

**POWER PURCHASE AND INTERCONNECTION AGREEMENT
(FROM A QUALIFYING FACILITY WITH A DESIGN CAPACITY OVER 100kW)**

28th September

This Agreement is made and entered into and effective this ___ day of ___ 2023 among East Kentucky Power Cooperative, Inc., a Kentucky corporation with its principal office at 4758 Lexington Road, Winchester, Kentucky 40391 ("EKPC"), Owen Electric Cooperative, Inc., ("Owen"), a Kentucky corporation with its principal office at 8205 HWY 127 North, Owenton, Kentucky 40359 and Global Mail, Inc., a Ohio corporation, d/b/a DHL eCommerce, with its principal office at 2700 S Commerce Parkway, Suite 300, Weston, FL 33331 ("Seller") (collectively, the "Parties").

WITNESSETH:

WHEREAS, Seller is developing and installing a new solar facility and will be producing electrical power at its DHL facility at 2300 Airport North Drive, Hebron, Kentucky (the "Property"); and

WHEREAS, EKPC is a rural electric cooperative that generates and transmits electricity to its sixteen (16) Owner-Member Cooperatives ("owner-members") that includes Owen; and

WHEREAS, Owen purchases wholesale power from EKPC under a wholesale power supply contract, as amended; and

WHEREAS, Seller desires to sell the excess output from the facilities to EKPC; and

WHEREAS, Seller's facilities will be interconnected to a Owen distribution system that connects to EKPC's transmission system, and said facilities will primarily provide power to Seller; and

WHEREAS, during certain low loading periods, the output of the Seller's solar facilities is expected to exceed the total load of Seller, and surplus electricity will flow from Seller into the Owen System or EKPC system; and

WHEREAS, EKPC has agreed to purchase this excess electricity from Seller at a price equivalent to the PJM Balancing Market at the EKPC Aggregate load node, on the terms and conditions set out herein.

NOW, THEREFORE, in consideration of the mutual covenants and agreements set forth herein, and for other good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, the Parties hereto agree as follows:

ARTICLE I - DEFINITIONS

1.01 "Agreement" shall mean this Power Purchase and Inte Schedules hereto.

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1.02 “Applicable Laws and Regulations” shall mean all duly enacted applicable federal, state and local laws, regulations, rules, ordinances, codes, decrees, judgments, directives, or judicial or administrative orders, permits and other duly authorized actions of any Governmental Authority.

1.03 “Authorization” shall mean any license, permit, approval, filing, waiver, exemption, variance, clearance, entitlement, allowance, franchise, or other authorization from or by a Governmental Authority.

1.04 “Authorization Date” shall mean the date that the last Authorization required to be given in order for the Parties to perform this Agreement is granted by the Kentucky Public Service Commission, the Administrator of the Rural Utilities Service or any other applicable Governmental Authority.

1.05 “Delivery Point” shall mean the meter at the point of connection of the facilities of Owen and the facilities of the Seller.

1.06 “Dispute” shall have the meaning given in Section 9.06(a).

1.07 “Early Termination Date” shall have the meaning given in Section 9.03(a).

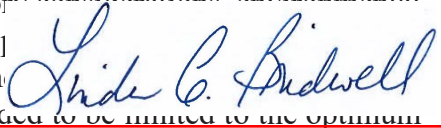
1.08 “Environmental Attributes” shall mean: 1) production tax credits applicable to electricity produced from certain renewable resources pursuant to 26 U.S.C. § 45, or any successor thereto or equivalent thereof; 2) any other federal or state tax deductions, credits or incentives for which the Qualifying Facility is eligible based upon its generation of electricity from renewable resources; 3) any grants or other payments from a Governmental Authority or non-profit entity (other than a cooperative corporation formed under KRS Chapter 279 and to the extent permitted by law) for which the Qualifying Facility is eligible based upon its generation of electricity from renewable resources; 4) environmental air quality credits, off-sets, emission reductions, allowance or other benefits related to the generation of electricity from the Qualifying Facility in a manner which reduces, displaces or off-sets emissions resulting from fuel combustion at another location pursuant to any law; and 5) credits, off-sets, environmental and other certificates, green pricing programs, renewable energy credit trading programs or any similar program.

1.09 “Event of Default” shall have the meaning given in Section 9.01 and Section 9.02.

1.10 “Force Majeure” shall have the meaning given in Section 7.01.

1.11 “Good Utility Practice” shall mean any of the practices, methods and acts employed by owners and/or lessors, operators or maintainers of electric generation, transmission or distribution facilities similar in size and operational characteristics to the Qualifying Facility, Interconnection Facilities, Owen’s System and EKPC’s transmission system which, in the exercise of reasonable judgment in the light of the facts known or that reasonably should have been known at the time that a decision was made, could reasonably have been expected to accomplish the desired result at the lowest reasonable cost, consistent with licensing and regulatory considerations, environmental considerations, reliability, safety, protection of lives and project specifications and manufacturer’s maintenance requirements, and any Governmental Authority. Good Utility Practice is not intended to be limited to the optimum

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practice, method or act, to the exclusion of all others, but rather to be a spectrum of possible practices, methods or acts generally accepted in the region.

1.12 “Governmental Authority” shall mean the federal government of the United States, and any state, county or local government, and any regulatory department, body, political subdivision, commission (including the Kentucky Public Service Commission and Federal Energy Regulatory Commission), agency, instrumentality, ministry, court, judicial or administrative body, taxing authority, or other authority of any of the foregoing (including any corporation or other entity owned or controlled by any of the foregoing), any regional transmission organization or independent system operator, any national or regional reliability organization or council (including NERC) or any reliability coordinator, in each case, having jurisdiction or authority over the Agreement (or any portion thereof), the Seller, EKPC, Owen, the Qualifying Facility, the Interconnection Facilities, Owen’s System or EKPC’s transmission system, whether acting under actual or assumed authority.

1.13 “Initial Term” shall mean the period commencing on the effective date of this Agreement, written above, and concluding on a date five years following the Authorization Date.

1.14 “Interconnection Costs” shall mean all reasonable costs of connection, switching, metering, transmission, distribution, safety provisions and administrative costs incurred by EKPC or Owen directly related to the installation and maintenance of physical facilities necessary to permit interconnected operations with the Qualifying Facility, to the extent those costs are in excess of corresponding costs which EKPC or Owen would have incurred if either had not engaged in interconnected operations with the Qualifying Facility but instead had generated an equivalent amount of electric energy itself or purchased an equivalent amount of electric energy or capacity or both from other sources. Interconnection costs shall not include any costs included in the calculation of EKPC’s or Owen’s avoided costs.

