27, 2017

704

AMENDMENT NO. 5 TO
INTERCONNECTION AGREEMENT

This Amendment No. 5 ("Amendment") is made and entered into this 27th day of September 2017, between Bandera Electric Cooperative, Inc. ("BEC") and LCRA Transmission Services Corporation ("LCRA TSC") collectively referred to hereinafter as the Parties.

WHEREAS, LCRA TSC and BEC entered into that certain Interconnection Agreement executed January 19, 2010, as amended by that certain Amendment No. 1 executed as of December 19, 2010, as amended by that certain Amendment No. 2 executed as of September 24, 2011, as amended by that certain Amendment No. 3 executed as of March 6, 2012, as amended by that certain Amendment No. 4 executed as of June 12, 2012 (collectively, as amended, the "**Agreement**");

WHEREAS, LCRA TSC will remove switch 5414 and replace switch 5416 as part of the Power Transformer Bypass Capability Substation Upgrade project at Boerne Substation and remove equipment from the IA and drawings that are not relative to the Points of Interconnection;

WHEREAS, BEC will remove switch 5424 and replace switch 5426 as part of the Power Transformer Bypass Capability Substation Upgrade project at Boerne Substation;

WHEREAS, LCRA TSC will remove switches 7071 and 7081 and install buswork and insulators as part of the Power Transformer Bypass Capability Substation Upgrade project at Boerne Cico Substation; and

WHEREAS, LCRA TSC will install a 138 kV 3 breaker ring bus at the Cypress Creek Substation and BEC and LCRA TSC will have their equipment installed in separate yards.

NOW, THEREFORE, in consideration of the mutual promises and undertakings herein set forth, the Parties agree to amend the Agreement as follows:

1. Exhibit "A" is deleted in its entirety and the Exhibit "A" attached to this Amendment No. 5 is hereby added to the Agreement in lieu thereof.

2. Exhibit "A" attached to this Amendment No. 5 is effective upon execution of this Amendment No. 5 by the Parties.

3. Facility Schedule No. 1 (including the diagrams attached thereto) is deleted in its entirety and Facility Schedule No. 1 attached to this Amendment No. 5 is hereby added to the Agreement in lieu thereof.

4. Facility Schedule No. 1 (including the diagrams attached thereto) attached to this Amendment No. 5 is effective upon execution of this Amendment No. 5 by the Parties.

5. Facility Schedule No. 2 (including the diagrams attached thereto) is deleted in its

entirety and Facility Schedule No. 2 attached to this Amendment No. 5 is hereby added to the Agreement in lieu thereof.

6. Facility Schedule No. 2 (including the diagrams attached thereto) attached to this Amendment No. 5 is effective upon execution of this Amendment No. 5 by the Parties.

7. Facility Schedule No. 3 (including the diagrams attached thereto) is deleted in its entirety and Facility Schedule No. 3 attached to this Amendment No. 5 is hereby added to the Agreement in lieu thereof.

8. Facility Schedule No. 3 (including the diagrams attached thereto) attached to this Amendment No. 6 is effective upon execution of this Amendment No. 5 by the Parties.

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 No. 5 to be executed in several counterparts, each of which shall be deemed an original but all shall constitute one and the same instrument.

BANDERA ELECTRIC COOPERATIVE, INC.

By: _____

Name: Bill Hetherington

Title: CEO/General Manager

Date: 9/15/17

LCRA TRANSMISSION SERVICES CORPORATION

By: _____

Name: Sergio Garza, P.E.

