Evergy, Inc.
Transource Energy, Inc.

Facility Interconnection Requirements

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Purpose

This Document was developed to comply with the North American Electric Reliability Corporation (NERC) Reliability Standard FAC-001 Facility Interconnection Requirements.

Facility interconnection and performance requirements are established to avoid adverse impacts on the reliability of the bulk electric system. These requirements address interconnection requirements for Generation facilities, Transmission facilities, and End-User facilities desiring to interconnect to facilities owned by Transource Energy (Transource) and Evergy, Inc., including its operating companies Evergy Kansas Central (EKC), Evergy Metro (EM), and Evergy Missouri West (EMW). For ease of use, the initial numbered section headings in this document align with the requirement numbers in the FAC-001 Standard.

Additional numbered sections provide specific interconnections requirement details for Transource, EKC, EM and EMW. Throughout this document, the term “Companies” shall apply to Evergy and Transource collectively.

Except in cases where specifically delineated, the requirements within the document are applicable to Generation facility, Transmission facility, and End-User facility interconnections.

This Document covers the requirements for interconnection to the Companies’ bulk electric systems in Missouri and Kansas.

Requests for interconnection to the distribution system are addressed in documentation that is available on the Evergy web site at www.evergy.com.

Companies are members of the Southwest Power Pool, Inc. (SPP). SPP functions as Transmission Service Provider and Planning Coordinator for Companies. The primary responsibility for the interconnection process for generation and transmission is with SPP, with Companies as active participants in the process. The primary responsibility for the interconnection process for End-User facilities is with Companies. The SPP Open Access Transmission Tariff (OATT) and Planning Criteria documents address the interconnection process, planning study requirements, and facility interconnection requirements specific to the SPP transmission system. The SPP OATT and Planning Criteria can be accessed via the SPP website at www.spp.org. Interconnection Customers should review the SPP documents for specific SPP interconnection requirements and processes.

This Document is intended to highlight Companies requirements and not to fully replicate or replace the SPP documentation. In addition, the SPP OATT provides the Interconnection Agreement (IA) that is utilized by Companies and includes several interconnection requirements. It is expected that all generation and transmission interconnection requests are directed to SPP.

References to NERC Reliability Standards are made throughout this Document. The referenced NERC Reliability Standards can be found at http://www.nerc.com/.

All interconnections to Companies transmission system must be alternating current (AC) at a nominal frequency of 60 hertz (Hz). For Companies, transmission facilities are defined as those electrical facilities operating at 60 kilovolts (kV) or higher. Nominal transmission voltages used by Companies are 345kV, 230kV, 161kV, 138kV, 115kV, and 69kV.

This Document is reviewed and updated as needed. It will be approved by the Director of Transmission & Distribution Planning. It will be publicly posted to the Evergy OASIS websites and provided on the Evergy corporate website.

Definition of Capitalized Terms

Capitalized terms used in this Document will follow the definitions in the NERC Glossary of Terms first, the SPP Tariff second, or as defined below, third.

Companies: Companies shall mean Evergy and Transource Energy.

Customer: Customer shall mean a person or entity responsible for ownership, operation and maintenance of facilities interconnected with Companies' facilities.

Distribution: Distribution shall mean Companies' facilities less than 60 kV (phase to phase voltage).

Document: Document shall mean this Facility Interconnection Requirements document.

End-user: End-user shall mean a retail customer of Companies connecting to the bulk electric system of Companies. End-user facilities shall comply with all provisions of General Facility Interconnection Requirements and all provisions of Transmission Facilities Interconnection Requirements. For purposes of Standard FAC-001-3, Evergy as Distribution Provider shall also comply as an End-user.

Facility Interconnection: Facility Interconnection shall mean the point where Companies and Customer's facilities physically meet.

Generating Source: A Generating Source is defined to exist when ANY of the following conditions are met:

A. Customer's facilities can produce sustained watt or var flow into Companies' facilities at the closed Facility Interconnection.

B. Customer's facilities can energize Companies' facilities across the Facility Interconnection at sustained levels of fifty-one (51) volts or more during times when the Companies' source is de-energized.

C. Customer's facilities can energize the Facility Interconnection with sustained voltage magnitude and frequency quantities, which differ from Companies values.

D. Customer's facilities can contribute sustained fault-current to Companies' facilities at the Facility Interconnection.

Note: Sustained shall mean to be more than one (1) second duration.

1. General Facility Interconnection Requirements

Facility Interconnection with Companies' bulk electric system facilities may be permitted provided such interconnection complies with the procedures and requirements set forth herein.

Interconnection of Customer facilities with Companies' facilities shall be governed by all applicable Local, State, and Federal statutes. In addition, Customer's facilities shall be installed in accordance with all provisions set forth in Companies' Facility Interconnection Requirements, Evergy's Service Standard, National Electrical Safety Code (ANSIC2), National Electrical Code (NFPA70), North American Electric Reliability Corporation (NERC) Reliability Standards, Regional Reliability Organization, American National Standards Institute (ANSI), Institute of Electrical and Electronics Engineers (IEEE), or other Regulatory or Governing Body having jurisdiction. Interconnection of Customer's facilities with Companies' facilities shall further be governed by any applicable statute, rule, order, provision, guide, or code of an organization, council, and institute, regulatory or governing body having

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jurisdiction over such matters.

Customer shall be responsible for all engineering studies, design, modeling data, and installation, required for interconnection with Companies' facilities. System studies shall be completed through the Long-term Planning horizon.

Generation interconnection shall be subject to Attachment V of the SPP Tariff. Transmission interconnection shall be subject to SPP Planning Criteria. End-User load additions/modifications shall be subject to Attachment AQ of the SPP Tariff.

Customer shall be responsible for compliance with all permits, licenses, fees, rules, regulations, standards, agreements, ordinances, inspections, and other requirements imposed by Companies or any regulatory or governmental body having jurisdiction. There is no obligation on the part of the Companies to interconnect, or to remain interconnected when Customer's facilities are out of compliance. In addition, Customer shall be responsible for and Companies shall require Customer facilities or the interconnection between Customer's facilities and Companies' facilities to be modified in accordance with all applicable statutes, rules, orders, provisions, guides, or codes of an organization, council, institute, regulatory or governing body having jurisdiction over such matters.

Because of increased risks and potential hazards inherent with operating Customer's facilities interconnected with Companies' facilities, overall safety for life, quality of service and property is paramount. Companies shall disconnect Customer's facilities anytime Customer's facilities pose a dangerous condition, and such disconnection is appropriate to protect safety of Companies' employees, customers, general public, or to maintain integrity of the Companies' facilities.

Customer should be aware that under certain circumstances it may be possible for damage to occur to Customer's rotating equipment. This vulnerability to possible equipment damage includes aurora or a nearby fault on the system. Customer shall review Customer's equipment for potential susceptibility.

Customer shall provide Companies a minimum, unless otherwise agreed to by the Companies, of one hundred and twenty (120) days written notice of its intent to interconnect facilities with the Companies' system. Failure to give such notice shall render Customer liable for all damages to Companies property, other customers' property, and injury to persons, or any other damages resulting from unauthorized interconnection.

Notice of intent to interconnect by the Customer shall be made by providing the appropriately completed Interconnection Application to the Companies as detailed in Forms A (inverter-based generation up to and including 25 KW) or B (non-inverter-based generation and inverter-based generation >25kW) of this document.

Requests to install a Facility interconnection shall be submitted by mail or email to:

Retail Services:

Evergy
Energy Solutions
P.O. Box 418679
Kansas City, MO 64105
816-242-5971

Wholesale Services:

Evergy
Director, T&D Planning
P.O. Box 418679
Kansas City, MO 64105
longtermplanning@evergy.com

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Within thirty (30) days of submitting a written request to interconnect facilities, but not less than ninety (90) days prior to facility interconnection, the Companies shall submit to Customer preliminary general equipment requirements such as breaker(s), switches, supervisory control and data acquisition (SCADA), and existing Companies facility protection scheme, required for Customer to proceed with Facility interconnection design. In addition, Companies shall notify Customer of costs to evaluate the proposed Facility Interconnection.

Within sixty (60) days of receipt of a complete copy of Customer's detailed engineering studies, design specifications, proposed protective relaying schemes, and payment of costs for evaluation, Companies shall review, perform analysis, and notify Customer of approval and/or conditions for acceptance. The engineering analysis shall include a review/evaluation of the following (as applicable):

A. After the customer supplies SPP and Companies with the approximate geographic location and the desired megawatt (MW) and megavolt-amp reactive (MVAR) capacities at the point of interconnection, SPP and Companies will exercise engineering judgment and the results of engineering studies to determine appropriate voltage levels, interconnection points, and system capabilities for the point of interconnection, since the most practical voltage and interconnection points are site and project specific.