1.15 “Interconnection Facilities” shall mean all facilities, lines, equipment, appurtenances and meters, as identified and designated on Schedule A, between the Qualifying Facility and Owen’s System that are necessary to physically and electrically interconnect the Qualifying Facility to Owen’s System, regardless of whether owned by EKPC, Owen or Seller.

1.16 “Interconnection Manual” shall mean the document titled “Manual for Small Generator Interconnection Requirements for Direct Interconnection with EKPC Member Cooperative Distribution Systems (For Generating Facilities of 10 MW or Less),” dated June 1, 2015, which is adopted and incorporated herein as Schedule B.

1.17 “Owen’s System” shall mean Owen’s facilities and equipment used to distribute electricity to end users directly from nearby generators or from interconnection with EKPC’s transmission system which support bulk power.

1.18 “Notice of Early Termination” shall have the meaning given in Section 9.03(a).

1.19 “Operating Requirements” shall mean any operating and be imposed by a regional transmission organization, independent coordinator, balancing authority, Owen or EKPC.

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1.20 “Proprietary Information” shall have the meaning set forth in 12.05(f)(i).

1.21 “Qualifying Facility” shall mean the small power producing facility satisfying the definition of same as set forth in 807 KAR 5:054, Section 1(8) that is located at Seller’s facilities at the Property, within the service territory of Owen; having a nameplate rating of 307.8 kWdc; using solar power as a fuel or energy source; and, unless the context requires otherwise, including all interconnection and safety equipment owned by the Seller (as designated on Schedule A) and used in connection with its electric generation facilities.

1.22 “Seller’s System” shall mean the Qualifying Facility and any Interconnection Facilities owned by Seller.

ARTICLE II – SALE OF CAPACITY AND ENERGY

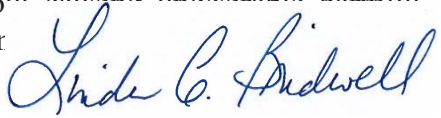
2.01 Sale of Capacity and Energy. As soon as is reasonably practicable after all requirements set forth herein are met following the Authorization Date of this Agreement, the Seller will sell, and EKPC will purchase, electric capacity and energy from the Seller’s Qualifying Facility at the Delivery Point, on a non-dispatchable basis for periods when power and energy generated by the Seller is in excess of the Seller's own needs. The electric power delivered by the Seller and purchased by EKPC shall be metered and paid for as set forth on the attached Schedule C. EKPC shall pursue the Authorization with reasonable diligence following the date on which this Agreement is fully executed. Seller shall have the right to terminate this Agreement if the Authorization is not received within one hundred thirty-five (135) days following the date on which this Agreement is fully executed.

2.02 Exclusivity. The Seller agrees that its Qualifying Facility will be installed and, except for sales of power and energy to EKPC, will be used at all times for the sole purpose of the Seller's benefit, and energy generated by said Qualifying Facility shall not be otherwise transmitted, shared, or resold by the Seller to any person other than EKPC, throughout the term(s) of this Agreement.

2.03 Delivery of Electricity. Seller shall interconnect with Owen’s System and shall deliver electricity to Owen’s side of the Delivery Point consistent with the terms of the Interconnection Manual, which is adopted and incorporated herein in full by reference. As set forth hereinafter, Seller must provide good quality electric power within a reasonable range of voltage, frequency, flicker, harmonic currents, and power factor, including, but not limited to:

a. The electricity delivered hereunder shall be in the form of three-phase phase, at a frequency of 60-hertz, alternating current and within three percent (3%) above or below a nominal voltage of 480 volts or a nominal operating voltage to be determined by Owen from actual operating experience.

b. Seller shall provide for proper synchronization of the Qualifying Facility with Owen's System such that synchronism is accomplished without causing undesirable harmful currents, surges, or voltage dips on Owen’s System or the trans or other interconnected utilities.

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c. The electricity delivered by Seller shall not cause unusual fluctuations or disturbances on Owen’s System or the transmission system owned by EKPC or other interconnected utilities. Accordingly, the Seller shall provide, at Seller's expense, suitable apparatus which will keep such fluctuations or disturbances within reasonable limits established by Owen and EKPC in accordance with IEEE Standard 519 and/or applicable standards.

d. The Seller shall install a safety switch that will fully disconnect the generation circuit of its Qualifying Facility from Owen's System. The switch shall be of the visible break type which can be secured by a padlock by Owen. The disconnect switch shall be accessible to Owen and EKPC personnel at all times.

2.04 Environmental Attributes. During the Initial Term of this Agreement and any subsequent term(s), Seller shall own, and may assign or sell at its sole discretion, all right, title and interest associated with or resulting from any Environmental Attributes associated with the Qualifying Facility and associated power and shall have the exclusive right to claim that Seller is responsible for: (i) generating electricity from a renewable resource; and (ii) the reductions in emissions of pollution and greenhouse gases resulting from the power produced from a renewable resource.

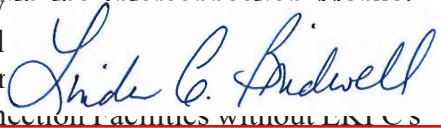
ARTICLE III – RIGHTS AND OBLIGATIONS

3.01 Rights and Obligations of Seller.

a. Design and Construction of the Qualifying Facility. The Seller shall design, construct and interconnect the Qualifying Facility at its own expense and in accordance with the Interconnection Manual, Good Utility Practices, Operating Requirements (to the extent a copy is provided to Seller) and all Applicable Laws and Regulations. Plans, specifications, and operating characteristics for the Qualifying Facility must be approved by EKPC and Owen before the Qualifying Facility is connected to Owen System (which approval shall not be unreasonably withheld, conditioned, or delayed), and may not be materially revised or modified without EKPC's and Owen's approval (which approval shall not be unreasonably withheld, conditioned, or delayed). Prior to completion and energization of the interconnection between the Qualifying Facility and Owen System, EKPC and Owen shall have the right to inspect the Qualifying Facility and Interconnection Facilities upon prior reasonable notice to Seller to confirm that the Qualifying Facility and Interconnection Facilities are in compliance with the Interconnection Manual, Operating Requirements, Good Utility Practice and all Applicable Laws and Regulations. Any deficiencies noted must be corrected prior to energization. The Seller shall not, after energization, modify or change in any way the design or operating characteristics of the Qualifying Facility without EKPC's and Owen's express approval (which approval shall not be unreasonably withheld, conditioned, or delayed).

b. Design and Construction of the Interconnection Facilities. The Interconnection Facilities shall be designed, acquired, constructed and interconnected at Seller's expense and shall be respectively owned by EKPC, Owen and Seller as designated in Schedule A. The Interconnection Facilities shall be constructed in accordance with the Interconnection Manual, Operating Requirements (to the extent a copy is provided to Seller) and all Applicable Laws and Regulations. The Seller shall not, after energization, modify or change in any way the design or operating characteristics of the Interconnection Facilities without EKPC's and Owen's express approval.

