



Control Number: 35077



Item Number: 761

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Project No. 35077

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Amendment No. 4

**PUBLIC UTILITY COMMISSION
FILING CLERK**

INTERCONNECTION AGREEMENT

Between

LCRA Transmission Services Corporation

and

Electric Transmission Texas, LLC

September 22, 2017

761

**AMENDMENT NO. 4 TO THE
INTERCONNECTION AGREEMENT
BETWEEN
ELECTRIC TRANSMISSION TEXAS, LLC
AND
LCRA TRANSMISSION SERVICES CORPORATION**

This Amendment No. 4 (this “Amendment”) to the Interconnection Agreement between **Electric Transmission Texas, LLC** (“**ETT**”), a Delaware limited liability company, and **LCRA Transmission Services Corporation** (“**LCRA TSC**”), a nonprofit affiliated company of the Lower Colorado River Authority, a conservation and reclamation district of the State of Texas, executed April 12, 2010 (as amended, the “Interconnection Agreement”), is made and entered into as of 9/22/2017 | 10:16 AM EDT, by and between ETT and LCRA TSC each sometimes hereinafter referred to individually as “Party” or both referred to collectively as “Parties.”

WITNESSETH

WHEREAS, the Parties entered into the original Interconnection Agreement on April 12, 2010, including all Exhibits and Facility Schedules attached thereto;

WHEREAS, the Parties entered into Amendment No. 1 to the Interconnection Agreement on September 16, 2011, Amendment No. 2 to the Interconnection Agreement on April 10, 2014, and Amendment No. 3 to the Interconnection Agreement on October 12, 2016;

WHEREAS, the Interconnection Agreement provides terms and conditions that allow a Point of Interconnection to be added to or deleted from the Interconnection Agreement as mutually agreed by the Parties;

WHEREAS, the Parties have agreed to amend Facility Schedule No. 9 that provides for the Bakersfield Switchyard Points of Interconnection, such that LCRA TSC will extend 345 kV operating buses #1 and #2 to provide ETT with additional space for generation interconnection facilities;

WHEREAS, LCRA TSC has implemented physical security upgrades at Bakersfield Switchyard;

WHEREAS, the Parties have agreed to add Facility Schedule No. 10 that provides for the Big Hill Switchyard Points of Interconnection, such that ETT anticipates purchasing two existing LCRA TSC disconnect switches, and will add 345 kV circuit breakers and associated equipment in LCRA TSC 345 kV bay #3 (ETT Rung #1) to provide ETT with space for generation interconnection facilities;

WHEREAS, LCRA TSC has implemented physical security upgrades at Big Hill Switchyard; and

WHEREAS, the Parties have agreed to amend the Interconnection Agreement in accordance with its terms and conditions.

NOW, THEREFORE, in consideration of the foregoing premises and the mutual covenants set forth herein, the Parties agree as follows:

I. CAPITALIZED TERMS

Capitalized terms used but not otherwise defined herein shall have the meanings specified in the Interconnection Agreement, as amended and supplemented by this Amendment.

II. ADDITIONS AND AMENDMENTS

Effective as of the date first written above, a) Facility Schedule No. 9 of the Interconnection Agreement is hereby amended in its entirety by the attached Facility Schedule No. 9, b) Facility Schedule No. 10, attached hereto, is hereby added to the Interconnection Agreement, and c) Exhibit A of the Interconnection Agreement is hereby amended in its entirety by the attached Exhibit "A" to record this amendment and addition. Such amended Facility Schedule, added Facility Schedule, and amended Exhibit A will be incorporated into the Interconnection Agreement to form one consolidated and amended agreement.

III. RATIFICATION OF OTHER TERMS

All terms and conditions of the Interconnection Agreement which are not specifically amended by this Amendment shall remain unchanged and are hereby ratified by the Parties and shall continue to be in full force and effect.

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IN WITNESS WHEREOF, the Parties have caused this Amendment to be executed in two (2) counterparts, each of which shall be deemed an original but both shall constitute one and the same instrument.