Title: LCRA Vice President, Transmission Design and Protection

Date: 09/27/2017

EXHIBIT A

Amendment No. 5

FACILITY SCHEDULE NO.	LOCATION OF POINT(S) OF INTERCONNECTION *(# of Points)*	INTERCONNECTION VOLTAGE (kV)	EFFECTIVE DATE OF INTERCONNECTION
1	Boerne (7)	12.5 and 138 kV	Date of 5th Amendment
2	Boerne Cico (5)	12.5/24.9/138 kV	Date of 5th Amendment
3	Cypress Creek (1)	138 kV	Date of 5th Amendment
4	Leakey (1)	69 kV	March 8, 2012
5	Medina Lake (1)	138 kV	March 8, 2012
6	Menger Creek (6)	12.5 kV	1/19/2010
7	Pipe Creek (0) (deleted)		March 8, 2012
8	Turtle Creek (1)	138 kV	March 8, 2012
9	Verde Creek (2)	138 kV	12/19/2010
10	Welfare (2)	138 kV	March 8, 2012
11	Bandera (0) (deleted)		March 8, 2012
12	Mason Creek (0) (deleted)		March 8, 2012
13	Medina City (0) (deleted)		March 8, 2012
14	Tarpley (0) (deleted)		March 8, 2012
15	Utopia (0) (deleted)		March 8, 2012

FACILITY SCHEDULE NO. 1
Fifth Amendment

1. **Name:** Boerne Substation

2. **Facility Location:** The Boerne Substation is located at 751 Adler St., Boerne, Kendall County, Texas 78006.

3. **Points of Interconnection:** There are seven (7) Points of Interconnection in the Boerne Substation generally described as:
   - where the LCRA TSC jumper from the 138 kV transfer bus bolts to the four hole pad on BEC's switch 5426.
   - where the LCRA TSC tubular bus from circuit switcher CS5425 attaches to the four hole pad on BEC's switch 5426
   - where the T2, 12.5 kV transformer bus terminal connector bolts to the four hole pad at the transformer bushing connection coupler.
   - where the jumper from switch BO52 bolts to the four hole pad on the T2; 12.5 kV operating bus.
   - where the jumper from switch BO54 bolts to the four hole pad on the T2; 12.5 kV transfer bus.
   - where the jumper from breaker BO60 bolts to the four hole pad on switch BO59.
   - where the jumper from breaker BO60 bolts to the four hole pad on switch BO61.

4. **Transformation Services Provided by LCRA TSC:** Yes, per Transformation Service Agreement between the Parties.

5. **Metering Services Provided by LCRA TSC:** Yes, per Wholesale Metering Services agreement between the Parties.

6. **Delivery Voltage:** 12.5 kV

7. **Metered Voltage and Location:** The metering voltage is 12.5 kV. The metering current transformers are located inside T2 and in each distribution bay. The bus potential transformer is located on the T2, 12.5 kV operating bus.

8. **One Line Diagram Attached:** Yes

9. **Description of Facilities Owned by Each Party:**
   BEC owns:
   - One (1) 138 kV switch 5426
   - One (1) 138 kV A-Frame with foundations and trusses.
   - Four (4) distribution circuits including dead end insulators that attach to the dead end structure, conductors, and hardware
   - Four (4) distribution circuit breakers BO50, BO70, BO80 and BO90 including jumpers and protective relay packages
   - Four (4) distribution circuit breaker foundations in bays 9, 11,12 and 13

- Five (5) distribution and total bays including A-frames, trusses, insulators, disconnect switches, surge arresters, 12.5 kV operating and transfer bus, bus potential transformer, and associated cabling
- One (1) MTU and associated fuse F6
- One (1) station service SS2 with fuse F4.

LCRA TSC owns:
The Boerne Substation including but not limited to the following items:

- One (1) circuit switcher CS5425 with associated bypass switch 5427 and disconnect switch 5428
- One (1) power transformer T2 with associated surge arresters, jumpers, foundation and protective relaying
- One (1) total circuit breaker BO60 with jumpers, protective relaying and foundation
- Two (2) 12.5 kV bus tie switches BO52 and BO54
- Four (4) 12.5 kV metering current transformers CT6, CT7, CT8 and CT9
- One (1) meter panel with meters
- Control house (42' X 18')
- Portable battery house (12' X 21') and batteries
- Patrolman's house (12' X 21')
- Substation property, ground grid, gravel, fencing and other appurtenances

10. **Operational Responsibilities of Each Party:** Each Party is responsible for the operation of the equipment it owns.