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i. Estimated Payment for Interconnection Costs. EKPC and Owen shall be reimbursed for their respective Interconnection Costs associated with designing, acquiring, constructing and installing the Interconnection Facilities as follows: Seller shall pay estimated Interconnection Cost payments of \$0.00 to EKPC and \$ 0.00 to Owen. Said payments shall be made no later than thirty (30) days after the Authorization Date. Seller shall not be obligated to provide security to EKPC and Owen for the payment of such costs and expenses of the Interconnection Facilities.

ii. Final Payment for Interconnection Costs. The final Interconnection Costs payments shall be adjusted to reflect the actual amounts of said Interconnection Costs through an additional payment by the Seller, or partial refund by EKPC and/or Owen in accordance with the terms of this paragraph. EKPC and Owen will invoice Seller for the final and actual Interconnection Costs within thirty (30) days after the completion of the Interconnection Facilities, and Seller shall pay such costs within thirty (30) days of the date of said invoice(s). Any refunds due to Seller shall be paid within thirty (30) days after completion of the Interconnection Facilities.

c. Operation and Maintenance of the Qualifying Facility. At all times during the Initial Term of this Agreement and any subsequent term(s), the Seller has the sole duty and responsibility for operation and maintenance of the Seller's System, and neither EKPC nor Owen shall furnish service personnel or material and equipment to the Seller for the maintenance or operation of the Seller's System, unless separately agreed to and invoiced by EKPC or Owen. Seller shall operate and maintain the Qualifying Facility in accordance with the Interconnection Manual, Operating Requirements (to the extent a copy is provided to Seller), Good Utility Practices, and all Applicable Laws and Regulations.

i. Protection of the Qualifying Facility. The Seller shall protect the Qualifying Facility from disturbances occurring on Owen's System or the transmission system owned by EKPC or other interconnected utilities and shall have the sole responsibility for the safety and electrical protection of its facilities, irrespective of the condition of Owen's or EKPC's Interconnection Facilities. This protection shall include automatic sensing and immediate disconnection from a faulted or de-energized Owen line, and shall prevent the Seller from energizing a de-energized Owen line.

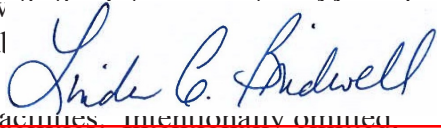
ii. Parallel Operation. Switching to place the generator in Seller's Qualifying Facility in or out of service and parallel operation with EKPC's or Owen's system shall be coordinated with the EKPC system operator and designated Owen operating personnel as set forth in Article IV and Article VI of the Interconnection Manual.

iii. Reactive Power. Intentionally omitted

d. Operation and Maintenance of the Interconnection Facilities. Each part of the Interconnection Facilities owned by the Seller, as designated in Schedule A, shall be maintained by Seller or by owner's agent or representative in accordance with the Interconnection Manual, Operating Requirements, Good Utility Practices, and all Applicable Laws and Regulations.

e. Modifications and Upgrades of Interconnection Facilities. Intentionally omitted.

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f. Records Retention. The Seller shall maintain records regarding all maintenance of the Qualified Facilities and Interconnection Facilities owned by Seller, and upon reasonable prior notice, Seller shall make those records available for inspection by EKPC and Owen during regular business hours.

g. Laws and Authorizations. Seller shall comply with all Applicable Laws and Regulations and Authorizations applicable to its performance of its obligations under this Agreement, except where non-compliance will not have an adverse effect on EKPC, Owen, their rights under this Agreement or Seller's ability to perform its obligations under this Agreement.

h. Relationship to Interconnection Manual. The Parties acknowledge and agree that the cost recovery provisions set forth in Section 7.01 through Section 7.03 and Section 8.01 through Section 8.04 of the Interconnection Manual are either inapplicable or are superseded by the cost recovery provisions set forth in this Section 3.01. EKPC's and Owen's recovery of Interconnection Costs shall be governed exclusively by the terms of this Section 3.01 and not by the terms of the Interconnection Manual.

3.02 Rights and Obligations of EKPC and Owen.

a. Design and Construction of Interconnection Facilities. EKPC and Owen shall design, construct and install the Interconnection Facilities that they respectively own in accordance with the Interconnection Manual, Operating Requirements, Good Utility Practices, and all Applicable Laws and Regulations.

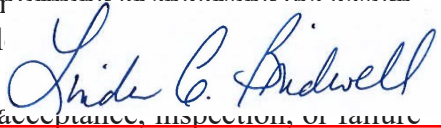
b. Operation and Maintenance of the Interconnection Facilities. EKPC and Owen shall operate and maintain the Interconnection Facilities that they respectively own, as set forth in Schedule A, in accordance with the Interconnection Manual, Operating Requirements, Good Utility Practices, and all Applicable Laws and Regulations.

c. Disconnection. EKPC shall have the same rights and obligations regarding disconnection of the Qualifying Facility as already granted to Owen in Section 6.02 of the Interconnection Manual.

d. Laws and Authorizations. EKPC and Owen shall comply with all Applicable Laws and Regulations and Authorizations applicable to their respective performance of obligations under this Agreement, except where non-compliance will not have an adverse effect on any other Party, any other Party's rights under this Agreement or, as applicable, EKPC's or Owen's ability to perform its obligations under this Agreement.

