



Transmission Facility Interconnection Procedures  
and Requirements  
(AmerenUE, AmerenCIPS, AmerenCILCO, and  
AmerenIP)

This Document applies to the following NERC Reliability Standard

<b>Standard Number &amp; Revision</b>	<b>Registered Entity</b>	<b>NERC Functional Model</b>
FAC-001-0	Ameren Services	Transmission Owner Transmission Planner Transmission Operator

Document Approvals

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## NERC Standard to Ameren Document Cross Reference

**NERC Standard: FAC-001-0**

<b>NERC Requirement or Measure</b>	<b>Document Section</b>
R1.2 Transmission facilities	Document as a whole
R2.1.1 Procedures for coordinated joint studies	Section 2 (Page 5)
R2.1.2 Procedures for notification of new or modified facilities	Section 10 (Page 8)
R2.1.3 Voltage level and MW, Mvar demand	Section 3 (Pages 5 and 6)
R2.1.4 Breaker duty and surge protection	Appendix A, Section 2 a. 3). (Page 12)
R2.1.5 System Protection and coordination	Appendix A, Section 2 (Pages 11 and 12)
R2.1.6 Metering and telecommunications	Appendix A, Section 5 (Pages 13 and 14)
R2.1.7 Grounding and safety issues	Appendix A, Section 8 (Page 15)
R2.1.8 Insulation and insulation coordination	Appendix A, Section 4 (Page 13)
R2.1.9 Voltage, Reactive Power, and power factor control	Appendix A Section 3 (Page 13)
R2.1.10 Power quality impacts	Appendix A, Section 1 (Pages 10 and 11)
R2.1.11 Equipment Ratings	Appendix A, Section 6 (Page 15)
R2.1.12 Synchronizing of facilities	Appendix A, Section 7 (Page 15)
R2.1.13 Maintenance coordination	Appendix A, Section 9 (Page 15)
R2.1.14 Operational issues (abnormal frequency and voltages)	Not applicable to transmission facility interconnections
R2.1.15 Inspection requirement for existing or new facilities	Appendix A, Section 11 (Page 16)
R2.1.16 Communications and procedures during normal and emergency operating conditions	Appendix A, Section 12 (Page 16)
R3 Maintain and update facility connection requirements as required. Make documentation of requirements available to users of transmission system, SERC, and NERC on request within 5 business days.	Section 1 (Page 5)

**SERC Supplement to Ameren Document Cross Reference**

**SERC Supplement: Facility Connection Requirements**

<b>SERC Supplement – Facility Connection Requirements</b>	<b>Document Section</b>
II. General Requirements for Compliance	Section 2 (Page 5)
Self Application Statement	Section 2 (Page 5)
1. Impact Study Requirements	Section 5 (Pages 6 and 7)
2. Provision for Future Changes	Section 11 (Page 9)
3. Voltage and Power Factor Control	Appendix A, Section 3 (Page 13)
4. Generation Control	Refer to MISO Generator Connection Procedures
5. Short Circuit Conditions	Appendix A, Section 2 b. (Page 12)
6. System Protection and Other Controls	Appendix A, Section 2 (Pages 11 and 12)
7. Telemetry and Metering	Appendix A, Section 5 (Pages 13 and 14)
8. Supervisory Control and Data Acquisition (SCADA)	Appendix A, Section 5 b. and e. (Pages 13 and 14)
9. System Grounding	Appendix A, Section 8 (Page 15)
10. Equipment Ratings	Appendix A, Section 6 (Page 15)
11. Reactive Power Requirements	Appendix A, Section 3 (Page 13)
12. Power Quality	Appendix A, Section 1 (Page 10)
13. Synchronizing Facilities	Appendix A, Section 7 (Page 15)
14. Maintenance Coordination	Appendix A, Section 9 (Pages 15 and 16)
15. Maintenance Requirements	Appendix A, Section 2 (Pages 11 and 12) Appendix A, Section 2 b. (Page 12) Appendix A, Section 9 (Pages 15 and 16)
16. Abnormal Frequency and Voltage Operation	Not applicable to transmission facility interconnections.
17. Inspection Requirements	Appendix A, Section 11 (Page 16)
18. Communications During Normal and Emergency Conditions	Appendix A, Section 12 (Page 16)
19. Responsibilities During Emergency Conditions	Appendix A, Section 12 (Page 16)