11. **Maintenance Responsibilities of Each Party:** Each Party will be fully responsible for the maintenance of the equipment it owns.

12. **Other Terms and Conditions:**

- BEC and LCRA TSC are to share access to the substation by hardened LCRA TSC locks in the gate and in the control house doors.
- BEC will supply and allow LCRA TSC use of metering potential transformer PT2 for LCRA TSC metering.
- LCRA TSC will provide BEC access to 125 VDC and 120 VAC power. Circuits must have over current protection devices (OCPD) sized according to NEC standards.
- LCRA TSC will provide BEC with floor space (as necessary) in its control house for the installation of BEC required panels and equipment.

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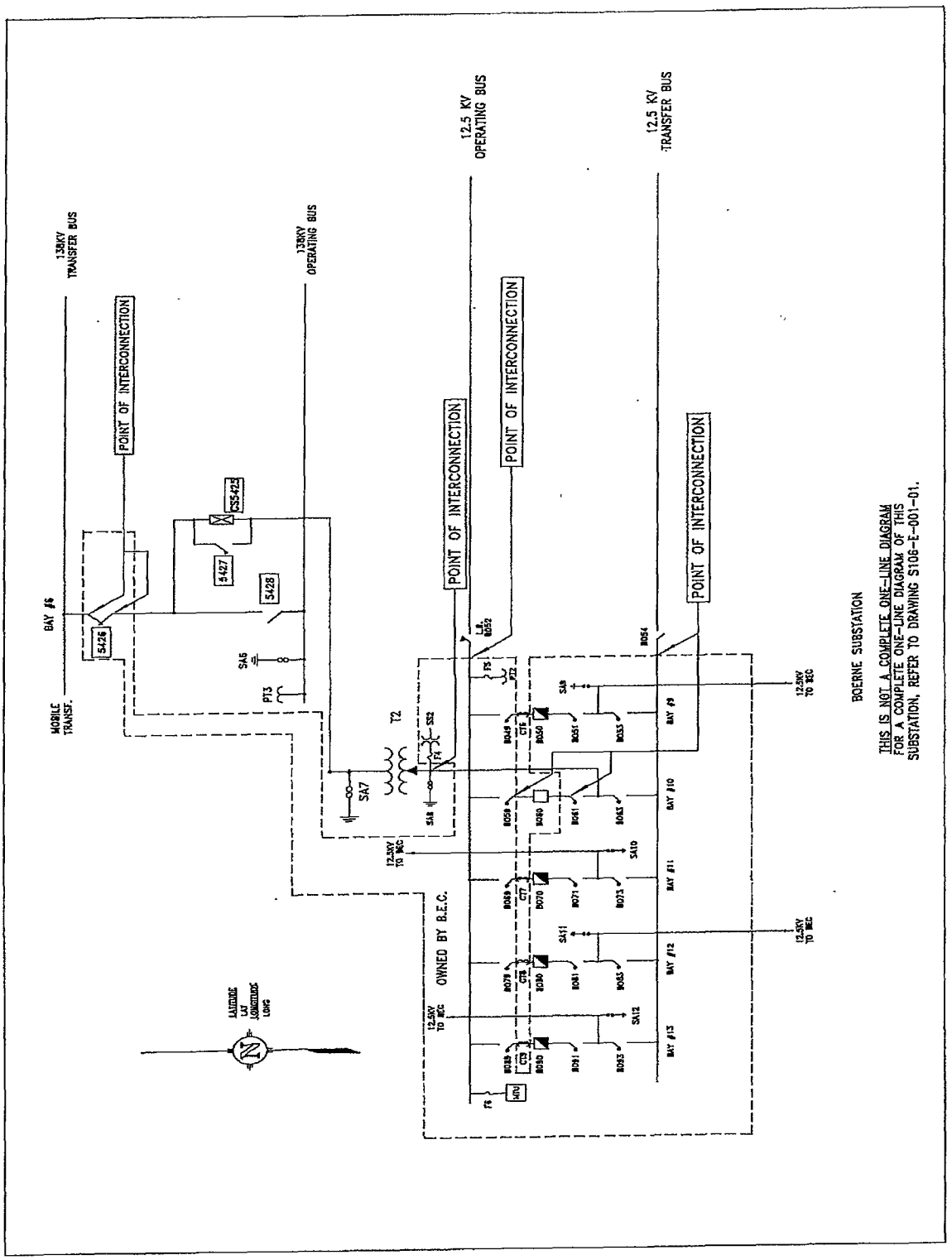
BOERNE ONE-LINE DIAGRAM