3.03 Disclaimer. EKPC's and Owen's acceptance of the plans, specifications, and operating characteristics for the Seller's System, or any revisions or modification thereof, and EKPC's and Owen's inspection of the Seller's System and subsequent authorization to energize the interconnection, or later consent to any change or modification of the design or operating characteristics of the Seller's System, shall not be construed as confirming or endorsing the design or as warranting the safety, durability, or reliability of the Seller's System. Owen assumes any duty to review or inspect the Seller's System for safety, durability, or reliability. EKPC and Owen shall not, by reason of any review, acceptance, inspection, or failure to review or inspect, be responsible for any aspect of the Seller's System, including, but not limited

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to its safety, details of design, adequacy, or capacity thereof, nor shall EKPC's or Owen's acceptance or approval be deemed to be an endorsement of the safe condition of the Seller's System. Seller's acceptance of the plans specifications, and operating characteristics for the Interconnection Facilities owned by EKPC or Owen or both, or any revisions or modification thereof, and Seller's inspection of the Interconnection Facilities owned by EKPC or Owen or both and subsequent authorization to energize the interconnection, or later consent to any change or modification of the design or operating characteristics of the Interconnection Facilities owned by EKPC or Owen or both, shall not be construed as confirming or endorsing the design, or as warranting the safety, durability, or reliability of the Interconnection Facilities owned by EKPC or Owen or both. Seller does not assume any duty to review or inspect the Interconnection Facilities owned by EKPC or Owen or both to assess its safety, durability, or reliability. Seller shall not, by reason of any review, acceptance, inspection, or failure to review or inspect, be responsible for any aspect of the Interconnection Facilities owned by EKPC or Owen or both, including, but not limited to its safety, details of design, adequacy, or capacity thereof, nor shall Seller's acceptance or approval be deemed to be an endorsement of the safe condition of the Interconnection Facilities owned by EKPC or Owen or both.

ARTICLE IV – METERS

4.01 Meters. EKPC and Owen shall specify, own, install, operate and maintain the metering equipment, which is specified in Schedule A and which EKPC and Owen deem appropriate, based on the size and other characteristics of the Qualifying Facility. EKPC and Owen shall use such metering equipment to measure the power and energy sold by the Seller to EKPC, measure power and energy delivered to Seller, and monitor voltage and reactive power flows on the interconnection. The metering equipment for Owen and the metering equipment for EKPC are designated by the reference "utility meter." If EKPC or Owen is required to install utility meter communication equipment to enhance communication signal strength for remote meter readings, EKPC and Owen shall provide to the Seller information pertaining to the equipment that EKPC and Owen will install and the method of installation. The Seller shall provide EKPC and Owen unrestricted access to the meter and all metering equipment at all times for the purpose of testing and maintenance, as well as collecting any readings necessary for billing. If said meters and equipment are located in a controlled room with an exterior door, then such access shall be granted in the form of a key which shall remain onsite in a controlled lockbox owned and maintained by Owen and EKPC.

4.02 Readings. EKPC or Owen shall read the meter at the Delivery Point following the end of each month. The amount of power delivered to EKPC during the preceding month shall be determined from such readings, as such readings may be adjusted pursuant to Section 4.05. EKPC or Owen shall read its meter in accordance with its normal business practice and the regulations of the Kentucky Public Service Commission.

4.03 Metering Modifications. Any modifications that the Seller may request with respect to the metering equipment may be made at the sole discretion of EKPC or Owen, as applicable. Any additional costs incurred in making such modifications shall be borne by the Seller.

4.04 Inspection and Testing. EKPC and Owen shall each inspect the metering equipment as frequently as deemed appropriate by EKPC and Owen, or at the request of the Seller, and shall, at a minimum, comply with requirements as set forth by the Kentucky Public Service Commission.

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4.05 Accuracy. In addition to the obligations set forth in Section 5.02 of the Interconnection Manual, EKPC and Owen shall each calibrate its meter to maintain accuracy within plus or minus two (2) percent as far as is reasonably practical and in accordance with Good Utility Practice. EKPC and Owen will give Seller notice of all meter tests at least forty-eight (48) hours in advance thereof and Seller may have its representative present for such tests. If, at any test, a meter shall be found to be inaccurate by more than two (2) percent, fast or slow, an adjustment shall be made through mutual agreement among EKPC, Owen, and the Seller to compensate for the effects of such inaccuracy over the period of inaccuracy that may be established. EKPC and Owen will work with Seller to reconcile any corrections in billings resulting from inaccurate metering within 30 days after the investigation is complete, and such corrections, when made, shall constitute full adjustment, subject to Seller's right to audit as further set forth herein. Notwithstanding the provisions of Section 5.01(b) of the Interconnection Manual, if at any time a meter shall fail to register, EKPC and Seller or Owen and Seller, as applicable, shall determine through best fit approximation the meter registrations to be used for billing purposes by using an appropriate methodology.

Seller shall have a right to request an audit of the performance and accuracy of any meters provided by EKPC or Owen on no less than two business days advance notice to EKPC or Owen, and EKPC and Owen shall not unreasonably withhold, delay or condition their approval of such request. If the results of any Seller audit reveals a meter to be inaccurate by more than two (2) percent, fast or slow, an adjustment shall be made through mutual agreement among EKPC, Owen, and the Seller to compensate for the effects of such inaccuracy over a maximum and previous 24 month period of inaccuracy established by Seller's audit, which adjustment shall be reflected in billing within 30 days after the investigation is complete. In accordance with Applicable Laws and Regulations of the Kentucky Public Service Commission, the Seller will pay the cost of the meter accuracy audit to Owen or EKPC if the accuracy is determined to be two (2) percent or less.

ARTICLE V – PURCHASES AND BILLING

5.01 Power Purchases. Any power and energy purchased by EKPC from Seller shall be metered and accounted for separately from power and energy delivered and sold hereunder to Seller by Owen. All power purchased by EKPC shall be purchased in accordance with the tariffs, rules, and regulations established by EKPC and approved by the Kentucky Public Service Commission for qualifying cogeneration and small power production facilities.

5.02 Billing.

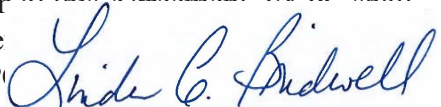
a. An accounting for amounts due hereunder shall be rendered by EKPC as soon as is reasonably practicable following the meter reading, and shall incorporate such information as may reasonably be necessary or desirable to determine the payments for power delivered to the Delivery Point during the preceding month, and other amounts due hereunder.

b. In the event of the termination or expiration of this Agreement, EKPC shall, within twenty (20) business days of the date of termination or expiration, provide a statement to Seller that indicates any amounts to be paid by EKPC.