**Document Distribution List**

<b>Recipient</b>	<b>Company</b>
Transmission & Interconnections Group	Ameren Services
Operations Planning Group	Ameren Services
Transmission Operations	Ameren Services
T&D Design Groups	Ameren Services
System Protection Groups	Ameren Services
Reliability Standard Compliance	Ameren Services

## TABLE OF CONTENTS

1.	Introduction .....	5
2.	General Requirements .....	5
3.	Making Interconnection Request .....	5
4.	Cost to Study Interconnection .....	6
5.	Receiving Request and Agreement to Perform Study .....	6
6.	Provide Opportunity for Entity to Make Comments .....	8
7.	Entity Determines Value of Interconnection .....	8
8.	Interconnection Agreement .....	8
9.	Internal Release of New Project .....	8
10.	Notification to Neighboring Electric System of Interconnection .....	8
11.	Notification by Entity to Company Regarding Changes to Existing Connection(s) .....	9

### Appendix

1.	Power Quality Impacts.....	10
2.	System protection and Coordination.....	11
3.	Voltage and Reactive Power Considerations.....	13
4.	Insulation, Insulation Coordination, Surge Protection, and Shielding.....	13
5.	Metering and Telecommunications.....	13
6.	Equipment Ratings.....	15
7.	Synchronizing of Facilities .....	15
8.	Grounding and Safety Issues.....	15
9.	Maintenance Coordination.....	15
10.	Operational Issues.....	16
11.	Inspection Requirements for Existing or New Facilities.....	16
12.	Communications and Procedures during Normal and Emergency Operating Conditions .....	16
13.	Electrical equipment to be furnished by the Transmission Facility owner and by Ameren .....	17

## **1. Introduction**

A transmission system is defined as those electrical system facilities that do not satisfy the FERC seven factor test for determining distribution facilities and are not generator GSUs or lead lines and associated equipment. A transmission facility interconnection to Ameren's transmission system is a facility that connects Ameren's transmission system to another entity's transmission system. A transmission facility interconnection to Ameren's transmission system must be in compliance with the MISO Open Access Transmission Tariff (OATT) or successor RTO OATT. The following information provides general procedures and requirements for connecting transmission facilities to the Ameren Transmission System. If this interconnection also includes generation connection, then the MISO Attachment X: Generator Interconnection Procedure (GIP) takes precedence over this "Transmission Facility Procedures and Requirements"; however, the "Transmission Facility Procedures and Requirements" must still be followed as appropriate where applicable.

This document will be reviewed every 3 years or as appropriate for possible revision. The existing or revised document will be re-certified. Ameren shall make documentation of these requirements available to the users of the transmission system, SERC, and NERC on request within five business days.

## **2. General Requirements**

These general requirements apply to all new transmission facilities, whether requested by Ameren and its affiliates, or a third party, connected to the Ameren (Company) Transmission System. Transmission Facility connections shall comply with all applicable codes, standards, government regulations, environmental regulations, siting requirements, contracts, operating agreements, and tariff requirements related to the proposed transmission facility. All planning, design, construction, maintenance, and operation of the transmission facilities which will be owned by Ameren and which would become an integral part of the Ameren Transmission System as a result of this connection, must be performed through Ameren Services Company. Ameren follows applicable NERC Reliability Standards and SERC Supplements or their successors.

Ameren will perform coordinated joint studies of the new facilities to investigate their impacts on the interconnected transmission systems. The results of such studies will be provided as joint recommendations from all parties involved with the study. The provisions of the following sections 3 through 5A would be waived if Ameren determines it is in its best interest to pursue the coordinated study of the new facilities.

## **3. Making Interconnection Request**

When an entity decides to pursue a new transmission facility interconnection to Company's Transmission System, that entity should submit a request in writing. Such a request should be sent to:

Manager, Electric Planning  
Ameren Services Company  
P.O. Box 66149, MC 691  
St. Louis, MO 63133-6149

Telephone No. (314) 554-3763  
Fax Telephone No. (314) 554-3260

Requests to connect Entity's generation to the Company's Transmission System are controlled by the Midwest ISO. When an entity decides to pursue a generation connection to Company's Transmission System, That entity should submit a request in writing to the Midwest ISO.