Fifth Amendment



FACILITY SCHEDULE NO. 2
Fifth Amendment

1. **Name:** Boerne Cico Substation

2. **Facility Location:** The Boerne Cico Substation is located at 234 SH 46 West, Boerne, Kendall County, Texas 78006.

3. **Points of Interconnection:** There are five (5) Points of Interconnection in the Boerne Cico Substation generally described as:
   - where the Boerne Cico to Pipe Creek transmission line terminates at the dead end insulator in bay #1.
   - where the T4, 12.5 kV transformer wire bus, passing through the dead end termination, bolts to the four hole pad on switch BC21.
   - where the jumper from switch BC23 attaches to the T4, 12.5 kV transformer wire bus with a parallel groove connector.
   - where the T3, 24.9 kV transformer wire bus, passing through the dead end termination, bolts to the four hole pad on switch BC11.
   - where the jumper from switch BC13 attaches to the T3, 24.9 kV transformer wire bus with a parallel groove connector.

4. **Transformation Services Provided by LCRA TSC:** Yes, per Transformation Service Agreement between the Parties.

5. **Metering Services Provided by LCRA TSC:** Yes, per Wholesale Metering Services Agreement between the Parties.

6. **Delivery Voltage:** 12.5/24.9/138 kV

7. **Metered Voltage and Location:** The metering voltage is 12.5 kV and 24.9 kV. The metering current transformers are located in the 12.5 kV total bay and the 24.9 kV total bay. The bus potential transformers are located on the 12.5 kV operating bus and 24.9 kV operating bus.

8. **One Line Diagram Attached:** Yes

9. **Description of Facilities Owned by Each Party:**
   BEC owns:
   - The following transmission line comprised of conductors, insulators, and connecting hardware:
     - 138 kV Boerne Cico to Pipe Creek transmission line
   - All distribution circuits including dead end insulators that attach to the dead end structure, conductors, and hardware
   - All distribution circuit breakers including jumpers, protective relay packages and foundations

- All distribution and total bays including A-frames, trusses, insulators, disconnect switches(except for four LCRA TSC mobile transformer disconnect switches), surge arresters, operating and transfer buses, bus potential transformers and associated cabling
- Six (6) single phase voltage regulators REG2 and REG3 with associated disconnect and bypass switches
- Two (2) MTUs with associated fuses F8 and F9
- One (1) control house (21' X 24') battery bank, battery charger and appurtenances

LCRA TSC owns:
The Boerne Cico Substation including, but not limited to, the following items:

- 138 kV dead-end structures, foundations, insulators and jumpers
- 138 kV operating and transfer bus including structures, foundations and jumpers
- One (1) 138 kV bus differential and breaker failure relaying scheme
- One (1) 138 kV circuit breaker 9990 including jumpers, foundation and protective relaying
- Seven (7) 138 kV switches 7069, 7073, 7079, 7083, 9989, 9991 and 9993
- Two (2) circuit switchers CS7075 and CS7085 with associated bypass switches 7077 and 7087, foundation, jumpers and protective relaying
- Two (2) power transformers T3 and T4 and associated surge arresters, foundations, jumpers and protective relaying
- Two (2) 138 kV surge arrester SA1 and SA23
- One (1) 138 kV bus potential transformer PT1
- Two (2) 138 kV relaying current transformers CT7 and CT9
- One (1) 12.5 kV relaying current transformer CT10
- Two (2) metering current transformers CT5 (24.9 kV) and CT6 (12.5 kV)
- Two (2) single phase relaying current transformers CT8 and CT11
- Four (4) 15 kV mobile transformer disconnect switches BC121, BC123, BC125 and BC127
- One (1) meter panel with meters
- Control house (24' X 32') with battery bank, battery charger and appurtenances
- Substation property, ground grid, gravel, fencing and other appurtenances

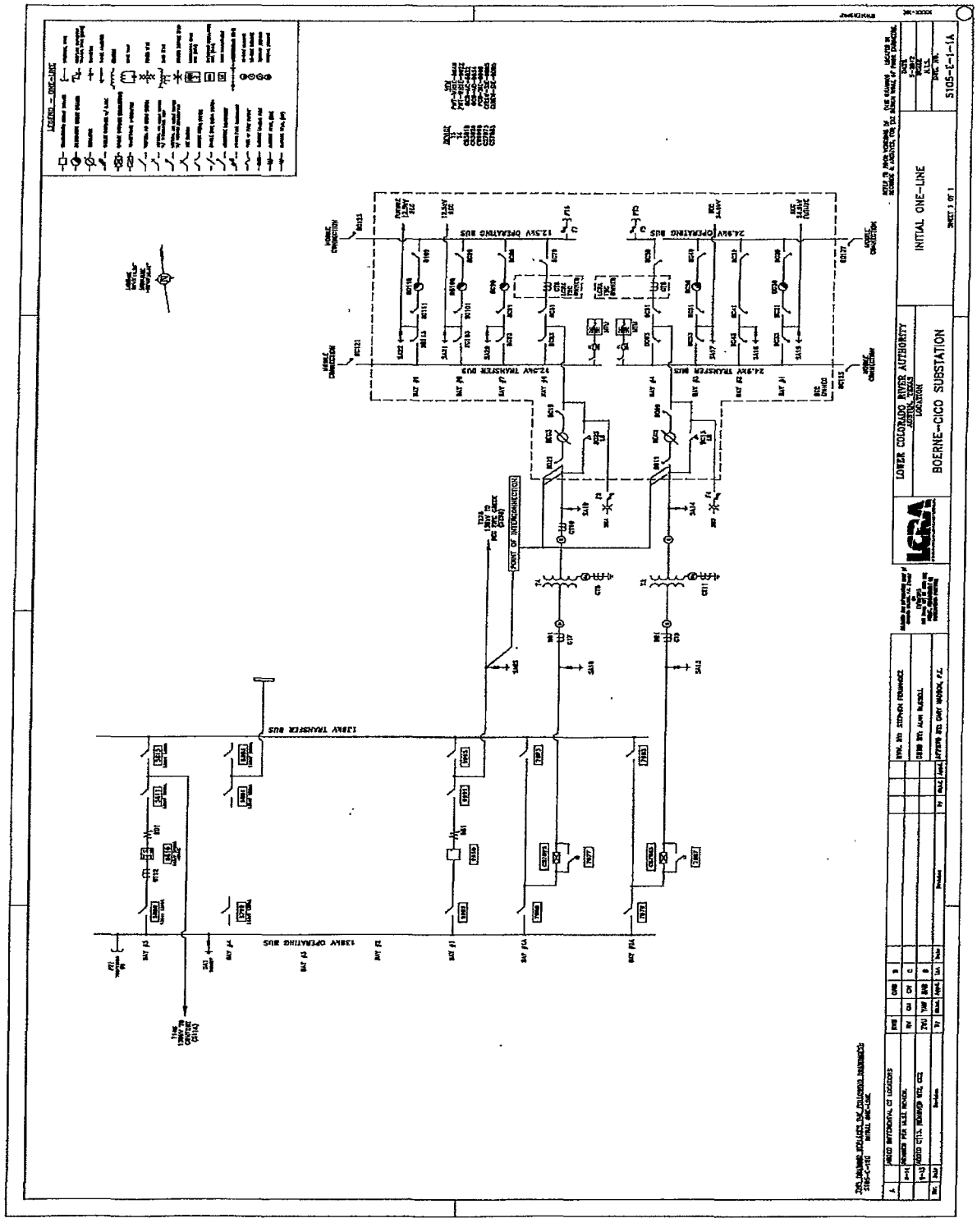
10. **Operational Responsibilities of Each Party:** Each Party is responsible for the operation of the equipment it owns.