5.03 Payment and Interest.

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a. Payments. All payments shown to be due to Seller by EKPC on a billing statement shall be tendered to Seller along with the billing statement no later than the fifteenth day of each month. Any payments owed by Seller to EKPC shall be paid by the last day of each month in which the billing statement was tendered by EKPC. If the paying party, in good faith, disputes a portion of any billing statement, the paying party shall render payment for the undisputed portion of such bill to the billing party. Upon resolution of the dispute, any amount found to be due and payable to the billing party shall be paid to the billing party. The paying party shall render payment by wire transfer, or such other payment method as the Parties mutually agree.

b. Interest. If the paying party fails to pay all or a portion of the undisputed amounts billed within the time stated in the preceding paragraph, the paying party shall owe interest on the unpaid portion of the bill, which interest shall accrue daily at the lesser of: (i) the Prime Rate (as published in the Wall Street Journal) plus two percent (2%); or (ii) the maximum rate permitted by applicable law, from and including the due date of such amount, but excluding the date the delinquent amount is paid. If any portion of a disputed amount is ultimately determined to be due to the billing party, such amount shall be due and payable not later than ten (10) days after resolution of the Dispute, and the paying party shall owe interest on such portion of such disputed amount to the extent that such portion is determined to be due and owing to the billing party, which interest shall accrue daily at the lesser of: (i) the Prime Rate (as published in the Wall Street Journal) plus two percent (2%); or (ii) the maximum rate permitted by applicable law, from and including the original due date of such amount, but excluding the date the disputed amount is paid.

c. Offsets. Any Party may at any time offset any amounts owed by it against any and all amounts that may be due and owed to another Party under this Agreement.

d. Seller shall have a right to audit the billing statements provided by EKPC and any and all documentation and records maintained by EKPC relating to those billing statements. EKPC shall make such documentation and records available to Seller promptly following Seller’s request for the same. If the results of any Seller audit reveal any billing statement to be inaccurate, EKPC shall pay any shortfall owed to Seller within thirty (30) days following receipt of an audit report from Seller. Conversely, if the results of the audit show an overpayment to Seller, EKPC shall apply such overpayment to the next due sums until such overpayment has been applied in full.

5.04 Owen’s Services. Owen will charge Seller a fixed administrative fee of \$90.20 per month for the administrative tasks associated with this agreement including, but not limited to, meter data management, etc.

5.05 Monthly Backup Service Charge. Intentionally omitted

ARTICLE VI – PROPERTY RIGHTS AND ACCESS

6.01 Communications and Data Logging Systems. Intentionally omitted

6.02 Right of Access. EKPC or Owen shall have the same right to inspect and test the Seller’s Facility, Seller’s Interconnection Facilities and EKPC’s or Owen’s Interconnection Facilities as set forth in Section 4.03 of the Interconnection Manual. Such inspections shall not relieve the Seller from its

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obligations to maintain the facilities in satisfactory operating conditions and shall, in no way, be deemed an endorsement of the safe condition of the Qualifying Facility. While present on the property of Seller, EKPC or Owen personnel shall observe such safety precautions as may be reasonably required by Seller and communicated to EKPC or Owen in writing.

6.03 Removal of Equipment. Upon termination of this Agreement for any reason, any part or all of the Interconnection Facilities then owned by EKPC or Owen may be removed by such owner at such owner's cost and expense. Any portion of the Interconnection Facilities owned by the Seller at the termination of this Agreement shall remain the Seller's property.

ARTICLE VII – FORCE MAJEURE

7.01 Force Majeure Defined. "Force Majeure" shall mean an event or circumstance beyond the reasonable control of and without the fault or negligence of the Party claiming Force Majeure, which, despite the exercise of reasonable diligence, cannot be or be caused to be prevented, avoided or removed by such Party. Force Majeure shall include, to the extent consistent with the preceding sentence: an act of God; war (declared or undeclared); sabotage; riot; insurrection; civil unrest or disturbance; military or guerilla action; banditry; terrorist activity or a threat of terrorist activity which, under the circumstances, would be considered a precursor to actual terrorist activity; economic sanction or embargo; civil strike, work stoppage, slow-down, or lock-out that are of an industry or sector-wide nature and that are not directed solely or specifically at the affected Party; explosion; fire; earthquake or seaquake; abnormal weather condition; hurricane; flood; lightning; high winds; drought; peril of the sea; the binding order of any Governmental Authority (provided that the affected Party has in good faith considered reasonably contesting such order); the failure to act on the part of any Governmental Authority (provided that such action has been timely requested and diligently pursued); unavailability of equipment, supplies or products, but only to the extent caused by an event of circumstance of Force Majeure; and failure of equipment. With respect to the Seller, Force Majeure shall also include (to the extent beyond the reasonable control of and without the fault or negligence of Seller) any interruption in distribution service on Owen's side of the Delivery Point. No Party shall be deemed to have suffered an event of Force Majeure due to the failure of equipment which that Party is responsible for operating or maintaining unless the equipment has been operated and maintained in accordance with Good Utility Practice. Neither the lack of money nor changes in market conditions shall constitute an event of Force Majeure.

7.02 Effect of Force Majeure. If any Party is rendered wholly or partly unable to perform its obligations under this Agreement or its performance is delayed because of Force Majeure, that Party shall be excused from whatever performance it is unable to perform or delayed in performing due to the Force Majeure to the extent so affected, provided that: a) the Party affected by such Force Majeure, as soon as reasonably practical after the commencement of such affect, gives the other Parties prompt oral notice, followed by a written notice within forty-eight (48) hours after such oral notice, fully describing the particulars of the occurrence; b) the suspension of performance is of no greater scope and of no longer duration than is required by the Force Majeure event; and c) the Party whose performance is affected by such Force Majeure uses its commercially reasonable efforts to overcome and remedy its inability to perform

7.03 Affect on Payment Obligations. Notwithstanding any other provision of this Agreement, a Party suffering a Force Majeure event is not relieved from tendering payment(s) that are

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obligated to be paid pursuant to this Agreement. Force Majeure shall not be a defense to any payment that is lawfully owed.

7.04 Deadlines Extended; Termination. Whenever a Party is required to commence or complete any action within a specified period and is prevented or delayed by Force Majeure from commencing or completing such action within the specified period, such period shall be extended by an amount equal to the duration of such event of Force Majeure occurring or continuing during such period except as otherwise specifically provided in this Agreement; provided, however, that in no event shall a Force Majeure extend any term of this Agreement. If any Force Majeure prevents the Seller from delivering power for more than thirty (30) consecutive days, then EKPC may terminate this Agreement upon written notice to Seller and no Party shall have any liability arising out of such termination.