B. Breaker duty – All facilities and equipment must equal or exceed the fault duty capability necessary to meet system short-circuit requirements as determined through short-circuit analyses and should fully comply with the latest American National Standards Institute (ANSI)/Institute for Electrical and Electronics Engineers (IEEE) C37 collection of standards for circuit breakers, switchgear, substations, and fuses. To maintain reliability, each fault-interrupting device must be rated for full fault-interrupting capability to satisfy the short-circuit level requirements at the point of interconnection. Full fault-interrupting capability is per the latest IEEE C37 and C57 collections of standards. Generally, neither party should depend on the other for the protection of their respective equipment.

C. Insulation coordination - Insulation coordination must be done properly to ensure electric system reliability and personnel safety. Basic switching surge levels, surge arrester, conductor spacing, and gap application, substation and transmission line insulation strength, protection, and shielding shall be documented and submitted for evaluation as part of the interconnection plan.

   - Interconnection facilities to be constructed in areas with salt spray contamination or other type of contamination shall be properly designed to meet or exceed the performance of facilities not in a contamination area regarding contamination caused outages.

   - Equipment basic impulse surge levels (BIL) shielding, and surge protection shall be designed to meet the latest IEEE C62 standards, along with Companies standards. Surge Protection shall be installed to ensure that damage to Companies or to Customer resulting from transient disturbances is minimized to the extent practical. Surge protection shall conform to NESC Section 19, Section 124A, and Section 171 as applicable.

D. System protection and coordination – Protective relaying systems and associated communications systems for all facility interconnections shall be planned, designed, constructed, and maintained in accordance with applicable NERC, SPP, and Companies standards. Utility grade protective relays and fault clearing systems are to be provided

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on the interconnected power system. All protective relays shall meet or exceed ANSI/IEEE Standard C37.90.

- Adjoining power systems may share a common zone of protection between two parties. The design must provide coordination of speed and sensitivity to maintain power system security, stability, and reliability.
- The protection system (protective relays, associated communication systems, voltage and current sensing devices, station batteries and DC control circuitry) arrangement selected by the Customer must be compatible with the protections system used by Companies to protect the transmission grid. Compatible relaying equipment must be used for a given zone of protection. Compatibility includes protection application, redundancy, operating speed, communication type, and communication medium.
- The protection system (protective relays, associated communication systems, voltage and current sensing devices, station batteries and DC control circuitry) arrangement selected by the Customer must be compatible with the protections system used by Companies to protect the transmission grid. Compatible relaying equipment must be used for a given zone of protection. Compatibility includes protection application, redundancy, operating speed, communication type, and communication medium.
- A power source for tripping and control must be provided for the protection system by a DC storage battery. The battery is to be sized with enough capacity to operate all tripping devices after eight hours without a charger, per IEEE standards. An under- voltage alarm must be provided for remote monitoring by the facilities owners, who shall take immediate action to restore power to the protective equipment.
- Mechanical and electrical logic and interlocking mechanisms are required between interconnected facilities to ensure safe and reliable operation. These include, but are not limited to, breaker and switch auxiliary contacts, synch-check relays, and physical locking devices.
- The Customer (generator, transmission, end-user) is responsible for providing a protection system that will protect its equipment against disturbances on Companies system and minimize the effects of disturbances from its facilities on Companies equipment and transmission system. Entities connecting to the Companies transmission system shall investigate and keep a log of all protective relay actions and mis-operations, as required by NERC and SPP. In addition, the interconnecting entities must have a maintenance program for their protection systems in accordance with NERC Reliability Standards. Documentation of the protection maintenance program shall be supplied to Companies, SPP, and NERC upon request. As outlined in the maintenance program, test reports are to be made available for review by Companies. At intervals described in the documented maintenance program and following any apparent malfunction of the protection equipment, the Interconnecting Customer shall perform both calibration and functional trip tests of its protection equipment as outlined by NERC.
- Generator Protection Requirements
    - Generators interconnecting to the Companies transmission system are

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responsible for protecting those facilities from electrical faults and other hazardous conditions.

- Generator interconnections must be equipped with circuit breakers or other appropriate interrupting devices to protect those facilities. The generator owner is required to provide and own the primary circuit breaker or other interrupting device that protects the facility and disconnects it from the Companies transmission system. The primary purpose of this interrupting device is to protect the generating plant facility. GI is required to follow IEEE standard C37.102 for generator relay settings.
- Synchronous or wind turbine generators connected to the Companies transmission system shall be able to withstand certain temporary excursions in voltage, frequency, and reactive and real power output without tripping. A System Impact Study will determine if the generator trips during temporary excursions. Generation must ride through temporary excursions to support the grid and avoid cascading events.
- It is recognized that certain circumstances may exist that necessitate the imposition of performance criteria that is considered more stringent than the default criteria specified above. Such circumstances shall be identified during the conduct of the System Impact Study or operational study for each generator.

- Transmission Protection Requirements
  - All transmission power systems shall have a dual protective relaying scheme that provides both primary and backup coverage of the remote bus. Communications-aided tripping using a dedicated communications channel may be required based on system stability determination. Communications redundancy may be required depending on critical clearing time. A transfer trip may be required for backup protection and islanding schemes. Transfer Trip is required to follow IEEE standard C37.113 for transmission line relay settings.
  - Backup protective systems should provide additional coverage for breaker and relay failure outside the primary zone. Backup systems shall operate for failures on either side of an interconnection point. Time and sensitivity coordination must be maintained to prevent mis-operations.
  - Fiber optics is the preferred means of relay communications; however, microwave and power line carrier may also be used for relay communications. Audio tone over phone line is the least preferred method because it may not meet requirements for speed and reliability.
  - When new transmission line construction is involved and two high speed protection schemes are used that require communications, two separate OPGW shall be installed for use as the communications means.

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- Each fault-interrupting device must be rated for full fault-interrupting capability to satisfy the short-circuit level requirements at the point of interconnection. Neither party shall depend on the other for the protection of their respective equipment. All protective devices shall coordinate as described in Attachment A or Attachment B of this Standard depending upon the type of interconnection.

E. Metering and telecommunication requirements – Metered data shall be telemetered to a location designated by SPP and location as designated by Companies unless alternate satisfactory telemetered locations are agreed to by the Companies and Interconnection Customer.

- Interconnecting Customers that will be a market participant shall install metering that shall be of sufficient quality to meet the requirements as defined by SPP OATT.
- For interconnections in the state of Kansas, Interconnection Customer may be required to take service for auxiliary use/station power from the local retail electric service provider.
- Revenue Metering Guidelines
    - For the purposes of this document, revenue metering shall refer to the meter or meters used for billing purposes and the associated current transformers and potential transformers (collectively known as “instrument transformers”), communications equipment, and wiring between these devices. The basic configuration consists of directional revenue grade metering (import and export) at each point of interconnection with the Companies system. Additional separate revenue metering for the gross output of the generation and for auxiliary retail loads may be required, depending on the generation capacity, telemetry requirements, applicable contractual provisions, and associated tariffs. All generation and auxiliary retail load metering shall have the ability to connect to an Automated Meter Reading (AMR) system.
    - Before the purchase or fabrication of revenue metering equipment, four sets of each of the following information is required to be submitted to Companies for review and acceptance:
        - Overall Electrical Single-Line Drawing, showing location of revenue metering equipment.
        - Switchgear Single-Line Drawing, showing location of revenue metering transformer compartment.
        - Physical Metering Transformer Compartment drawing, showing the layout of revenue metering current transformers and potential transformers.
        - If the installation utilizes a stand-alone current transformer cabinet, the manufacturer’s drawing, showing the catalog number and address at which, its use is intended.
        - Estimated generation capacity and auxiliary retail loads.
    - Companies shall install, calibrate, test, and maintain revenue quality metering in accordance with applicable ANSI Standard C12. Interconnections for Wholesale Service shall utilize revenue quality metering in accordance with applicable ANSI

Standard C12, Form B of the Southwest Power Pool Market Protocols and all such data shall be telemetered to the Transmission Customer or Distribution Service Provider as applicable.

F. The ratings of Customer's facilities connecting at 60 kV or higher voltage shall be determined in accordance with SPP Planning Criteria and provided to Companies for verification. Companies' facilities are rated according to the applicable Facility Rating Methodology posted on OASIS.