ELECTRIC TRANSMISSION TEXAS, LLC

DS
ALH

By: FFDF1B6D40524A3
Kip M. Fox
DocuSigned By: Kip M. Fox
Kip M. Fox
President

Date: 9/22/2017 | 10:16 AM EDT

LCRA TRANSMISSION SERVICES CORPORATION

By: [Signature]
Sergio Garza, P.E.
LCRA Vice President, Transmission Design and Protection

Date: 09/19/2017



EXHIBIT A

Facility Schedule No.	Name of Point of Interconnection (# of Points)	Delivery Voltage [kV]	Estimated Peak Load [kW]	Original Effective Date, Prior Amendment Dates or Termination Date
1	Firerock (2)	138	-	March 29, 2010
2	Port Aransas (1)	69	-	March 29, 2010
3	Laguna (2)	69	-	March 29, 2010
4	Nueces Bay (2)	138	-	March 29, 2010
5	Hamilton Road (1)	138	-	March 29, 2010
6	Ft. Lancaster (1)	138	-	September 16, 2011
7	Orsted (4)	345	-	April 10, 2014
8	Edison (4)	345	-	April 10, 2014
9	Bakersfield Switchyard (4)	345	-	October 12, 2016 9/22/2017 10:16 AM EDT
10	Big Hill Switchyard (2)	345	-	9/22/2017 10:16 AM EDT

FACILITY SCHEDULE NO. 9

1. **Name:** **Bakersfield Switchyard**
2. **Location:** LCRA TSC's Bakersfield Switchyard ("Switchyard") is located at 1025 FM 1901, Iraan, Pecos County, Texas 79744. There are four (4) Points of Interconnection ("POI's") at the Switchyard located 1) where the ETT 345 kV switch 7914 positioned adjacent to the Switchyard 345 kV Bus #1 (West Bus) connects to the Switchyard 345 kV Bus #1, 2) where the ETT 345 kV switch 9894 positioned adjacent to the Switchyard 345 kV Bus #2 (East Bus) connects to the Switchyard 345 kV Bus #2, 3) where the ETT 345 kV switch 11304 positioned adjacent to the Switchyard 345 kV Bus #1 (West Bus) connects to the Switchyard 345 kV Bus #1, and 4) where the ETT 345 kV switch 12179 positioned adjacent to the Switchyard 345 kV Bus #2 (East Bus) connects to the Switchyard 345 kV Bus #2. More specifically, the POI's are where the ETT jumper conductors from the ETT 345 kV switches physically connect to the Switchyard 345 kV bus equipment.
3. **Delivery Voltage:** 345 kV
4. **Metered Voltage:** NA
5. **Normal Operation of Interconnection:** Closed
6. **One-Line Diagram Attached:** Yes
7. **Facility Ownership Responsibilities of the Parties:**

ETT owns the following facilities:

- i. five (5) 345 kV circuit breakers (7915, 1200, 9895, 11305 and 12180)
- ii. ETT's drop-in control module with ETT's batteries and battery chargers
- iii. three (3) 345 kV deadend line terminals within the Switchyard
- iv. all interconnecting facilities including 345 kV switch 7914 (breaker 7915 bus disconnect switch) and 345 kV switch 9894 (breaker 9895 bus disconnect switch) on that certain ETT rung located in LCRA TSC 345 kV Bay #2 between the Switchyard's 345 kV Bus #1 and 345 kV Bus #2 ("ETT Rung #1")
- v. all interconnecting facilities including 345 kV switch 11304 (breaker 11305 bus disconnect switch) and 345 kV switch 12179 (breaker 12180 bus disconnect switch) on that certain ETT rung located in LCRA TSC 345 kV Bay #1 between the Switchyard's 345 kV Bus #1 and 345 kV Bus #2 ("ETT Rung #2")
- vi. jumper conductors from switches 7914, 9894, 11304, and 12179 to the Switchyard 345 kV bus equipment
- vii. two (2) station service sources (preferred on ETT Rung #1 and alternate on ETT Rung #2)

- viii. two (2) 4-inch conduits containing singlemode and multi-mode fiber optic cables between ETT's drop-in control module and LCRA TSC's control house
- ix. fiber distribution panels in ETT's drop-in control module for termination of the fiber optic cables described above