11. **Maintenance Responsibilities of Each Party:** Each Party will be fully responsible for the maintenance of the equipment it owns.

12. **Other Terms and Conditions:**
    - BEC and LCRA TSC are to share access to the substation by LCRA TSC locks in the gate and in the control house doors.
    - BEC will supply and allow LCRA TSC use of metering potential transformers PT5 and PT6 for LCRA TSC metering.

BOERNE CICO ONE-LINE DIAGRAM

Fifth Amendment



FACILITY SCHEDULE NO. 3
Amendment No. 5

1. **Name:** Cypress Creek Substation

2. **Facility Location:** The Cypress Creek Substation is located at 18 Pankratz Rd., Comfort, Kendall County, Texas 78013.

3. **Points of Interconnection:** There is one (1) Point of Interconnection in the Cypress Creek Substation generally described as:
   - where the LCRA TSC jumper from the 138 kV bus attaches to BEC's 138 kV operating bus at the fence between the LCRA TSC yard and the BEC yard.

4. **Transformation Services Provided by LCRA TSC:** No

5. **Metering Services Provided by LCRA TSC:** Yes, per Wholesale Metering Services Agreement between the Parties.

6. **Delivery Voltage:** 138 kV

7. **Metered Voltage and Location:** The metering voltage is 12.5 kV. The metering current transformers are located inside transformer T1. The bus potential transformer is located on the T1, 12.5 kV transformer bus and the 12.5 kV operating bus.

8. **One Line Diagram Attached:** Yes

9. **Description of Facilities Owned by Each Party:**

   BEC owns: The Cypress Creek Substation (BEC yard) including, but not limited to, the following equipment:
   - One (1) 138 kV disconnect switch 1434
   - One (1) 138 kV circuit switcher disconnect switch 1432
   - One (1) 138 kV bus including structures, insulators, foundations and jumpers
   - 138 kV bus from Cypress Creek Substation (BEC yard) to the Point of Interconnection at Cypress Creek Substation (LCRA TSC yard) including structures, insulators, foundations and jumpers
   - One (1) 138 kV circuit switcher CS1445 with bypass switch 1447, foundation, stand, jumpers and protective relaying
   - One (1) 138 kV mobile disconnect switch 28858 with stand and mobile connection
   - One (1) power transformer T1 with associated surge arresters, foundation, jumpers and protective relaying
   - One (1) 12.5 kV transformer disconnect switch CC113
   - All distribution circuits including dead end insulators that attach to the dead end structure, conductors, and hardware

- All distribution, bus tie and total circuit breakers including jumpers, protective relay packages and foundations
- All distribution and total bays including A-frames, trusses, insulators, disconnect switches, surge arresters, 12.5 kV operating and transfer bus and associated cabling
- Two (2) 12.5 kV bus potential transformers PT1 and PT2 with associated fuse F4 and F2
- Two (2) station service SS1 and SS2 with associated fuses F3 and F1
- One (1) control house (24' x 40') with batteries, battery charger and appurtenances
- Substation property, ground grid, gravel, fencing and other appurtenances

BEC owns: No equipment in the Cypress Creek Substation (LCRA TSC yard).