The transmission facilities applicable to this procedure are those that are not classified as distribution facilities under the FERC seven-factor test and are not generation connection facilities. The likely voltage levels that are possible for consideration on the Ameren system are 138 kV, 161 kV, 230 kV, and 345 kV. The request must include:

- Voltage level of Interconnection facilities;
- Location of the proposed interconnection;
- Identification of the Company Transmission System facility to which Entity desires to connect and the facility voltage;
- Proposed In-service Date;
- Entity's study report showing reasons for a new interconnection on Ameren's system;
- Description of Power flow model used in their analysis. Make models data available to Ameren upon request; and
- Other information as appropriate.

#### **4. Cost to Study Interconnection**

Entity will pay cost (actual cost) of Company's engineering time to evaluate impact. Company will assess engineer-hour charges for all study work regarding their request. Engineer-hour charges will be assessed at the prevailing rate of such engineering work. If Entity expresses its desire to continue its request for an interconnection to the Company's Transmission System, then Company will send to Entity an agreement stating their obligations and request that they sign the agreement.

#### **5. Receiving Request and Agreement to Perform Study**

A. Upon Company's receipt of the request, a fully executed agreement, along with the Section 3 information above, Company will perform an analysis of the requested connection in a timely fashion. This agreement will contain the assumptions of the engineering study and the work to be accomplished by Company and Entity. With the agreement executed, the Company will start its work as defined in the agreement.

B. The initial analysis will consist of power flow modeling. The system performance evaluation will be based on NERC Reliability Standards TPL-001 through TPL-003 as a minimum, and the Entity's and Ameren's "Transmission Planning Criteria and Guidelines" if more restrictive. Short circuit modeling, stability, or other analysis such as a switching study or EMTP study will be performed if applicable, under an addendum to the agreement. System performance evaluation of such additional analysis will also be based on NERC Reliability Standards TPL-001 through TPL-003 as a minimum and the Entity's and Ameren's "Transmission Planning Criteria and Guidelines" if more restrictive. The most recent copy of Ameren's "Transmission Planning Criteria and Guidelines" is included in the latest FERC 715 data. Transmission facility connections are handled on a case by case basis.

Company will review the results of the power flow analysis for selected alternatives based on the agreed to assumptions. This review is to make sure that Entity and Company are mutually in agreement with the assumptions and the direction in which the study is headed while studying the possible engineering alternatives.

C. Company will provide a draft report on the results of its analysis that identifies the Entity's interconnection requirements. In addition to these general connection requirements, the Entity will be required to abide by the following requirements, as appropriate and applicable, and include in their facility design engineering specifications that will allow adherence to these requirements<sup>1</sup>:

- 1) Power Quality impacts
- 2) System protection and coordination
- 3) Voltage and Reactive Power Considerations
- 4) Insulation, Insulation Coordination, Surge Protection, and Shielding
- 5) Metering and telecommunications
- 6) Equipment ratings
- 7) Synchronizing of facilities
- 8) Grounding and safety issues
- 9) Maintenance Coordination
- 10) Operational issues (jurisdictional and functional authority)
- 11) Inspection requirements for existing or new facilities
- 12) Communications and procedures during normal and emergency operating conditions
- 13) Electrical equipment to be furnished by the Transmission Facility owner and by Ameren.

See the Appendix for a description of the above items.

Company reserves the right to design, build, construct, own, operate, and/or maintain, any equipment that becomes part of the Company's Transmission System or that can have an impact on the Company's Transmission System as a result of the Entity's interconnection.

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<sup>1</sup> These requirements are based upon NERC Reliability Standard FAC-001-0.