LCRA TSC owns the following facilities:

- i. the Switchyard and all the facilities within it, except for those facilities identified as being owned by ETT above
- ii. two (2) reactor banks with control breakers (27380 and 27390) and protective relaying
- iii. three (3) 345 kV circuit breakers (24540, 24550 and 24560)
- iv. primary and secondary 345 kV Bus #1 Bus Differential and Breaker Failure relaying scheme
- v. primary and secondary 345 kV Bus #2 Bus Differential and Breaker Failure relaying scheme
- vi. LCRA TSC's control house with LCRA TSC's batteries and battery charger
- vii. Switchyard property, ground grid, fencing and other appurtenances
- viii. fiber distribution panels in LCRA TSC's control house for termination of ETT's fiber optic cables described above

8. Facility Operation and Maintenance Responsibilities of the Parties:

- i. Each Party is responsible for the operation and control of the facilities it owns.
- ii. Each Party maintains the facilities it owns that are provided for in this Facility Schedule. Maintenance of the facilities, including circuit breaker relays, that are owned by one Party that protect the facilities owned by the other Party, will be subject to review and approval by the other Party.
- iii. ETT will supply and provide primary and secondary 3000:5 MRCT relaying current transformers from ETT's 345 kV circuit breakers 11305 and 7915 for use by LCRA TSC in LCRA TSC's 345 kV Bus #1 Primary and Secondary Bus Differential relaying scheme. Cables will be run to the appropriate bus differential CT junction boxes owned by LCRA TSC.
- iv. ETT will supply and provide primary and secondary 3000:5 MRCT relaying current transformers from ETT's 345 kV circuit breakers 12180 and 9895 for use by LCRA TSC in LCRA TSC's 345 kV Bus #2 Primary and Secondary Bus Differential relaying scheme. Cables will be run to the appropriate bus differential CT junction boxes owned by LCRA TSC.
- v. LCRA TSC will provide tripping and close inhibit contacts from its 345 kV Bus #1 Differential and Breaker Failure relaying panel to ETT's relaying panels for its 345 kV circuit breakers 11305 and 7915.
- vi. LCRA TSC will provide tripping and close inhibit contacts from its 345 kV Bus #2 Differential and Breaker Failure relaying panel to ETT's relaying panels for its 345 kV circuit breakers 12180 and 9895.
- vii. ETT will provide breaker failure initiate relay output contacts from its relaying panels for 345 kV circuit breakers 11305 and 7915 to LCRA TSC's 345 kV Bus #1 Primary Bus Differential and Breaker Failure relaying panel.

- viii. ETT will provide breaker failure initiate relay output contacts from its relaying panels for 345 kV circuit breakers 12180 and 9895 to LCRA TSC's 345 kV Bus #2 Primary Bus Differential and Breaker Failure relaying panel.
- ix. LCRA TSC will provide single-phase Bus #1 potential (115V) for ETT circuit breakers 11305 and 7915 synchronism checking.
- x. LCRA TSC will provide single-phase Bus #2 potential (115V) for ETT circuit breakers 12180 and 9895 synchronism checking.
- xi. The Parties shall design, provide and coordinate their respective protection system equipment so that adjacent zones of protection overlap in accordance with ERCOT Nodal Operating Guides.