ARTICLE VIII – RISK OF LOSS AND INDEMNIFICATION

8.01 Risk of Loss.

a. Seller. As between EKPC and Seller, Seller shall be responsible for and shall bear the full risk of loss: (i) with respect to any loss of or damage to any property located on Seller's side of the Delivery Point; and (ii) with respect to any personal injury or death, or loss of or damage to any other property arising out of the ownership or leasing, operation or maintenance of any property of Seller on Seller's side of the Delivery Point; provided, however, that Seller shall not be responsible for any loss, damage, or injury to the extent that such loss, damage, or injury arises out of the negligence or willful misconduct of EKPC or Owen.

b. EKPC. As between EKPC and Seller, EKPC shall be responsible for and shall bear the full risk of loss: (i) with respect to any loss of or damage to any property located on EKPC's side of the Delivery Point, and (ii) with respect to any personal injury or death, or loss of or damage to any other property arising out of the ownership, operation or maintenance of any property of EKPC on EKPC's side of the Delivery Point, provided, however, that EKPC shall not be responsible for any loss, damage, or injury to the extent that such loss, damage, or injury arises out of the negligence or willful misconduct of Seller or Owen.

8.02 Environmental Claims. The Seller assumes liability for any and all claims, demands, actions, violations, notices or causes of action of any kind arising from or relating to the design, construction, installation, operation, maintenance or dismantling of the Qualifying Facility that arise from or relate to violations of any environmental statutes, regulations, rules or orders whether federal, state or local in nature. EKPC and Owen assume liability for any and all claims, demands, actions, violations, notices or causes of action of any kind arising from or relating to the design, construction, installation, operation, maintenance or dismantling of the Interconnection Facilities owned by EKPC or Owen or both that arise from or relate to violations of any environmental statutes, regulations, rules or orders whether federal, state or local in nature.

8.03 Indemnification.

a. By Seller. Seller shall indemnify, defend and hold EKPC, its agents, representatives, members and agents, harmless from and against any and all third party claims, suits, damages, losses, liabilities, expenses and costs

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(including reasonable attorneys' fees) including, but not limited to, those arising out of property damage to the property of EKPC, Owen or others, environmental claims, and personal injury and bodily injury (including death, sickness and disease) to the extent caused by Seller's: (i) material breach of any obligation, representation or warranty contained in this Agreement; or (ii) negligence or willful misconduct.

b. By EKPC. EKPC shall indemnify, defend and hold Seller and Owen and their respective employees, directors, officers, managers, members, shareholders and agents, harmless from and against any and all third party claims, suits, damages, losses, liabilities, expenses and costs (including reasonable attorneys' fees) including, but not limited to, those arising out of property damage, environmental claims, and personal injury and bodily injury (including death, sickness and disease) to the extent caused by EKPC's: (i) material breach of any obligation, representation or warranty contained in this Agreement; or (ii) negligence or willful misconduct.

c. By Owen. Owen shall indemnify, defend and hold Seller and EKPC and their respective employees, directors, officers, managers, members, shareholders and agents, harmless from and against any and all third party claims, suits, damages, losses, liabilities, expenses and costs (including reasonable attorneys' fees) including, but not limited to, those arising out of property damage, environmental claims, and personal injury and bodily injury (including death, sickness and disease) to the extent caused by Owen's: (i) material breach of any obligation, representation or warranty contained in this Agreement; or (ii) negligence or willful misconduct.

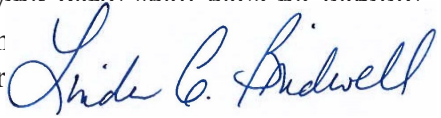
d. Apportionment. If, due to the joint, concurring, comparative or contributory negligence or willful misconduct of the Parties, any Party incurs any cost or expense arising out of any claim, cause or demand, such cost or expense shall be allocated between the Parties in proportion to their respective degrees of negligence or willful misconduct contributing to such claim, cause or demand.

e. Employees. No Party shall be deemed an employee of the other Party. No Party shall bring any claim against another Party with respect to any liability for compensation under any applicable state or federal worker's compensation act, including worker's compensation and/or employer's liability claims of employees. Each Party shall be liable for all claims of the Party's own employees arising out of any provision of any workers' compensation law.

f. Notice and Participation.

i. If any Party entitled to indemnification hereunder (the "Indemnified Party") intends to seek indemnification under this Article from another Party (the "Indemnifying Party") with respect to any claim, cause or demand, the Indemnified Party shall give the Indemnifying Party notice of such claim, cause or demand upon the receipt of actual knowledge or information by the Indemnified Party of any possible claim, cause or demand and of the commencement of such claim, which notice shall in no event be later than the later of (A) fifteen (15) business days prior to the last day for responding to such claim, cause or demand; or (B) one-half of the period allowed for responding to such claim, cause or demand. The Indemnifying Party shall have no liability under this Article for any claim, cause or demand for which such notice is given to the extent that the failure to give such notice materially impairs the Indemnified Party to respond to or to defend the claim, cause or demand.

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ii. The Indemnifying Party shall have the right to assume the defense of any claim, cause or demand, at its sole cost and expense, with counsel designated by the Indemnifying Party and reasonably satisfactory to the Indemnified Party; provided, however, that if the defendants in any such proceeding include both the Indemnified Party and the Indemnifying Party, and the Indemnified Party shall have reasonably concluded that there may be legal defenses available to it which are different from or additional to those available to the Indemnifying Party, the Indemnified Party shall have the right to select separate counsel, at the Indemnified Party's expense, to assert such legal defenses and to otherwise participate in the defense of such claim, cause or demand on behalf of such Indemnified Party, and the Indemnifying Party shall be responsible for the reasonable fees and expenses of such separate counsel.