## **6. Provide Opportunity for Entity to Make Comments**

The Entity will be given an opportunity to respond to Company's draft report and requirements. Upon receiving the Entity's comments, Company will work with Entity to resolve the issues resulting from Entity's comments if possible. After resolving the appropriate issues, Company will issue a final report of the study and state the conditions under which this requested interconnection will be allowed. These conditions will include the cost of the facility modifications that Company is making if any to its Transmission System to accommodate the entity's interconnection, whether such modifications are due to thermal, voltage, short-circuit, stability, or other related considerations. For those facilities for which Entity will be charged and Company will purchase and own, the cost will include an income tax gross-up of approximately 34%, or latest applicable rate, for those facilities for which entity will provide reimbursement.

## **7. Entity Determines Value of Interconnection**

If Entity wishes to continue with the interconnection, Company will work with Entity to place the required facilities in service in accordance with a mutually agreed to schedule. If the entity does not wish to pursue the transmission system interconnection, the remaining charges for the engineering study will be billed to the Entity and Company's involvement will end upon receiving payment.

## **8. Entity Interconnection Agreement**

Once Entity decides to proceed with the interconnection, Company will submit and forward a written agreement ("Construction Agreement") for execution. The Construction Agreement document identifies the specific facilities that would be provided by both parties. Included in this agreement would be the point of interconnection, a one-line diagram of facilities, and agreement to adhere to the applicable requirements specified in section 5 on pages 5 and 6 and detailed in the Appendix to this document.

## **9. Internal Release of New Project**

Once the Interconnection Agreement has been executed, a Job Description is issued internally to inform other groups within the Company that agreement has been reached on new facilities, to inform them on the nature of the new facilities, and to specify the in-service date. The Job Description also informs the electrical engineering and design groups within the Company to the conceptual design of the new facilities so that these groups can begin detailed engineering, design, and material procurement.

## **10. Notification to Neighboring Electric System of Interconnection**

If Entity agrees to proceed with an interconnection to Company's transmission system, Company will contact neighboring electric systems as appropriate to inform them of the future interconnection. At that time, Company will also make available to these neighboring electric systems a copy of the final report upon request. If sensitive information is contained in the report, those sections will be eliminated from the report.

**11. Notification by Entity to Company Regarding Material Changes to Existing Connection(s)**

Entity shall notify Company of any changes or modifications that are planned to occur which may affect system operations or reliability. To facilitate updating system studies involving the Connection(s), Entity is required to provide information on such changes as outlined under Item 3.

## Description of Requirements for Connection

### 1. Power Quality Impacts

In general, the connection of the Entity to Company's transmission system should not unacceptably compromise or degrade the power quality provided to existing customers. If necessary, installation of power quality monitoring equipment by Company at Entity's expense will be performed to verify compliance with power quality performance requirements.

a. Harmonic Requirements: The harmonic content of the voltage and current waveforms injected into the Company's Electric System by an entity's facility shall be restricted to levels that are in accordance with the latest version of IEEE Standard 519 or its replacement and which will not cause excessive distortion of Company's waveform, telephone interference, carrier interference or equipment operating problems for Company or other users of the Company's Transmission System. Entity will, if required by Company and/or Good Utility Practice, reduce or eliminate the existence of any excessive harmonics caused by the operation of the Entity's facility as Entity's expense.

b. Flicker Requirements: The acceptability of the voltage fluctuations caused by varying or switched loads, switched capacitors, motor starts, and other normally occurring events, which produce a sudden change in voltage, depends upon the frequency and magnitude of the fluctuation of flicker. Most cases are evaluated with established flicker curves. Arc furnaces, however, are evaluated differently.

i. Flicker sources other than arc furnaces

The flicker limits developed and published in the latest version of IEEE Standard 1453 are used as a general guide for evaluating the acceptability of expected flicker from causes other than arc furnaces. These limits show permissible flicker levels as a function the frequency of occurrence.

ii. The primary criteria for evaluation of the expected flicker from an arc furnace load added to the Ameren system is based upon the charts presented in the AIEE paper "Survey of Arc Furnace Installation on Power Systems and Resulting Lamp Flicker," Transactions 57-9, September 1957. These charts indicate whether the resultant flicker would be Objectionable, Borderline, or non-Objectionable based on the furnace size and system impedance supplying the furnace(s). For a furnace installation to be rated "acceptable", the flicker with normal system conditions must be in the "non-Objectionable Flicker Zone" on the charts. This method does not consider the electrical characteristics of the particular furnace involved, other than the basic load rating. An evaluation method developed and presented in the ASEA Journal 1976, Volume 49, factors in the electrical characteristics of the furnace by

specifying a maximum allowable voltage drop on the critical bus during a transition from an unloaded furnace to a 3-phase fault at the furnace electrodes. According to this study a calculated voltage dip of 2.0% is considered marginal.