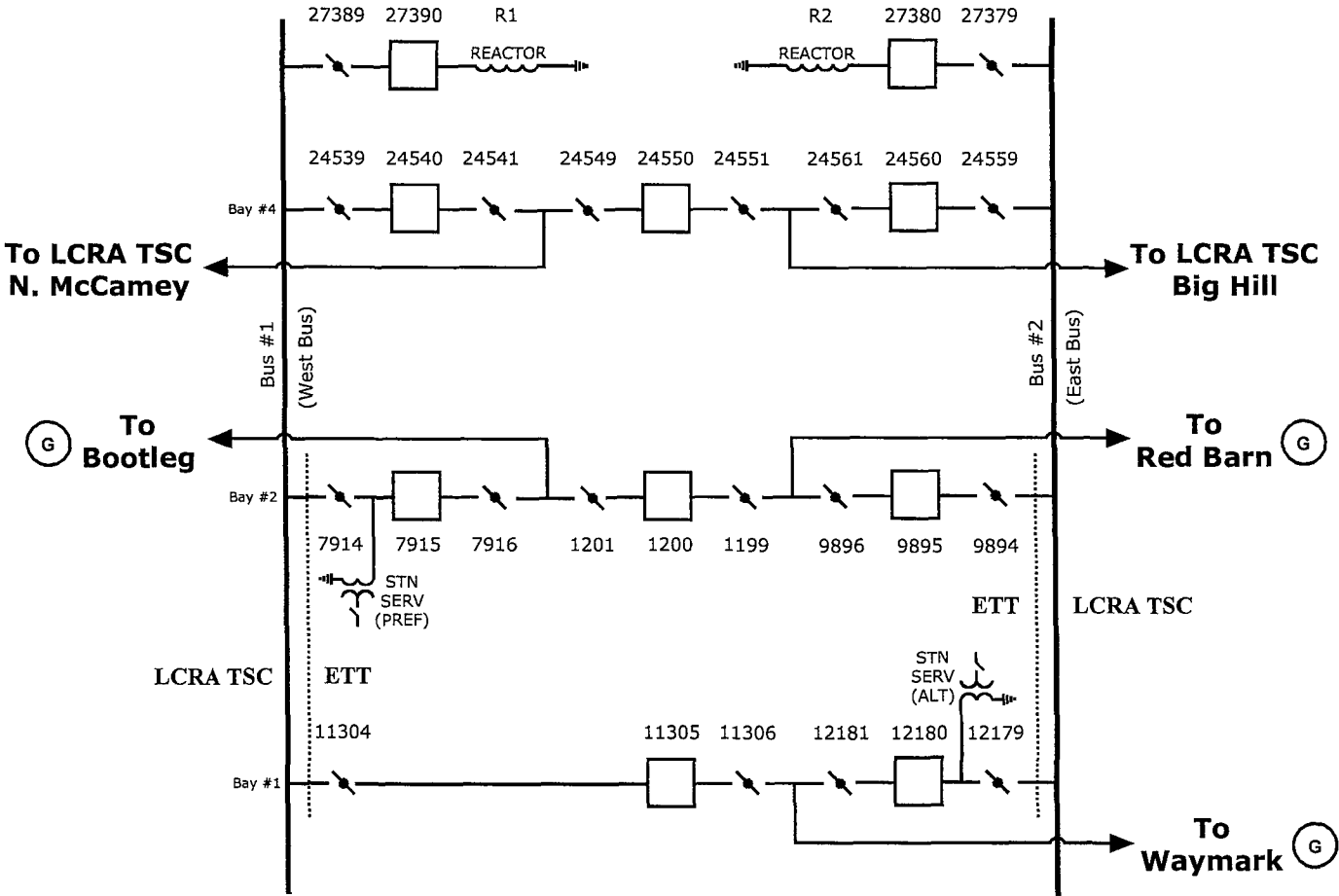
9. Cost Responsibilities of the Parties:

- i. Each Party will be fully responsible for the costs and liabilities related to the facilities it owns.
- ii. Each Party will be responsible for all costs it incurs in connection with the establishment and maintenance of the POI's in accordance with this Facility Schedule.