G. Phasor Measurement Unit requirements - Companies shall review the PMU design. See Attachment A for PMU specs.

Should Companies be unable to evaluate Customer's request to interconnect as submitted, Companies shall provide Customer a written explanation of information required to complete the evaluation.

Grounding and safety issues – All new interconnecting Facilities shall strictly adhere to established Companies switching, tagging, and grounding procedures as required for the safety of people and equipment. Any work carried out within a facility shall be performed in accordance with all applicable laws, rules, and regulations and in compliance with Occupational Safety and Health Administration (OSHA), National Electric Safety Code (NESC) and good utility practice. The interconnecting facility ground grid shall, where applicable, be designed to IEEE 80 - "IEEE Guide for Safety in AC Substation Grounding" and shall be measured in accordance with IEEE 81 - "Part 1: Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Potentials" and Part 2: "Measurement of Impedance and Safety Characteristics of Large, Extended or Interconnected Grounding Systems". Interconnection Facility grounding requirements shall also comply with the NESC Section 9 "Grounding Methods, and, where appropriate, IEEE 665 - "Guide for Generating Station Grounding", IEEE 837 - "Standard for Qualifying Permanent Connections Used in Substation Grounding", IEEE 487 - "Protection of Wire-Line Communication Serving Electric Power Stations", IEEE 367 - "IEEE Recommended Practice for Determining the Electric Power Station Ground". This grid shall also limit the ground potential gradients to such voltage and current levels that will not endanger the safety of people or damage equipment which are within, or immediately adjacent to, the station under normal and fault conditions. All transmission line structures shall be adequately bonded and grounded to control step and touch potential in compliance with the NESC and shall provide adequate lightning protection performance. Customer shall obtain ground resistance measurements using procedures specified by IEEE 81 and shall submit information to Companies for review and verification.

Power Quality impacts – At no time shall the operation of the Interconnecting Customer facility, including associated generators or any of their auxiliary devices as applicable, result in an electrical output in which harmonic distortion exceeds the recommended limits contained in IEEE Standard 519, which defines voltage waveform and harmonic content. Planning Level indices for voltage flicker will be governed by IEEE Standard 1453. Company's criteria for voltage flicker and harmonic distortion at 161kV, 138kV, 115kV, or 69kV bus must meet the following criteria.

Flicker level (short term)	$Pst95\% \leq 0.8$
Flicker level (long term)	$Plt95\% \leq 0.6$
Total harmonic voltage distortion	$THVD \leq 2.5\ \%$
Individual harmonic voltage level	$\leq 1.5\ \%$
Inductive power factor, monthly average	$\cos \text{phi} \geq 0.98$
Voltage fluctuation	$\text{delta } U \leq 1.0\ \%$

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Only written notice shall constitute acceptance by Companies. Written approval by Companies does not waive any requirements pertaining to Customer's installation which may be governed directly by other jurisdictional bodies.

Companies' specifications and requirements are designed towards protecting the safety of life, quality of service and the Companies' property, and do not assume nor ensure proper protection of Customer's facilities equipment during electrical fault.

When Companies are required to incur expenses necessary to make extensions or improvements of its lines or additions to its disconnecting devices, transformers, meters, breakers, relays, controls, data systems, or to make any other equipment modifications relating to its circuits, substations, or apparatus necessary to connect Customer's facilities, and such expenses made are attributable to this application, then all costs incurred by Companies for Facility Interconnection shall be borne by Customer as set forth in the interconnection agreement.

If improvements or upgrades to the Companies' system are necessary to allow for the Customer's interconnection, whether directly related to or as a result of the interconnection, the improvements must be completed prior to interconnection. However, the Companies may approve a temporary operating procedure for use while planned improvements or upgrades to the Companies' system are constructed. For generation interconnection, these operating procedures will be defined in a Limited Operation Interconnection Agreement according to the SPP Tariff. Operating procedures will not be permitted to take the place of necessary system improvements.

When improvements or upgrades to the Companies' system are necessary to allow for the Customer's interconnection, the Companies shall use their standard design and equipment for those improvements and upgrades.

Customer and Companies shall execute appropriate agreements for interconnected service prior to installation of any equipment. Energy supplied to Companies, as well as energy used by Customer, shall be compensated in accordance with applicable tariffs, rules, and regulations currently on file with the regulatory body having jurisdiction, or which may be filed and approved by the regulatory body having jurisdiction.

Companies may require Customer's facility design to include an appropriate automatic disconnecting device to be controlled by any or all of the following: overcurrent relays, automatic synchronizing relays, voltage relays, frequency relays, ground fault detection relays, or any other automatic relaying equipment necessary to ensure proper protection and safety of Company employees, customers, equipment, and overall system integrity. The Companies reserve the right to review, inspect, and approve Customer's design and shall not give approval to connect until any concerns relating to Customer's design has been remedied. Refer to Attachment A, "Relay Standard for Connected Generating Facilities", and Attachment B, "Relay Standard for Connected Load Facilities" for assistance in fulfilling the requirements of this paragraph.

Companies shall procure, install, and maintain all metering equipment required to measure energy exchanged between Customer and Companies across the Facility Interconnection, unless otherwise agreed to by Companies. Energy shall normally be measured at delivery voltage; however, Companies reserve the right to locate its metering at a place other than the Facility Interconnection and adjust for losses as appropriate.

1.1. Generator Interconnection Requirements

The Customer that is requesting a Generating Source Interconnection (GI) that may inject current on to the Companies transmission system must follow the Generator Interconnection

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Procedures of Attachment V of the Southwest Power Pool Open Access Transmission Tariff.

Those GIs interconnecting to at least one of the 345kV sources (existing or future) to the Wolf Creek nuclear plant or the Wolf Creek 345kV switchyard are subject to all requirements outlined in this section as well as the requirements specified in Attachment B.

Companies functional relay requirements will be provided to the Customer during the detailed design phase of the project. The information for the specific project will indicate the protective functions for which the Customer is to provide relays and related equipment.

The Customer will indicate the specific relay type(s) and range proposed for each function.

The Customer must also provide proposed current and potential transformer ratios, connections, and locations as related to the electrical one-line diagram.

Customer design documents (electrical prints, relay settings, etc.) will be reviewed by Companies in coordination with SPP. Project delays due to untimely submittal of complete design documents are the responsibility of the GI. These must be of good engineering quality and include the following:

- One-line diagram showing the interconnections between the generator(s) and the Company system
- Three-line diagrams showing current and potential circuits for protective relays
- Relay tripping and control schematic diagram
- Relay setting files
- Instruction books for relays
- Completed Form A or Form B of this Document as applicable

Additional engineering meetings may be necessary to discuss the design documents. If changes are necessary, the Customer is required to incorporate all changes and corrections and submit three sets of corrected prints to Companies before proceeding with construction.

1.1.1 General Requirements for interconnection of Generating Sources

1.1.1.1. Generating Source(s) 25 kW and larger shall be three (3) phase to qualify for Facility Interconnection with Companies facilities.

1.1.1.2. Generating Source(s) shall not supply sustained fault current to Companies' facilities.

1.1.1.3. Generating Source(s) shall not close or reclose automatically onto a de-energized Companies Facility Interconnection.

1.1.1.4. Disconnecting equipment shall have a visible break between Customer and Companies facilities for connections 600 volts and above.

1.1.1.5. Companies shall determine the acceptable minimum aggregate power factor at Facility Interconnection. Appropriate billings, payments, or adjustments to compensate Companies shall be specified in the Facility Interconnection agreement.

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1.1.1.6. Customer Standby or Emergency Generating Sources will require no special relaying or metering when installation is designed to prevent "hot transfer of Customer's load" going "on" or "off" from the Standby source to the Companies' facilities, provided all requirements can be handled with control circuit interlocks.

1.1.1.7. Supervisory Control and Data Acquisition (SCADA) may be required by Companies to connect Generating Source(s) to Companies facilities.

1.1.1.8. Generating sources that participate in the Southwest Power Pool Energy Imbalance Market shall install metering and telecommunications equipment compliant with Form B of the Southwest Power Pool Market Protocols.

1.1.1.9. Any electrical structure or equipment utilized for high-voltage service shall be connected to an earth-ground grid that measures no more than 0.6 ohms resistance to earth. Such value shall be measured with equipment and techniques approved by the Companies and shall be certified by a measuring contractor qualified for this service. The connectors and components of the grounding grid shall be adequate for the anticipated short-circuit current magnitude and duration.

1.1.1.10. Generating sources requesting Wholesale Service shall comply with the Southwest Power Pool Attachment V of the Regional Open Access Transmission Tariff.

1.1.1.11. In instances where the Customer installs PMU equipment, it shall be designed to the specifications as described in Appendix C.