## **2. System Protection and Coordination**

Ameren requires that its transmission system be protected and reliability be maintained when interconnections are made to its transmission system. As part of this requirement, Ameren will unilaterally determine what protection and coordination facilities are required and the ownership of these protection facilities for all connections to Ameren's transmission system. Such coordination, including any remote tripping schemes, underfrequency or undervoltage load shedding schemes, or special protection systems, will be required regardless of the location of the Entity's connection with respect to boundaries of Balancing Authority Areas. Ameren would perform or cause to be performed all appropriate study work related to Customer's connection.

General principles to be followed in designing and operating the Protection System equipment include:

- Public safety
- Prevention/minimization of equipment damage
- Minimization of equipment outage time
- Minimization of system area exposed to outage
- Minimization of system voltage disturbances
- Adequate protective system coverage for abnormal conditions

For the following devices, the Entity is responsible for paying for these facilities, but Ameren may be the ultimate owner. For those facilities that Ameren will own and for which the Entity pays, Ameren will install, operate, and maintain. Following are requirements for the protection devices:

**a. Disconnecting and Interrupting Devices:** Entity shall provide at a location or locations agreed to by the Company a disconnecting and interrupting device or devices which:

- 1) Provide a manually operated visible disconnecting device as a means of electrically isolating Entity's facility from the Company's Transmission System. The manually operated disconnecting device shall have a means for locking the device in the open position with Company's padlocks.
- 2) Provide automatic isolation of the Entity's system from the Company's Electric System for faults or abnormal conditions on the Customer's system so as to maintain network flow and reliability to the transmission system, and

3) Provide automatic isolation of the Entity's system from the Company's Electric System for faults or abnormal conditions on the Company's Electric system so as to protect customer facilities from faults or abnormal condition on the transmission system.

Interrupting devices must have sufficient interrupting capacity to interrupt the maximum available fault current at each device location. Company reserves the right to require Entity to open all interrupting devices Company deems necessary to fulfill the power and authority granted to Company under the terms of the "Construction Agreement", and upon such a request by Company, Entity shall open such interrupting devices immediately.

**b. Fault and Loss of Utility Protection:** Entity shall provide, install, operate and maintain all of the Protection Systems and Control Devices required by Company, in accordance with Good Utility Practice, to safely, efficiently and reliably integrate Entity's facility with the Company's Transmission System. The Protection and Control Devices required by Company shall include, but not be limited to the following: i) main fault protection relay(s) and associated equipment capable of detecting a fault within Entity's facility and automatically isolating Entity's facility from the Company's Transmission System when such faults occur; ii) fault protection relay(s) and associated equipment capable of detecting faults on the Company's Transmission System and automatically isolating Entity's facility from the Company's Transmission System to prevent the facility from contributing to such faults; and iii) loss of Company's Transmission System supply relay(s) and associated equipment capable of detecting Company's Transmission System isolation events and isolating Entity's facility from the Company's Transmission System to prevent unsafe or unreliable feedback from Entity's facility into the Company Transmission System. All of the relays required for safe, efficient and reliable operation of the facility with the Company's Transmission System shall be equipped with built-in test provisions. Entity's Protection Systems shall be designed with adequate redundancy to meet the above requirements under the single contingency loss of a protective relay, CT or VT circuit, dc circuit, auxiliary or lockout relay, or Protection System communications equipment.

**c. Transmission Tap Protection:** In some circumstances, installation of a disconnecting and interrupting device at the location at which Company's transmission system is tapped may be necessary. Such circumstances would include:

1. Protection system limitation or requirements
2. Length of transmission line extension to Entity's facility would involve a significant increase to Company's transmission line length or outage exposure to Company facilities.

d. Additional Protection for Entity's Facility: If Entity desires a greater level of reliability, such as multiple supplies or ring bus supply, additional system protection equipment required would be installed at Entity's expense.