10. Other Terms and Conditions:

- i. LCRA TSC will share access to the Switchyard by allowing ETT to place a hardened lock in series with LCRA TSC's lock in the chain securing the gate.
- ii. LCRA TSC will share access to the Switchyard control house. Access is obtained by calling LCRA TSC's System Operations Control Center ("SOCC") using the intercom at the door of the control house.
- iii. Generation interconnection rights shall, in accordance the Memorandum of Understanding Between LCRA TSC and ETT on CREZ Facility Responsibilities, dated July 27, 2009 (the "MOU"), be granted to ETT for generation interconnection facilities at the Switchyard. Such MOU provides for certain ownership, construction, installation, operation and maintenance roles, among others, with respect to the Parties' transmission assets as identified in the MOU.
- iv. LCRA TSC will extend the Switchyard's 345 kV Bus #1 and 345 kV Bus #2 to accommodate LCRA TSC Bay #1 and the two POI's on ETT Rung #2.
- v. LCRA TSC's substation access and physical security will be in accordance with LCRA TSC standards which include:
 - a. An 8' tall ½" mesh security fence topped with 1'6" concertina wire
 - b. Intrusion detection
 - c. Perimeter lighting
 - d. Hardened chains and locks at access points
 - e. Yard and control house surveillance (cameras)
 - f. Card reader control house access with intercom to LCRA TSC's SOCC
 - g. RTU/security cabinet card access only
 - h. No control house windows (houses with existing windows will have them blocked)
 - i. 120 db sirens and flashing lights inside and outside of control house.

FACILITY SCHEDULE NO. 9 (continued)
One-Line Diagram



Bakersfield Switchyard
345 kV

FACILITY SCHEDULE NO. 10

1. **Name:** **Big Hill Switchyard**
2. **Location:** LCRA TSC's Big Hill Switchyard ("Switchyard") is located at 633 County Road 431, El Dorado, Schleicher County, Texas 76936. There are two (2) Points of Interconnection ("POI's") at the Switchyard located 1) where the ETT 345 kV switch XXXX positioned adjacent to the Switchyard 345 kV Bus #1 (West Bus) connects to the Switchyard 345 kV Bus #1, and 2) where the ETT 345 kV switch YYYY positioned adjacent to the Switchyard 345 kV Bus #2 (East Bus) connects to the Switchyard 345 kV Bus #2. More specifically, the POI's are where the ETT jumper conductors from the ETT 345 kV switches physically connect to the Switchyard 345 kV bus equipment.
3. **Delivery Voltage:** 345 kV
4. **Metered Voltage:** NA
5. **Normal Operation of Interconnection:** Closed
6. **One-Line Diagram Attached:** Yes
7. **Facility Ownership Responsibilities of the Parties:**

ETT owns the following facilities:

- i. two (2) 345 kV circuit breakers ("A" and "B")
- ii. ETT's drop-in control module with ETT's batteries and battery chargers with location to be coordinated with and approved by LCRA TSC
- iii. one (1) 345 kV deadend line terminal within the Switchyard
- iv. all interconnecting facilities including 345 kV switch XXXX (breaker "A" bus disconnect switch) and 345 kV switch YYYY (breaker "B" bus disconnect switch) on that certain ETT rung located in LCRA TSC 345 kV Bay #3 between the Switchyard's 345 kV Bus #1 and 345 kV Bus #2 ("ETT Rung #1")
- v. jumper conductors from switches XXXX and YYYY to the Switchyard 345 kV bus equipment
- vi. two (2) station service sources (preferred and alternate on ETT Rung #1)
- vii. two (2) 4-inch conduits containing singlemode and multi-mode fiber optic cables between ETT's drop-in control module and LCRA TSC's control house
- viii. fiber distribution panels in ETT's drop-in control module for termination of the fiber optic cables described above

LCRA TSC owns the following facilities:

- i. the Switchyard and all the facilities within it, except for those facilities identified as being owned by ETT above

- ii. two (2) reactor banks with control breakers (24000 and 24010) and protective relaying
- iii. two (2) capacitor banks with control breakers (23980 and 23990) and protective relaying
- iv. primary and secondary 345 kV Bus #3 Bus Differential and Breaker Failure relaying scheme
- v. eight (8) 345 kV circuit breakers 23180, 23190, 23120, 23130, 23140, 23090, 23100 and 23110
- vi. primary and secondary 345 kV Bus #1 Bus Differential and Breaker Failure relaying scheme
- vii. primary and secondary 345 kV Bus #2 Bus Differential and Breaker Failure relaying scheme
- viii. LCRA TSC's control house with LCRA TSC's batteries and battery charger
- ix. Switchyard property, ground grid, fencing and other appurtenances
- x. fiber distribution panels in LCRA TSC's control house for termination of ETT's fiber optic cables described above