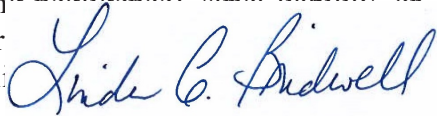
iii. Should any Indemnified Party be entitled to indemnification under this Section as a result of a claim, cause or demand by a third party, and should the Indemnifying Party fail to assume the defense of such claim, cause or demand within a reasonable period of time, the Indemnified Party may, at the expense of the Indemnifying Party, contest (or, with or without the prior consent of the Indemnifying Party), settle such claim, cause or demand.

iv. Except to the extent expressly provided herein, no Indemnified Party shall settle any claim, cause or demand with respect to which it has sought or is entitled to seek indemnification pursuant to this Section unless: (A) it has obtained the prior written consent of the Indemnifying Party; or (B) the Indemnifying Party has failed to provide, within a reasonable period of time, security, in a form reasonably satisfactory to the Indemnified Party, securing the payment of any cost or expense, up to the amount of the proposed settlement.

v. Except to the extent expressly provided otherwise herein, no Indemnifying Party shall settle any claim, cause or demand with respect to which it may be liable to provide indemnification pursuant to this Section without the prior written consent of the Indemnified Party, provided, however, that if the Indemnifying Party has reached a bona fide settlement agreement with the plaintiff(s) in any such proceeding, which settlement includes a full release of the Indemnified Party for any and all liability with respect to such claim, cause or demand, and the Indemnified Party does not consent to such settlement agreement, then the dollar amount specified in the settlement agreement, plus the Indemnified Party's reasonable legal fees and other costs related to the defense of the claim, cause or demand paid or incurred prior to the date of such settlement agreement, shall act as an absolute maximum limit on the indemnification obligation of the Indemnifying Party with respect to the claim, cause or demand, or portion thereof, that is the subject of such settlement agreement.

g. Net Amount. In the event that an Indemnifying Party is obligated to indemnify and hold any Indemnified Party harmless under this Article, the amount owing to the Indemnified Party shall be the amount of such Indemnified Party's actual cost and expense, net of any insurance or other recovery actually received by the Indemnified Party.

h. Assertion of Claims. No claim, cause or demand of any kind shall be asserted against any Party, whether arising out of contract, tort (including negligence), strict liability, or any other cause of or form of action, unless it is filed in a court of law, and a demand for arbitration is made, within the applicable statute of limitations for such claim, cause or demand.

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i. No Release of Insurers. The provisions of this Article shall not be deemed or construed to release any insurer from its obligation to pay any insurance proceeds in accordance with the terms and conditions of valid and collectible insurance policies.

j. Survival of Obligation. The duty to indemnify under this Article shall continue in full force and effect notwithstanding the expiration or termination of this Agreement, with respect to any cost or expense arising out of an event or condition which occurred or existed prior to such expiration or termination.


8.04 Limitation of Liability. For a breach of any provision of this Agreement for which an express remedy or measure of damages is provided, such express remedy or measure of damages shall be the sole and exclusive remedy. Unless expressly herein provided, no Party shall be liable for consequential, incidental, punitive exemplary or indirect damages, lost profits or other business interruption damages, by statute (to the extent permitted by law), in tort or contract or otherwise (except to the extent that an Indemnifying Party is obligated under Section 8.02 to indemnify against third party claims for consequential, incidental, punitive, exemplary or indirect damages or lost profits or business interruption damages). The limitations herein imposed on remedies and the measure of damages is without regard to the cause or causes related thereto, including the negligence of any Party, whether such negligence be sole, joint or concurrent, or active or passive. To the extent any damages required to be paid hereunder for a breach are liquidated, the Parties acknowledge that the liquidated damages are reasonable in light of the anticipated harm that would be caused by the breach, the difficulties of proof of loss, and the inconvenience or non-feasibility of otherwise obtaining an adequate remedy. EXCEPT AS SET FORTH IN THIS AGREEMENT, THERE ARE NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, WITH RESPECT TO THE SUBJECT MATTER OF THIS AGREEMENT.

ARTICLE IX - EVENTS OF DEFAULT AND REMEDIES

9.01 Events of Default by EKPC or Owen. EKPC or Owen, respectively, shall be in default under this Agreement upon the happening or occurrence of any of the following events or conditions, each of which shall be an "Event of Default" for purposes of this Agreement:

a. EKPC or Owen breaches or fails to observe or perform any of its material obligations under this Agreement, other than the obligations described in Section 9.01(c), unless within thirty (30) days after written notice from Seller specifying the nature of such breach or failure, EKPC or Owen either cures such breach or failure or, if such cure cannot reasonably be effected by the payment of money and cannot reasonably be completed within thirty (30) days, commences such cure during the initial thirty (30) day period and thereafter diligently pursues such cure during such additional period of time as is reasonably necessary to cure such breach or failure.

b. EKPC or Owen is dissolved, or its existence is terminated or its business is discontinued, unless: (i) this Agreement is assigned to a successor pursuant to Article XI, or (ii) it is merged into a successor corporation which continues substanti

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c. EKPC or Owen fails to pay, when due, any amount due hereunder, and such failure continues for a period of seven (7) business days following the receipt by it of a written notice of such failure from Seller.

d. Any representation or warranty of EKPC or Owen set forth in this Agreement was false or misleading in any material respect when made, unless: (i) the fact, circumstance or condition that is the subject of such representation or warranty is made true within thirty (30) days after Seller has given notice thereof to it; provided, however, that if the fact, circumstance or condition that is the subject of such representation or warranty cannot be corrected within such thirty (30) day period and if it commences to correct the fact, circumstance or condition that is the subject of such representation during the initial thirty (30) day period, and thereafter proceeds with all due diligence, to correct the fact, circumstance or condition that is the subject of such representation or warranty, such period shall be extended for such further period as shall be reasonably necessary for it to correct the same with all due diligence; and (ii) such cure removes any adverse effect on Seller of such fact, circumstance or condition being otherwise than as first represented, or such fact, circumstance or condition being otherwise than as first represented does not materially adversely affect Seller.

e. EKPC or Owen shall: (i) file a voluntary petition in bankruptcy or file a voluntary petition or otherwise commence any action or proceeding seeking reorganization, liquidation, arrangement or readjustment of its debts or for any other relief under the any Bankruptcy Law, or consent to, approve of, or acquiesce in, any such petition, action or proceeding; (ii) apply for or acquiesce in the appointment of a receiver, liquidator, sequestrator, custodian, trustee or similar officer for it or for all or any part of its property; (iii) make an assignment of this Agreement for the benefit of creditors; or (iv) be insolvent or be unable generally to pay its debts as they become due.