### **3. Voltage and Reactive Power Considerations**

Coordination of the operation of Entity's and Company's reactive compensation devices near the point of interconnection needs to be considered. Transmission interconnected equipment should be able to accommodate the transmission system's reactive power flow requirements.

### **4. Insulation, Insulation Coordination, Surge Protection, and Shielding**

BIL of substation and equipment shall be in accordance with Company practices. Entity transmission facilities shall be shielded from direct lightning strikes in accordance with Company practices and latest version of IEEE Standard 998 "Guide for Direct Lightning Stroke Shielding of Substations". Substation non self-restoring insulation, if applicable, should be protected against incoming surges per Company practices and latest version of IEEE C62.22.

In addition, for Entity transmission line taps and line structures with multi-grounded lightning protection wires, the individual structure footing resistances shall be commensurate with Company standards. Also, it is preferred that two shield wires be employed to shield transmission lines from direct lightning strikes.

### **5. Metering and Telecommunications**

- a. Entity shall provide, install, and maintain in accordance with Good Utility Practice and Entity's expense metering equipment including but not limited to revenue quality interchange metering, at a point or points agreed to by both Entity and Company, capable of measuring the instantaneous, hourly and total amount of energy being delivered to or received from the Entity's facility from the Company's Electric System.
- b. Entity will, at Company's request and if required by Good Utility Practice, provide, install, own and maintain in accordance with Good Utility Practice equipment to telemeter the following data continuously from the Metering Equipment to Company using Harris 5000 protocol, or if agreed to by Company, its operational equivalent:
  - Real power in megawatts ("MW");
  - Reactive power in megavolt-ampere-reactive ("Mvar");
  - Current in Amperes

- Voltage in kV
- c. Entity shall test the metering equipment at least one (1) time each calendar year at Entity's expense and at any other mutually agreeable and reasonable time requested by Company at Company's expense. Entity shall provide Company with at least fourteen (14) calendar days advance notice of any testing to be performed on the Metering Equipment, and Company shall have the right to be present during all such testing and shall be furnished with all testing results in a timely manner. Company shall make no further dissemination of meter reading data to third parties other than the RTO to which they are associated. Ameren may require that the meter and metering equipment be sealed with Ameren provided seals along with any seals required by the Entity
- d. Metering Equipment shall be considered accurate if the meter error percentage does not exceed plus or minus three tenths of one percent (+/- 0.3%). If testing of the metering equipment reveals any measurement inaccuracies greater than the meter error percentage permitted above, the affected metering equipment shall be recalibrated, repaired or replaced promptly by Entity such that any such measurement inaccuracies are rectified. If either Party believes that there has been a meter inaccuracy, failure, or stoppage, that Party shall immediately notify the other.

Instrument transformer error percentage of the metering CT's and PT's should be less than +/- 0.3%.

- e. Additional design requirements that should be addressed with the SCADA and metering equipment as appropriate for Entity's connection include:
- Loss compensation
  - Bi-directionality
  - Ancillary equipment specifications (such as CT's and PT's)
  - Mode of data transmission (such as fiber optic cable, phone line, etc.)
  - Control functionality (breakers, switches, etc.)
  - Provisions for maintaining continuity and meeting reliability criteria (such as dual DC sources, dual port RTUs)
- f. If, for any reason, any metering equipment is out-of-service or malfunctions so that the amount of energy delivered cannot be ascertained or computed from the readings thereof, the energy delivered or received during the period of such outage shall be estimated and agreed to by both Entity and Company upon the best data available, including, but not limited to, other meters, operational logs, and real-time communications data of the meter results, as mutually determined by the Parties.

- g. At intervals requested by Company and upon reasonable advance notice, Entity shall provide to Company actual readings of the metering equipment to verify the accuracy of the metering equipment data being telemetered to Company.