8. Facility Operation and Maintenance Responsibilities of the Parties:

- i. Each Party is responsible for the operation and control of the facilities it owns.
- ii. Each Party maintains the facilities it owns that are provided for in this Facility Schedule. Maintenance of the facilities, including circuit breaker relays, that are owned by one Party that protect the facilities owned by the other Party, will be subject to review and approval by the other Party.
- iii. ETT will supply and provide primary and secondary 3000:5 MRCT relaying current transformers from ETT's 345 kV circuit breaker "A" for use by LCRA TSC in LCRA TSC's 345 kV Bus #1 Primary and Secondary Bus Differential relaying scheme.
- iv. ETT will supply and provide primary and secondary 3000:5 MRCT relaying current transformers from ETT's 345 kV circuit breaker "B" for use by LCRA TSC in LCRA TSC's 345 kV Bus #2 Primary and Secondary Bus Differential relaying scheme.
- v. LCRA TSC will provide tripping and close inhibit contacts from its 345 kV Bus #1 Differential and Breaker Failure relaying panel to ETT's 345 kV circuit breaker "A" relaying panel.
- vi. LCRA TSC will provide tripping and close inhibit contacts from its 345 kV Bus #2 Differential and Breaker Failure relaying panel to ETT's 345 kV circuit breaker "B" relaying panel.
- vii. ETT will provide breaker failure initiate contacts from its 345 kV circuit breaker "A" relaying panel to LCRA TSC's 345 kV Bus #1 Primary Bus Differential and Breaker Failure relaying panel.
- viii. ETT will provide breaker failure initiate contacts from its 345 kV circuit breaker "B" relaying panel to LCRA TSC's 345 kV Bus #2 Primary Bus Differential and Breaker Failure relaying panel.
- ix. LCRA TSC will provide single-phase Bus #1 potential (115V) for ETT circuit breaker "A" synchronism checking.

- x. LCRA TSC will provide single-phase Bus #2 potential (115V) for ETT circuit breaker "B" synchronism checking.
- xi. The Parties shall design, provide and coordinate their respective protection system equipment so that adjacent zones of protection overlap in accordance with ERCOT Nodal Operating Guides.

9. Cost Responsibilities of the Parties:

- i. Each Party will be fully responsible for the costs and liabilities related to the facilities it owns.
- ii. Each Party will be responsible for all costs it incurs in connection with the establishment and maintenance of the POI's in accordance with this Facility Schedule.

10. Other Terms and Conditions:

- i. LCRA TSC will share access to the Switchyard by allowing ETT to place a hardened lock in series with LCRA TSC's lock in the chain securing the gate.
- ii. LCRA TSC will share access to the Switchyard control house. Access is obtained by calling LCRA TSC's System Operations Control Center ("SOCC") using the intercom at the door of the control house.
- iii. Generation interconnection rights shall, in accordance the Memorandum of Understanding Between LCRA TSC and ETT on CREZ Facility Responsibilities, dated July 27, 2009 (the "MOU"), be granted to ETT for generation interconnection facilities at the Switchyard. Such MOU provides for certain ownership, construction, installation, operation and maintenance roles, among others, with respect to the Parties' transmission assets as identified in the MOU.
- iv. As of the execution date of Amendment No. 4 to the Interconnection Agreement, ETT anticipates purchasing LCRA TSC switch 23059 (to be renumbered as ETT switch XXXX), LCRA TSC switch 23079 (to be renumbered as ETT switch YYYY), and associated LCRA TSC foundations and switch stands.
- v. LCRA TSC's substation access and physical security will be in accordance with LCRA TSC standards which include:
 - a. An 8' tall ½" mesh security fence topped with 1'6" concertina wire
 - b. Intrusion detection
 - c. Perimeter lighting
 - d. Hardened chains and locks at access points
 - e. Yard and control house surveillance (cameras)
 - f. Card reader control house access with intercom to LCRA TSC's SOCC
 - g. RTU/security cabinet card access only
 - h. No control house windows (houses with existing windows will have them blocked)
 - i. 120 db sirens and flashing lights inside and outside of control house.

FACILITY SCHEDULE NO. 10 (continued) **One-Line Diagram**