1.1.2. Synchronous Generating Source(s) shall utilize three-phase circuit breakers that meet or exceed the following requirements:

1.1.2.1. Rated for 2.0 per unit voltage across open contacts.

1.1.2.2. Interrupt maximum available fault currents between Customer's Generating Source(s) and Companies' facilities.

1.1.2.3. Open for frequency and voltage deviations specified by Companies.

1.1.2.4. Utilize synchronism check within +/- 10 degrees and +/- 5 percent of nominal voltage on each side of the breaker prior to closing the breaker between Companies and Customer's facilities.

1.1.2.5. Provide ground fault detection and tripping for breaker anytime an ungrounded circuit configuration exists as the result of opening the Companies' source to the Facility Interconnection.

1.1.2.6. Continuously monitor breaker control power source.

1.1.3. Induction Generating Source(s) shall utilize three-phase circuit breakers that meet or exceed the following requirements:

1.1.3.1. Companies shall specify frequency and voltage deviations to Customer for which circuit breaker shall open.

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1.1.3.2. Breaker control power source shall be continuously monitored.

1.1.4. Generating Source(s) Facility Interconnections - 5000 kVA and Greater

1.1.4.1. Generating Source(s) shall operate with excitation systems in automatic voltage-control mode.

1.1.4.2. Generating Source(s) shall maintain reactive power output as required by the Companies within the demonstrated reactive capability of the unit.

1.1.4.3. Generating Source(s) shall be capable of operation at over-excitation power factor of 0.9 and under-excitation power factor of 0.95 at all rated continuous power output levels as measured at the generator terminals.

1.1.4.4. In addition to the protection described in 6.15, Generating Source(s) shall include current differential protection around the generator and/or the generator step-up transformation as well as protective functions designed for the specific type of generator. For example, protection for rotating generators shall include reverse power, loss of field, negative sequence current, and inadvertent energization. Refer to IEEE C37.102 – "IEEE Guide for AC Generator Protection."

1.1.5. Generating Source(s) Facility Interconnections – Distribution

1.1.5.1. Customer shall protect Generating Source(s) from the effects of automatic reclosing of Companies facilities.

1.1.5.2. No distribution circuit shall have greater than 10% of its rated capacity as installed generation unless otherwise approved by Companies.

1.1.5.3. Where network protectors (in lieu of circuit breakers), are utilized by Companies, Customer shall not inject power onto Companies' system.

1.1.6. Transitional Switching of Generating Source(s)

1.1.6.1. Customer may be permitted to utilize approved methods of transitional switching for the purpose of making a synchronize transfer of Customer's load between Customer's Generating Source(s) and Companies' facilities. Such transitional switching shall require automatic synchronizing equipment and high-speed switching devices specifically designed to synchronize Customer's Generating Source(s) to the Companies for the sole purpose of "hot" transferring the Customer's load "On" or "Off" the Companies' facilities.

1.1.6.2. All Customer requests for transitional switching shall be approved by Company and accomplished in such a manner as not to exceed one half (0.5) second as the maximum time Customer's Generating Source(s) operates connected with Companies' facilities.

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1.1.6.3. Customer shall be responsible for all costs associated with transitional switching.

1.1.7. Commissioning of Generating Source Interconnection

1.1.7.1. Companies may measure and document the harmonics present at the Facility Interconnection before and after such connection is made.

1.1.7.2. Companies reserve the right, but does not assume the duty, to inspect, test, or check Customer's equipment in any way deemed appropriate to confirm operation and verify system protection characteristics. Companies do not assume any responsibility regarding Customer's equipment or the inspection thereof.

1.1.7.3. Metering equipment shall be verified by Companies or their designated agent.

1.1.7.4. Only after all required inspection or testing is complete shall Generating Source be synchronized to Companies' facilities.

1.1.8. Generating Source Operating Requirements

1.1.8.1. Customer agrees to respond to Companies requests during abnormal conditions, including abnormal frequency and abnormal voltage.

1.1.8.2. Customer agrees to coordinate maintenance activities with Companies as defined.

1.1.8.3. Customer shall ensure competent personnel are available to operate, maintain, and repair connected generating equipment at all times when such equipment operates in parallel with Companies' facilities.

1.1.8.4. Companies may require connected generating sources to have both normal and emergency paths for supervisory control, metering, or voice communications systems.

1.1.8.5. Automatic under-frequency load shedding may be required by the Companies. Load serving providers shall be required to provide the Companies with a documented manual load shed plan.

1.1.8.6. Customer shall provide all available operating data upon request.

1.2. Transmission Interconnection Requirements

Companies' electrical facilities include transmission lines operating at voltage levels of 60 kV and higher. Higher voltage levels require stringent standards of security, reliability, quality, and controllability of the electrical facilities.

1.2.1. Transmission Facilities – General Requirements

1.2.1.1. Any electrical structure or equipment utilized for high-voltage service shall be connected to an earth-ground grid that measures no more than 0.6 ohms resistance to earth. Such value shall be measured with equipment and

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techniques approved by the Companies and shall be certified by a measuring contractor qualified for this service. The connectors and components of the grounding grid shall be adequate for the anticipated short-circuit current magnitude and duration. Transmission facility grounding shall be designed to IEEE 80. Depending upon the application, grounding shall also comply with IEEE 665 - Guide for Generation Station Grounding, IEEE 837 - Standard for Qualifying Permanent Connections Used in Substation Grounding, IEEE 487 - Protection of Wire-Line Communications Serving Electric Power Stations, and IEEE 367 - Recommended Practice for Determining the Electric Power Station Ground.

1.2.1.2. Supervisory remote control and electrical metering shall be provided using devices and communications paths specified by the Companies. Such equipment shall be proven operational before electrical operation begins.

1.2.1.3. Maintenance at the Facility Interconnection shall be coordinated with the Companies.

1.2.1.4. Customer's interconnection to Companies' Transmission System shall comply with Evergy's BES Planning Criteria on OASIS.

1.2.1.5. If the Customer's system is found to be out of compliance with the Evergy BES Planning Criteria, the Customer will repair/upgrade their system or remove the cause of the event.

1.2.1.6. Customer's facility will be supplied from Companies' Transmission System and Customer should plan and design their systems to operate at a power factor within the range of 0.98 lagging to 0.98 leading at all times.

1.2.1.7. Switched shunt capacitors generally provide an effective means of controlling the power factor of a Customer's facility. Factors to be addressed when applying capacitors include, but are not limited to, transient overvoltages due to capacitor switching and steady state increases in voltage distortion due to resonance conditions. Transient overvoltages shall be limited to less than 130% of nominal zero-to-peak voltage and decay within one 60Hz cycle. Specialized switch types shall be used to mitigate capacitor switching transients. The services of a qualified consultant should be obtained by Customer to review the specific application and provide recommendation in regard to control of these phenomena.

1.2.1.8. Certain electrical equipment located at the Customer's facility will generate voltage flicker, notching and / or harmonic distortion that can negatively impact other transmission users. Definitions and limits for current and voltage harmonic distortion are as published in the latest issuance of IEEE 519 - "Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems."

1.2.1.9. Companies requires that voltage flicker occurring at Facility

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Interconnection shall remain below the Border Line of Visibility curve on the IEEE/GE curve, referenced for example in IEEE 141 - "IEEE Recommended Practice for Electric Power Distribution for Industrial Plants" and IEEE 519, for fluctuations less than 1 per second or greater than 10 per second and shall remain below 0.4 percent in the range 1 to 10 fluctuations per second. Further, Customer may be required to meet specific requirements of the IEEE 1453 - "IEEE Recommended Practice for Measurement and Limits of Voltage Fluctuations and Associated Light Flicker on AC Power Systems" in special cases dictated by Customer's load or generation profile.

1.2.1.10. Total Harmonic Voltage Distortion shall be in compliance with IEEE 519.

1.2.1.11. The ratings of Customer's facilities shall be consistent with the requirements of SPP Planning Criteria. The ratings of Customer's facilities shall be provided to Companies upon request.

1.2.1.12. Voltage Unbalance, as calculated using the ANSI C84.1 formula, shall be limited to 1% or less at all times during system normal operation by the Customer.

1.2.1.13. Customer and Companies have the obligation to ensure that Facility Interconnection is configured in such a way to mitigate the probability of a ferroresonance event. Ferroresonance is a complex electrical phenomenon. It occurs on the power system (usually at distribution voltage levels) under certain system configurations that may damage high voltage equipment. Some mitigation measures on the transmission system that will be used are coordinated relay protection, redundant primary relay protection, and installing gang operated switches. The Customer will be knowledgeable of conditions that increase the possibility of ferroresonance as well as procedures and equipment that mitigate and/or lessen the chances for this system condition to occur.