**6. Equipment Ratings** - The MVA and current rating of all equipment from the Ameren point of ownership to the Entity's first supply bus are required. This information is used to coordinate protection of Company's supply. Applicable industry standards (ANSI/IEEE) would be used to determine ratings of the equipment. Company's general design parameters and practices should be identified and adhered to. Any special requirements due to atmospheric, geological, seismic, or environmental conditions should also be addressed.

**7. Synchronizing of Facilities** – Not needed for the Entity's interconnection application if Entity does not have generation. Sync-check relaying equipment may be required if the power phase angle is greater than 15 degrees. If the Entity has generation, then the requirements identified in the MISO Generator Interconnection Procedure are superior to the "Transmission Connection Procedures & Guidelines."

**8. Grounding and Safety Issues** – Ameren has minimum requirements that the Entity must meet and that the Entity operates its facility in accordance with National Electric Safety Code. Design requirements for system grounding that should be addressed as appropriate for Entity's connection include:

- Grounding study
- Compatibility with Company's transmission system
- Interconnection of grounding system to Company's grounding system(s)
- Transmission line shielding provisions
- Arrester applications
- Cathodic protection

**9. Maintenance Coordination.** Company is responsible for regular maintenance on all Company-owned transmission system equipment. Entity's maintenance practices for their transmission-connected equipment should be performed at a level that ensures the reliability of the interconnected transmission system. Definition of maintenance programs and performance objectives, as appropriate, should be addressed with Entity's connection. When maintenance is scheduled, consideration needs to be given to generation maintenance, dispatch schedules, and transmission transactions which could be affected, as well as maintenance which may be performed concurrently on nearby transmission facilities which could have an adverse effect on local area voltages or the status of protection schemes. All necessary authorizations, notifications, and clearances relevant to the maintenance work to be performed must be obtained.

The facility owner, whether the Company or Entity, is responsible for the regularly scheduled calibration and/or maintenance of its equipment associated with the connection, as applicable, including, but not limited to:

- Circuit breakers

- Power transformers
- Protective relays
- Revenue metering
- Communications
- Trip circuits
- Interrupters
- Power DC sources
- Grounding system
- Transmission facilities

Relevant records of maintenance work performed should be maintained.

**10. Operational Issues (jurisdictional and functional authority)**

- Ameren will have jurisdictional authority over the protection and disconnecting devices on the transmission facility interconnection.
- In general, the Entity will have functional authority on their equipment in their substation and in their facility.
- Ameren will have functional authority on all Ameren equipment, except as conferred in writing to Entity by Ameren.

**11. Inspection Requirements for Existing or New Facilities – Commissioning Testing and Inspection.** For those relays protecting Company's equipment, Company reserves the right to witness testing of relays, breakers, instrument transformers, communications equipment, and DC station service prior to commencement of commercial operation. Company reserves the right to specify additional testing as appropriate, with Entity to modify operations as necessary to reasonably comply with Company's testing requirements. Entity's electrical equipment will be made available to Company for inspection upon two day written request during nonemergency conditions.

**12. Communications and Procedures During Normal and Emergency Operating Conditions** – The Entity shall provide contacts for normal conditions and emergency situations and update as they change over time. These contact person(s) shall have the authority and capability to operate Entity's facilities according to the instructions of the appropriate operating authority. All Transmission Operators shall obtain proper clearances from the appropriate operating authority before commencing any work on the transmission facilities. All Transmission Operators shall have a provision for reliable communications with the appropriate operating authority. In addition, all Transmission Operators shall have provisions for reliable communications with other Transmission Operators as appropriate.

Entity shall communicate with and shall cooperate with Company to support recovery efforts during emergency conditions. Such actions Entity may be called upon to take may include, but may not be limited to, implementation of emergency communications procedures, switching operations, tripping of or starting of generating units, changes to status of reactive power support devices, and transmission facility restoration efforts.

**13. Electrical equipment to be furnished by the Transmission Facility owner and by Ameren** – Ameren will determine the electrical equipment requirements for the interconnection on the basis of its criteria and guidelines along with good utility practices and general management directives. The responsibility for bearing the cost of the new equipment to be installed and any necessary modifications to existing equipment as a result of increased loading or increased fault duty will be determined by mutual agreement of all the parties involved.