LCRA TSC owns: The Cypress Creek Substation (LCRA TSC yard) including, but not limited to, the following equipment:

- Two (2) 138 kV A-Frame dead end structures
- One (1) 138 kV, ring bus including structures, insulators, foundations and jumpers
- Two (2) 138 kV coupling capacitor voltage transformers CCVT1 and CCVT2
- Three (3) 138 kV surge arresters SA2, SA3 and SA9
- One (1) 138 kV power voltage transformer PVT1
- 138 kV bus from Cypress Creek Substation (LCRA TSC yard) to the Point of Interconnection at Cypress Creek Substation (BEC Yard) including structures, insulators, foundations and jumpers
- Three (3) 138 kV circuit breakers 28790, 28800 and 28810 with foundation, jumpers and protective relaying
- Six (6) 138 kV disconnect switches 28789, 28791, 28799, 28801, 28809 and 28811
- One (1) meter panel with primary and backup meters
- One (1) control house (24' x 42') with batteries, battery charger and appurtenances
- One (1) 138 kV transformer bus differential and breaker failure relaying scheme
- Substation property, ground grid, gravel, fencing and other appurtenances
- One (1) interface junction box

10. **Operational Responsibilities of Each Party:** Each Party is responsible for the operation of the equipment it owns.

11. **Maintenance Responsibilities of Each Party:** Each Party is fully responsible for the maintenance of the equipment it owns.

12. **Other Terms and Conditions:**
    - LCRA TSC will share access to the Cypress Creek Substation (LCRA TSC yard) by allowing BEC to place a hardened lock in series with LCRA TSC's lock in the chain securing the gate.

- BEC will share access to the Cypress Creek Substation (BEC yard) by allowing LCRA TSC to place hardened locks in series with BEC's locks in the gate and control house door.
- LCRA TSC will share access to the Cypress Creek Substation (LCRA TSC yard) control house. Access is obtained by calling LCRA TSC's System Operations Control Center using the intercom at the door of the control house.
- BEC will supply and allow LCRA TSC use of its 12.5 kV bus potential transformer PT1 and PT2 for metering.
- BEC will supply and allow LCRA TSC use of transformer T1 relaying and metering bushing current transformers for LCRA TSC's 138 kV transformer bus differential relaying and breaker failure scheme and for metering.
- LCRA TSC will provide tripping and close inhibit contacts from its 138 kV bus differential & breaker failure relaying panel to BEC's circuit switcher CS1445 relaying panel.
- BEC will provide breaker failure initiate contacts from its circuit switcher CS1445 relaying panel to LCRA TSC's 138 kV transformer bus differential & breaker failure relaying panel.
- BEC will provide trenching, cable and conduits from its facilities to the interface junction box located in the LCRA TSC yard for wiring needed to interface the two systems.
- LCRA TSC will supply and install the interface junction box and will provide trenching, cable and conduits from its facilities to the interface junction box for wiring needed to interface the two systems.
- BEC and LCRA TSC ground grids will be installed by each Party but will be connected together at the shared substation boundary.
- BEC and LCRA TSC shield wire systems will be installed by each Party and will be connected together at the shared substation boundary or a mutually agreed upon location.
- Cypress Creek Substation (LCRA TSC yard) substation access and physical security will be in accordance with LCRA TSC standards which includes:
  - An 8' tall ½" mesh security fence topped with 1'6" concertina wire
  - Intrusion detection
  - Perimeter lighting
  - Hardened chains and locks at access points
  - Yard and control house surveillance (cameras)
  - Card reader control house access with intercom to SOCC
  - RTU/Security cabinet card access only
  - No control house windows (houses with existing windows will have them blocked)
  - 120 db sirens and flashing lights inside and outside of control house

CYPRESS CREEK ONE-LINE DIAGRAM

Amendment No. 5