1.2.1.14. Revenue interconnection metering shall not use CCVTs.

1.2.1.15. In instances where the Customer installs PMU equipment, it shall be designed to the specifications as described in Appendix C.

1.2.2. Transmission Facilities - 60 kV through 200 kV Requirements

1.2.2.1. Multiple remote-controllable line-sectionalizing switches or circuit breakers with protective relays may be required at Facility Interconnection.

1.2.2.2. Transformers capable of serving load greater than 14.0 MVA shall be controlled by a primary circuit-switcher or circuit-breaker with appropriate protective relaying.

1.2.2.3. Structures at the Facility Interconnection may be required to be of steel construction.

1.2.2.4. Sectionalizing devices may require load breaking and/or fault interrupting

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capability.

1.2.2.5. Protective relay schemes of Customer shall be integrated to operate with protective relay schemes on Companies facilities.

1.2.2.6. Protective relaying shall include both primary and backup schemes.

1.2.2.7. The BIL of equipment installed shall conform to the minimum of: 69 kV – 350 kV BIL; 115 kV – 550 kV BIL; 138 kV – 650 kV BIL; and 161 kV – 750 kV BIL.

1.2.2.8. Where a ring-bus or breaker-and-a-half facility is installed, redundant DC supply systems shall be used.

1.2.3. Transmission Facilities - 200 kV and Higher Requirements

1.2.3.1. All requirements for lower-voltage transmission facilities shall apply. In addition, the following requirements shall apply:

1.2.3.2. Substation design shall be ring-bus or breaker-and-a-half configuration.

1.2.3.3. Control power shall be supplied from redundant DC supply systems.

1.2.3.4. Protective relaying shall include dual primary schemes.

1.3. End-User Interconnection Requirements

The Customer that is requesting End User Interconnection (EU) is responsible for designing, installing, operating, and maintaining its own equipment in accordance with Good Utility Practice(s), the National Electrical Code, the National Electrical Safety Code (NESC), NERC, SPP, any applicable independent system operator, and all applicable laws and regulations. This includes installing, setting, and maintaining all protective devices necessary to protect the customer's facilities. The requirements specified in this Document are designed to only protect Companies facilities and to maintain transmission system reliability. The EU is responsible to coordinate with Companies during the engineering / detailed design phase of the project in order to ensure coordination of protective relay devices.

End-user facilities shall comply with all provisions of General Facility Interconnection Requirements (Section 1 above) and all provisions of Transmission Facilities Interconnection Requirements (Section 1.2 above).

End-user facilities shall be documented and coordinated by specific System Planning studies, and by studies performed pursuant to Southwest Power Pool Open Access Transmission Tariff – Attachment AQ.

2. Generator Owner Interconnection Requirements

Companies shall maintain and update this Document as required and will make it available upon request within 45 calendar days of full execution of an Agreement to conduct a study on the reliability impact of interconnecting a third-party Facility to the Companies' existing Facility that is used to interconnect to the Transmission System.

3. Transmission Owner Procedures & Notifications

Public

Procedures and Notifications associated with Customer interconnections with Companies transmission system are detailed in the following sections.

3.1. Procedures for Coordinated Studies

Companies are member of SPP Regional Transmission Organization (RTO). One of the many functions of SPP is to coordinate joint studies of new facilities and their impacts on the interconnected transmission system. Companies actively participates in these processes. The process is described in the SPP OATT which is available on the SPP website.

The impact of the Customer interconnection on the reliability of the interconnected transmission system shall be evaluated. Studies are performed by SPP in conjunction with Companies and in accordance with established NERC, SPP and Companies Transmission Planning Criteria. The SPP OATT includes attachments that define the data requirements for interconnection Feasibility and System Impact Studies. Generators and Transmission Interconnection Customers should refer to the SPP OATT for specifics. Data is to be submitted as provided in the SPP OATT.

Generator Interconnection (GI) requests must proceed through the SPP generator interconnection process. Generator Interconnection Procedures (GIP) are detailed in the SPP OATT Attachment V, Generator Interconnection Procedures Including Generator Interconnection Agreement. Three levels of system studies are defined in the GIP; 1) Feasibility, 2) System Impact, and 3) Facilities. These series of studies are performed to determine the impact of the generator interconnection request on the transmission system. The study results include identification of solutions to any identified reliability violations. The results of these targeted studies are posted to the SPP website.

Transmission interconnections are analyzed as SPP performs annual studies to evaluate transmission system reliability as part of its Integrated Transmission Planning (ITP) process. As part of the evaluation process, it may be determined there is a need for additional system reliability support across multiple interconnected transmission owner facilities. Solutions to identified reliability issues are developed by the affected transmission owners in coordination with SPP. The study results and resultant solutions identified are documented in the annual SPP Transmission Expansion Plan (STEP) and posted to the SPP website. Transmission Owner to Transmission Owner interconnections are evaluated in accordance with SPP Planning Criteria.

End-Users looking to interconnect to the Companies transmission system are required to complete a Service & Meter application, available at www.evergy.com. Information such as the type of service requested and load levels expected are captured by the form on the website. End-User interconnection requests are evaluated by Companies to determine if any system reliability impacts may result from the interconnection of the Customer to the transmission system. Studies are primarily conducted to determine if there is available capacity at the interconnection point to accommodate the request. If additional system reinforcements are identified during the study the results will be made known to the EU and solutions will be proposed to address the issue. Load additions will be submitted to SPP to be evaluated as part of the SPP OATT, Attachment AQ, Delivery Point Addition Process.

3.2. Procedures for Notification of Affected Systems

SPP Generator Interconnection Procedures include provisions for notifying affected systems of the reliability impacts of new or modified generator interconnection requests. Companies

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will adhere to those provisions for notification of affected systems.

For transmission interconnections, Companies will follow the notification requirements of SPP Planning Criteria.

Reliability impacts from End-user interconnections will be identified by SPP through the analysis processes of the Attachment AQ. SPP will communicate any reliability issues to all affected systems.

3.3. Confirm Facility Interconnections within BA

Generation interconnections within the SPP BA are subject to the provisions and procedures established in the SPP OATT, SPP Business Practices, and SPP Planning Criteria. The Companies direct all generation interconnection customers to contact the SPP in order to establish a new or seeking to make a qualified change to an existing generator interconnection within the SPP BA. The generation interconnection customer, Transmission Owner, and the SPP negotiate and execute an interconnection agreement prior to the energization of any new generation interconnections. Metering for Generator Interconnections will follow the provisions of Article 7 of the Generator Interconnection Agreement as defined in the SPP OATT.

Transmission interconnections within the SPP BA are subject to the provisions and procedures established in the SPP OATT, SPP Business Practices, and SPP Planning Criteria. The Companies direct all transmission interconnection customers to contact the SPP in order to establish a new or seeking to make a qualified change to an existing transmission interconnection within the SPP BA.
The transmission interconnection customer, Transmission Owner, and the SPP may negotiate and execute an interconnection agreement prior to the energization of any new transmission interconnections. Metering locations will be identified in these interconnection agreements. Meter Agent will ensure that metering data is collected and communicated to SPP and affected systems.

End-user interconnections within the SPP BA are subject to the provisions and procedures established in the SPP OATT, SPP Business Practices, and SPP Planning Criteria. The Companies directs all End-user interconnection customers to contact the SPP in order to establish a new or to make a qualified change to an existing end-user interconnection within the SPP BA. The end- user interconnection customer, Transmission Owner, and the SPP follow the process outlined in Attachment AQ of the SPP Tariff prior to the energization of any new or existing end-user interconnections seeking to make a qualified change. End-User interconnections for Retail Service shall follow applicable Companies retail service tariff. Companies shall install, calibrate, test, and maintain revenue quality metering in accordance with applicable ANSI Standard C12. Interconnections for Wholesale Service shall utilize revenue quality metering in accordance with applicable ANSI Standard C12, Form B of the Southwest Power Pool Market Protocols and all such data shall be telemetered to the Transmission Owner or Distribution Service Provider as applicable.

4. Generator Owner Procedures & Notifications

Procedures and Notifications associated with Customer interconnections with Companies Generator Owner Facilities are detailed in the following sections.

4.1. Procedure for Coordinated Study of Customer Facility

Public

Interconnections

Companies will follow same procedures in Section 3.1 above.

In accordance with the SPP Tariff, if network or distribution upgrades are identified as needed through the generation interconnection study process, the costs of those upgrades shall be solely funded by the Customer unless the Companies elect to fund the capital for the upgrades.

4.2. Procedure to Notify Affected Systems

Companies will follow same procedures in Section 3.2 above.

4.3. Confirm Customer Facility Interconnections within BA

Companies will follow same procedures in Section 3.3 above.

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Appendix A - Table of Codes and Standards Incorporated by Reference

The following Table of Codes and Standards Incorporated by Reference is intended to be informative but not determinative as to all statutes, regulations, standards, and codes that may apply to the interconnection of non-utility generation, transmission, and/or end-use facilities connected to the Companies' electric system inclusive of distribution or transmission facilities.

For example, it is not practical to list all potential county and city municipal codes. Also, relevant orders and requirements may have more current versions not yet recognized in this table. Companies do not assume any expressed or implied warranty the information is correct and accurate. In the event the table contains errors or omissions, the Interconnecting Customer is not relieved from its duty to comply with all current applicable laws, codes, and standards of all regulatory or governing bodies having jurisdiction.

Citation	Title	Initial FIR Reference Date
Electric Service Standards	Evergy's Electric Service Standards	04-08-2004
FAC-001-2	NERC Reliability Standard: Facilities Design, Connections, and Maintenance-Facility Connection Requirements	11-15-2013
FAC-002-2	NERC Reliability Standard: Facilities Design, Connections, and Maintenance-Coordination of Plans For New Generation, Transmission, and End-User Facilities	06-28-2012
Good Utility Practice	FERC, Order No. 888, 75 FERC 61,080 (1996); FERC *Policy Statement on Matters Related to Bulk Power System Reliability,* 107 FERC ¶ 61,052, *clarified,* 108 FERC ¶ 61,288 (2004), *Supplement to Policy Statement On Matters Related to Bulk Power System Reliability*, 110 FERC ¶ 61,096 (2005).	04-08-2004
IEEE 1547.7	Standard for Interconnecting Distributed Resources with Electric Power Systems	06-28-2015
IEEE 519	IEEE Recommended Practice and Requirements for Harmonic Control in Electric Power Systems	04-08-2004
IEEE 1453	IEEE Recommended Practice for the Analysis of Fluctuating Installations on Power Systems	09-03-2015
IEEE 80	IEEE Guide for Safety in AC Substation Grounding	04-08-2004
IEEE 81	Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Potentials	11-1-2018
IEEE 141	Recommended Practice for Electric Power Distribution for Industrial Plants	11-1-2018

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Citation	Title	Initial FIR Reference Date
IEEE 367	Recommended Practice for Determining the Electric Power Station Ground	11-1-2018
IEEE 487	Protection of Wire-Line Communication Serving Electric Power Stations	11-1-2018
IEEE 665	Guide for Generating Station Grounding	11-1-2018
IEEE 837	Standard for Qualifying Permanent Connections Used in Substation Grounding	11-1-2018
IEEE C37	Institute for Electrical and Electronics Engineers (IEEE) Standard – C37 *et seq.*	04-08-2004
IEEE C57	IEEE Standard – C57	04-08-2004
IEEE C62	IEEE Standard – C62	04-08-2004
ANSI C12		11-1-2018
ANSI 84.1		11-1-2018
ITP	SPP Integrated Transmission Planning	04-08-2004
NEC	NFPA 70 National Electrical Code	04-08-2004
NESC	National Electrical Safety Code	04-08-2004
OATT	SPP Open Access Transmission Tariff	04-08-2004
OSHA	29 C.F.R. § 1900 *et seq.*	06-28-2012
SPP Planning Criteria	SPP Planning Criteria and Appendices	04-08-2004
STEP	SPP Transmission Expansion Plan	06-28-2012

Public

Appendix B - Document History

The following table documents changes to this document.

Date	Document	Description
2018-11-1	Evergy Facility Interconnection Requirements 11-1-18.pdf	merged facility connection requirements for KCP&L and Westar
2019-11-1	Evergy Facility Interconnection Requirements 11-1-19.pdf	Annual Review. Updated document approvers, errata changes to align with company integration.
2020-3-4	EVERGY_PL_FAC-001_Facility Interconnection Requirements.pdf	Updated document to clarify that upgrades are required to be completed prior to interconnection, upgrades will use Evergy's standard design and equipment, and the cost of upgrades are the customer's responsibility.
2020-7-31	EVERGY_PL_FAC-001_Facility Interconnection Requirements.pdf	Updates Sections 1.D, 1.1.6.2, and 1.2.2.8 to incorporate system protection changes, incorporated Transource Energy, and updated references to Evergy from legacy company names.
2021-12-01	EVERGY_PL_FAC-001_Facility Interconnection Requirements.pdf	Updated Purpose section for document review to be as needed. Updated personnel titles and document dates. Updated formatting of Table of Contents and headings throughout document.
2022-11-14	EVERGY_PL_FAC-001_Facility Interconnection Requirements.pdf	Eliminated references to PRC-001, cleaned up references to SPP Planning Criteria, other general clean-up items.
2023-11-29	EVERGY_PL_FAC-001_Facility Interconnection Requirements.pdf	Updated Section 3 to comply with FAC-001-4 standard language which changes materially modified to a qualified change.
2024-05-10	EVERGY_PL_FAC-001_Facility Interconnection Requirements	Removed unused Attachment A and B with data requests. Changed Attachment C to new Attachment A. Added new Attachment B describing requirements for interconnections near or at Wolf Creek.

Public

Form A - GENERATION INTERCONNECTION APPLICATION

(Inverter Based Generation up to and including 25 kW)

Preface: This Facility Interconnection Standard applies to any connection to Companies' electric system regardless of voltage.

This application is complete when it provides all applicable information required below and includes a one-line diagram.

Applicant:

Name: _____

Address: _____

City, State, Zip: _____

Telephone (Day): _____ (Evening): _____

Fax: _____ E-mail Address: _____

Companies Customer Account Number:

Contact (If different from Applicant):

Name: _____

Address: _____

City, State, Zip: _____

Telephone (Day): _____ (Evening): _____

Fax: _____ E-mail Address: _____

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Generating Facility:

Location (If different from above): _____

Facility Owner: _____

_____

Inverter Manufacturer/Model: _____

Nameplate Rating (kW, kVA, Voltage, Frequency): _____

Single Phase: _____ Three Phase: __ (check one)

System Design Capacity: _ (kW) ____ (kVA)

Prime Mover (Photovoltaic, Turbine, Fuel Cell, Other): _____ (describe)

_____

Energy Source (Solar, Wind, Hydro, Other): ___ (describe)

Is the equipment UL1741 Listed? Yes ___ No _____

If yes, attach evidence of UL1741 listing.

Estimated Installation Date: _____ Estimated In-Service Date: _____

List components of the Interconnection Equipment Package that are certified:

	Equipment Type:	Certifying Entity:
1.	_____	_____
2.	_____	_____
3.	_____	_____

Attach a one-line diagram of the Generating Facility

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Applicant Signature:

I hereby certify that, to the best of my knowledge, the information provided in this application is true. I agree to abide by the terms and conditions specified in this Interconnection Agreement.

Signed: _____

Title: _____ Date: _

Operation is contingent on Companies Energy's approval to interconnect the Generating Facility.

Utility Signature:

Interconnection of the Generating Facility is approved contingent upon the terms and conditions specified in this Interconnection Agreement.

Utility Signature: _____

Title: _____ Date: _

Application ID Number: _____

Utility waives inspection/witness test? Yes No _____

Written applications should be submitted by mail or email:

Retail Services:

Evergy
Energy Solutions
P.O. Box 418679
Kansas City, MO 64105

Wholesale Services:

Evergy
Director, T&D Planning
P.O. Box 418679
Kansas City, MO 64105
longtermplanning@evergy.com

Public

Form B - GENERATION INTERCONNECTION APPLICATION

(Non-Inverter Based Generation and Inverter Based Generation > 25 kW)

Preface: This Facility Interconnection Standard applies to any connection to Companies' electric system regardless of voltage

This Application is complete when it provides all applicable and correct information required below and includes a one-line diagram. A load flow data sheet must be supplied with this application.

Additional information to evaluate a request for interconnection may be required after an application is deemed complete.

Applicant requests review under (select one):

_ Non-Inverter Based Generation ___ Inverter Based Generation > 25kW

1.0 Applicant Information

Legal Name of Applicant (if an individual, individual's full name)

Name: _____

Address: _____

City, State, Zip: _____

Telephone (Day): _____ Telephone (Evening): _____

Fax: _____ E-mail Address: _____

Type of Interconnection (Choose one): ____ Qualified Net Metering

____ Load Response (no export)

____ Wholesale Provider

Companies Customer Account Number (for Generating Facilities at Owner Locations: _____

Public

2.0 Generating Facilities Specifications

Prime Mover:

Photovoltaic _____

Reciprocating Engine _____

Fuel Cell _____

Gas Turbine _____

Steam Turbine _____

Microturbine _____

Other (specify) _____

Energy Source:

Solar_____

Wind _____

Hydro (state type i.e. Run of River _____

Diesel _____

Natural Gas _____

Fuel Oil _____

Other (state type) _____

Type of Generating Facility: _____Inverter _____Synchronous_____Induction

Generating Facility Nameplate Rating: _____kW or_____kVA

Applicant Site Load:_____kW (if none, so state)

Typical Reactive Load (if known): _____

Maximum Physical Export Capability Requested:_____kW

List components of the Interconnection Equipment Package that are UL listed or IEEE certified:

Equipment Type:	Certifying Entity:
1. _____	_____

Public

_____ _____

2. _____

3. _____

Is the prime mover compatible with the Interconnection Equipment Package?
_ Yes ___ No

Individual generator data (attach additional sheets if needed)

Manufacturer, Model Name & Number: _____

Version Number: _____

Nameplate Output Power Rating in kW: (Winter) (Summer) _____

Nameplate Output Power Rating in kVA: (Winter) (Summer) _____

Rated Power Factor: (Leading) _____ (Lagging) _____

Total number of generators to be interconnected pursuant to this application: _____

Elevation: _____

Single Phase: __ Three Phase: _____ (check one)

List of adjustable set points for the protective equipment or software:

_____

_____

Inverter based Generating Facilities

Inverter Manufacturer, Model Name & Number: ___

Max design fault current contribution (choose one):

Asymmetrical_____ Amps

Symmetrical _____ Amps

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Harmonics Characteristics: _____

Start-up requirements: ____

Rotating Machines (of any type)

RPM Frequency: _____

(*) Neutral Grounding Resistor (If applicable): _____

Synchronous Generators

Direct Axis Synchronous Reactance, Xd: _____ P.U.

Direct Axis Transient Reactance, X'd: _ P.U.

Direct Axis Sub transient Reactance, X"d: _____ P.U.

Negative Sequence Reactance, X2: _____ P.U.

Zero Sequence Reactance, X0: _____ P.U.

kVA Base: _____

Field Volts: _____

Field Amperes: _____

For synchronous generators, provide appropriate IEEE model block diagram of excitation system, governor system, and power system stabilizer (PSS in accordance with the Regional Reliability Council criteria). A PSS may be determined to be required by applicable studies. A copy of the manufacturer's block diagram may not be substituted.

Induction Generators

Motoring Power (kW): _____

I^2t or K (Heating Time Constant): _

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Rotor Resistance, Rr: _____ Rotor Reactance, Xr: _____

Stator Resistance, Rs: _____ Stator Reactance, Xs: _____

Magnetizing Reactance, Xm: _____

Short Circuit Reactance, Xd: _____

Exciting Current: _____

Temperature Rise: _____

Frame Size: _____

Design Letter: _____

Reactive Power Required in Vars (No Load): _____

Reactive Power Required in Vars (Full Load): _____

Total Rotating Inertia, H: _____ Per Unit on kVA Base

3.0 Transformer and Protective Relay Specifications

Will a transformer be used between the generator and the Facility Interconnection?

_____ Yes _____ No

Will the transformer be provided by the Owner? _____ Yes _____ No

Transformer: _____ percent on _____ kVA Base

If Three Phase:

Transformer Primary Grounded: _ Volts _ Delta __ Wye __ Wye Grounded

Transformer Secondary: _____ Volts _____ Delta _____ Wye ____ Wye Grounded

Transformer Tertiary Grounded: _____ Volts ___ Delta _____ Wye ___ Wye Grounded

Public

Transformer Fuse Data (if applicable, for Owner's fuse)
(Attach copy of fuse manufacturer's Minimum Melt and Total Clearing Time-Current Curves)

Manufacturer: Type: _____ Size: _____ Speed: _____

Interconnecting Circuit Breaker (if applicable):

Manufacturer: _____ Type: _____

Load Rating (Amps): ___ Interrupting Rating (Amps): ___ Trip Speed (Cycles): _____

Interconnection Protective Relays (if applicable):

If Microprocessor-Controlled:

List of Functions and Adjustable Set points for the protective equipment or software:

Set point Function	Minimum	Maximum
_____	_____	_____
_____	_____	_____
_____	_____	_____

Discrete Components (if applicable):

(Enclose Copy of any Proposed Time-Overcurrent Coordination Curves)

Manufacturer: ___ Type: _

Style/Catalog No: _____

Proposed Setting: _____

Manufacturer: ___ Type: _

Style/Catalog No: _____

Proposed Setting: _____

Manufacturer: ___ Type: _

_____

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Style/Catalog No: _

Proposed Setting: _

Current Transformer Data (if applicable):

(Enclose Copy of Manufacturer's Excitation and Ratio Correction Curves)

Manufacturer: _____

Type: _____ Accuracy Class: ____ Proposed Ratio Connection: _____

Potential Transformer Data (if applicable):

Manufacturer: _____

Type: _____ Accuracy Class: ____ Proposed Ratio Connection: _____

4.0 General Information

Enclose copy of site electrical one-line diagram showing the configuration of all Generating Facility Equipment, current and potential circuits, and protection and control schemes. This one-line diagram must be signed and stamped by a licensed Professional Engineer if the Generating Facility is larger than 200 kW.

Is one-line diagram enclosed? ___ Yes __ No

Enclose copy of any site documentation that indicates the precise physical location of the proposed Generating Facility and all protective equipment (e.g. USGS topographic map or other diagram or documentation).

Is site documentation enclosed? ___ Yes __ No

Enclose copy of any site documentation that describes and details the operation of the protection and control schemes.

Is available documentation enclosed? ___ Yes ___ No

Enclose copies of schematic drawings for all protection and control circuits, relay current circuits, relay potential circuits, and alarm/monitoring circuits (if applicable).

_____ _____

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Are schematic drawings enclosed? ___ Yes ___ No

5.0 Applicant Signature

I hereby certify that to the best of my knowledge, all the information provided in this Facility Interconnection Standard Application is true and correct. Generating Facilities must be compliant with IEEE, NEC, ANSI, and UL standards, where applicable. By signing below, the Applicant also certifies that the installed generating equipment meets the appropriate proceeding requirement(s) and can supply documentation that confirms compliance.

Signature of Applicant: _

Date: _____

Written applications should be submitted by mail or email:

Retail Services:

Evergy
Energy Solutions
P.O. Box 418679
Kansas City, MO 64105

Wholesale Services:

Evergy
Director, T&D Planning
P.O. Box 418679
Kansas City, MO 64105
longtermplanning@evergy.com

Public

Attachment A - Phasor Measurement Units Specifications

A1.0 Scope

The purpose of this specification is to provide information about Companies' requirements for Phasor Measurement Units (PMU) and associated hardware.

A2.0 Electrical Hardware

The Phasor Measurement Unit (PMU) shall meet or exceed the following criteria:

1. IEEE C37.118-2005 Protocol:

a. Up to 60 Messages per Second.

b. Level 1 at maximum message rate when phasor has the same frequency as phase A voltage, frequency-based phasor compensation is enabled (PHCOMP = Y), and the narrow-bandwidth filter is selected (PMAPP = N). Out-of-band interfering frequency (Fs) test, 10 Hz ≤ Fs ≤ (2 • NFREQ).

2. Current Range: 0.5 – 10 Amps secondary.
3. Frequency Range: ±5 Hz of nominal.
4. Voltage Range: 30 V-250 V.
5. Phase Angle Range: -179.99° to 180°.

The installation will have one Phasor Data Concentrator (PDC) that shall meet or exceed the following criteria:

1. Concentrate up to 120 IEEE C37.118-2005 or C37.118-2011 PMUs at rates up to 240 messages/second via 2 Ethernet and up to 26 RJ45 serial ports.
2. Configure up to ten independent output streams to provide data to Companies or the SPP.
3. Have continuous, local data storage up to 250 GB SDD in either COMTRADE or CSV formats.

The installation may need to include an Ethernet Gateway switch if one is not already present. The Ethernet Gateway switch shall meet or exceed the following criteria:

1. Deny-by-default firewall with Internet Protocol Security (IPsec) VPNs.
2. User-based access controls and detailed activity logs.
3. HTTPS web interface for secure setup and management.

The installation may need to include a GPS satellite-synchronized clock if one is not already present. The GPS satellite-synchronized clock shall meet or exceed the following criteria:

1. Demodulated IRIG-B outputs with ±100 nanosecond accuracy.
2. Six demodulated IRIG-B time-code outputs.

A3.0 Recommended and Proven Equipment

The following equipment has been proven and found to be acceptable by Companies:

1. PMU: SEL-351A – Part Number 0351A1R2X3E54X1 – Key Code 7438
2. PDC: SEL-3573 Station Phasor Data Concentrator – Configuration Number 3573#JB8J
3. Ethernet Gateway: SEL-3620 Ethernet Security Gateway – Configuration Number 3620#0101
4. GSP Satellite-Synchronized Clock: SEL-2407 – Part Number 24070001B

Public

Attachment B – Supplemental Interconnection Requirements for Interconnection to 345kV Sources to Wolf Creek Nuclear Plant

To properly assess the impact of an interconnection to one of the 345kV sources ("sources") serving the Wolf Creek nuclear plant (WCNP) listed in Table B1, Companies have additional design and study requirements. The supplemental requirements described in this Attachment are necessary to ensure compliance with the latest revisions of North American Electric Reliability Corporation (NERC) Reliability Standards FAC-002 and NUC-001, and the Nuclear Plant Interface Requirements (NPIRS) between Companies and WCNP.

Table B1: List of Sources Serving WCNP

345kV Source Name	345kV Source Type	Owner
Benton 345kV switchyard	Substation	Evergy Kansas Central
Blackberry 345kV switchyard	Switch Station	KAMO Electric Cooperative
LaCygne 345kV switchyard	Substation	Evergy Metro
Rose Hill 345kV switchyard	Substation	Evergy Kansas Central
Waverly 345kV switchyard	Switch Station	Evergy Kansas Central
Wolf Creek 345kV switchyard	Substation	Evergy Kansas Central
Waverly-LaCygne 345kV	Transmission Line	Evergy Kansas Central and Evergy Metro
Wolf Creek-Benton 345kV	Transmission Line	Evergy Kansas Central
Wolf Creek-Blackberry 345kV	Transmission Line	NextEra Energy Transmission Southwest
Wolf Creek-Rose Hill 345kV	Transmission Line	Evergy Kansas Central
Wolf Creek-Waverly 345kV	Transmission Line	Evergy Kansas Central

The supplemental studies shall be performed at the expense of the Customer. All studies shall be performed from the grid-level perspective and shall utilize power system models of the Eastern Interconnection of North America chosen and/or approved by Companies. Positive sequence RMS dynamic stability studies shall be performed with standard library models and shall comply with Companies unacceptable model requirements. All supplemental studies shall be performed in coordination with Companies, WCNP, and (as applicable) Southwest Power Pool (SPP) Generator Interconnection (GI) Staff ("SPP Staff").

Any needs identified by these supplemental studies shall be the sole responsibility of the Customer to mitigate. Any mitigations that require modification to equipment owned by Companies or WCNP shall be coordinated with Companies and/or WCNP and be performed at the expense of Customer. Commercial operation of Customer's Facility(ies) shall be contingent upon energization of all required modifications.

Radial Interconnections to a Source

Customers seeking a new radial interconnection to one of the sources listed in Table B1 shall be limited to one (1) plant. Hybrid plants (e.g., solar PV plus battery storage) are considered a single plant so long as all technology types connect at the same substation and are managed by the same power park control function.

New radial interconnections to an existing radial interconnection to a source (i.e., daisy chains) shall be prohibited.

The purpose of this requirement is to:

1) Limit the amount of generation susceptible to total outage due to transmission line exposure.
2) Reduce the complexity of individual plant control schemes that may interact with the control systems at WCNP.

Momentary Cessation Requirements

Connection of Generating Sources that have the potential to momentarily cease output during abnormal system conditions shall be prohibited. Fast-acting changes in real and/or reactive power requirements puts excessive strain on a large nuclear unit and is unacceptable.

Series Compensation Device Requirements

The installation of series compensation devices to the sources listed in Table B1, including Customer's Facility(ies), shall be prohibited to prevent sub-synchronous resonance issues associated with such equipment.

Customer Substation Design Requirements

Relay Redundancy

To eliminate single-point-of-failure modes, all transmission-level equipment (>= 60kV), including main power transformers interconnected at transmission voltages and transmission bus protection relays, shall include a main and backup in the protective relay scheme.

Additional Physical Security Considerations

Additional physical and cyber security considerations are required to help safeguard WCNP against threat actors. Since all sources are identified as requiring Tier 1 security measures (due to the proximity to WCNP), enhanced physical security is required for new interconnection stations or substations. Customer shall coordinate with Companies to obtain the latest Tier 1 physical security requirements.

Commercial operation of a newly interconnecting facility shall be contingent upon the incorporation of these additional security measures in the design and construction of the interconnection station/substation.

Operational Considerations

The Customer Facility(ies) shall be designed to supply target voltage at the Point(s) of Interconnection to 1.015 per-unit (350.18kV). This requirement aligns with Companies operating procedure TSO-T-466.

The Customer Facility(ies) shall be designed and capable of supplying a voltage schedule at the Point(s) of Interconnection within 0.985 per-unit (339.825kV) and 1.04 per-unit (358.8kV). These requirements align with the Wolf Creek NPIRS, specifically NPIR-1, and are intended to maintain adequate voltage at the Wolf Creek 345kV switchyard.

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List of Supplemental Studies

The supplemental studies required are shown in Table B2. Execution of these studies shall be coordinated with Companies. Commercial operation of a facility shall be contingent upon 1) the completion of all supplemental studies; and 2) energization of all mitigations identified through the supplemental studies.

Table B2: List of Supplemental Studies and Brief Description

Study	Applicable Interconnection Types	Description
Steady State and Short Circuit Grid Voltage Evaluation	Generation, Transmission, Electricity End-Use	Provide bus voltages plus three phase, line-to-ground, and Thevenin sequence impedance for a variety of system conditions with WCNP LOCA loads.
Positive Sequence RMS Stability Grid Voltage Evaluation	Generation, Transmission, Electricity End-Use	Provide bus dynamic channel plots for a variety of system conditions and fault types with WCNP LOCA loads.
Positive Sequence RMS Power System Oscillation Damping Impact Study	Generation Or Transmission	Determine if power system oscillation damping is degraded with the installation of a new resource.
Complex Control Interaction Study	Generation	Determine if control settings will interact with nearby generation, including WCNP.
Transient Overvoltage (TOV) Study	Generation, Transmission	Determine potential impacts of TOV created by the installation of the new resource.
Transient Recovery Voltage (TRV) Study	Generation, Transmission	Ensure circuit breakers have adequate interrupt capability with the installation of the new resource.
Sub-Synchronous Resonance (SSR) Study	Generation, Transmission	Ensure new Facility(ies) will not create a condition where WCNP will experience mechanical oscillations due to electrical resonances.
Harmonic Emission Assessment	Generation, Electricity End-Use	Determine the possible impacts to open-phase protection at WCNP caused by harmonic emissions from the new resource.
Phase Unbalance Assessment	Generation, Transmission, Electricity End-Use	Determine impacts to phase unbalance and ensure any new unbalances do not exceed 2% on the 345kV system.
Steady State Line Energization Study	Generation, Transmission	Determine voltage phase angle separation under various conditions to determine if new conditions exist where closing a source may be problematic.
EMT Line Energization and Arrester Sizing Assessment	Generation, Transmission	Ensure arresters at Wolf Creek are appropriately sized with the addition of the new resource

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Study	Applicable Interconnection Types	Description
Out-of-Step Blocking Assessment	Generation, Transmission, Electricity End-Use	Relay settings at Wolf Creek must be evaluated to determine if changes to the Out-of-Step blocking protection is needed due to the changed normal system impedance.

Disclaimer

The studies outlined in this attachment are supplemental to the generator interconnection studies performed by the Southwest Power Pool (SPP) and Associated Electric Cooperative, Inc (AECI). Results of these supplemental studies confer no rights to Customer regarding the SPP or AECI generator interconnection process and in no way allow the Customer to bypass or circumvent the SPP and/or AECI generator interconnection study processes.

Any qualified changes identified by these supplemental studies may not necessarily be identified directly through the SPP or AECI generator interconnection studies. Regardless, Customer shall be responsible for the costs, implementation, and/or energization of all identified qualified changes along with, or prior to, commercial operation.

Customer is responsible for coordinating any qualified changes identified in these supplemental studies with the SPP and AECI.