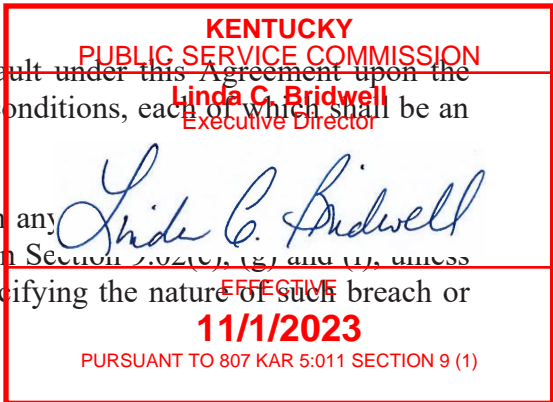
f. A proceeding or case is commenced, without the application or consent of EKPC or Owen, in any court of competent jurisdiction, seeking: (i) the liquidation, reorganization, dissolution, winding-up, or composition or adjustment of its debts; (ii) the appointment of a trustee, receiver, custodian, liquidator or the like, of it or of all or any substantial part of its assets; or (iii) similar relief in respect of it under any bankruptcy law, and such proceeding or case shall continue un-dismissed, or an order, judgment or decree approving or ordering any of the foregoing shall be entered and continue un-stayed and in effect, for a period of ninety (90) days from commencement of such proceeding or case or the date of such order, judgment or decree.

g. EKPC or Owen makes an assignment of this Agreement in violation of Article XI.

h. In no circumstance shall EKPC be liable for an Event of Default by Owen nor shall Owen be liable for an Event of Default by EKPC.

9.02 Events of Default By Seller. Seller shall be in default under this Agreement upon the happening or occurrence of any of the following events or conditions, each of which shall be an "Event of Default" for purposes of this Agreement:

a. Seller breaches or fails to observe or perform any under this Agreement, other than the obligations described in Section 9.02(c), (d) and (f), unless within thirty (30) days after written notice from EKPC specifying the nature of such breach or



failure, Seller either cures such breach or failure or, if such cure cannot reasonably be effected by the payment of money and cannot reasonably be completed within thirty (30) days, commences such cure during the initial thirty (30) day period and thereafter diligently pursues such cure during such additional period of time as is reasonably necessary to cure such breach or failure.

b. Seller is dissolved, or Seller's existence is terminated or its business is discontinued, unless this Agreement is assigned to a successor pursuant to Article XI.

c. Seller fails to pay, when due, any amount due hereunder, and such failure continues for a period of seven (7) business days following the receipt by Seller of a written notice of such failure from EKPC.

d. Any representation or warranty of Seller set forth in this Agreement was false or misleading in any material respect when made, unless: (i) the fact, circumstance or condition that is the subject of such representation or warranty is made true within thirty (30) days after EKPC has given notice thereof to Seller; provided, however, that if the fact, circumstance or condition that is the subject of such representation or warranty cannot be corrected within such thirty (30) day period and if Seller commences to correct the fact, circumstance or condition that is the subject of such representation during the initial thirty (30) day period, and thereafter proceeds with all due diligence, to correct the fact, circumstance or condition that is the subject of such representation or warranty, such period shall be extended for such further period as shall be reasonably necessary for Seller to correct the same with all due diligence; and (ii) such cure removes any adverse effect on EKPC of such fact, circumstance or condition being otherwise than as first represented, or such fact, circumstance or condition being otherwise than as first represented does not materially adversely affect EKPC.

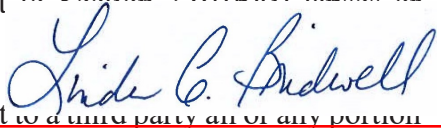
e. Seller shall: (i) file a voluntary petition in bankruptcy or file a voluntary petition or otherwise commence any action or proceeding seeking reorganization, liquidation, arrangement or readjustment of its debts or for any other relief under any Bankruptcy Law, or consent to, approve of, or acquiesce in, any such petition, action or proceeding; (ii) apply for or acquiesce in the appointment of a receiver, liquidator, sequestrator, custodian, trustee or similar officer for it or for all or any part of its property; (iii) make an assignment of this Agreement for the benefit of creditors; or (iv) be insolvent or be unable generally to pay its debts as they become due.

f. A proceeding or case is commenced, without the application or consent of Seller in any court of competent jurisdiction, seeking: (i) the liquidation, reorganization, dissolution, winding-up, or composition or adjustment of debts of Seller; (ii) the appointment of a trustee, receiver, custodian, liquidator or the like, of Seller or of all or any substantial part of its assets; or (iii) similar relief in respect of Seller under any bankruptcy law, and such proceeding or case shall continue un-dismissed, or an order, judgment or decree approving or ordering any of the foregoing shall be entered and continue un-stayed and in effect, for a period of ninety (90) days from commencement of such proceeding or case or the date of such order, judgment or decree.

g. Any letter of credit provided by Seller pursuant to Section 2.01(b)(2) lapses on defaults.

h. Seller shall sell, assign, transfer or otherwise divert to a third party all or any portion of the power produced from the Qualifying Facility.

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i. Seller shall relinquish all possession and control of the Qualifying Facility, except for as permitted pursuant to Article XI or to a contractor of Seller in accordance with Good Utility Practice, if such relinquishment of possession and control is not cured within thirty (30) days following the receipt by Seller of a written notice thereof from EKPC.

j. Seller makes an assignment of this Agreement in violation of Article XI.

9.03 Remedies.

a. General. Upon an Event of Default by a Party, another Party shall have the right, but not the obligation, to terminate this Agreement with respect to all obligations arising after the date a notice identifying the applicable Event(s) of Default and terminating the Agreement is delivered to the defaulting Party (“Notice of Early Termination”). A Notice of Early Termination is effective on the date it is delivered to the defaulting Party (“Early Termination Date”). Delivery of a Notice of Early Termination shall not relieve the non-defaulting Party of making timely payment for any amounts owed relating to obligations arising prior to the delivery of the Notice of Early Termination. If an Event of Default by a Party under this Agreement leads to termination of this Agreement, the non-defaulting Party may pursue all remedies available to it in law or equity and the defaulting Party’s liability hereunder shall be determined as follows:

i. For a termination arising from an Event of Default by Seller, the Seller shall be liable for a Termination Payment equal to the sum of all Interconnection Costs actually expended by EKPC or Owen from the effective date of this Agreement through the date the Notice of Early Termination is delivered to the defaulting Party, both dates inclusive; and which have not yet been paid by Seller. For purposes of the preceding sentence, sums “actually expended” shall include all payments and obligations to make future payments by EKPC or Owen arising from or in any way relating to the terms of this Agreement, whether incurred in the planning, designing, permitting, seeking of regulatory approval, development, construction or interconnection of the Qualifying Facility and associated power and energy.

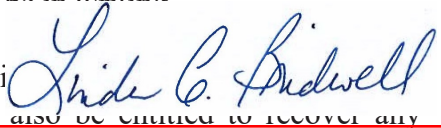
ii. For a termination arising from an Event of Default by EKPC, EKPC shall be liable for a Termination Payment equal to the sum of: (A) the amount of all unpaid billing statements for power delivered by Seller; and (B) any refund due to Seller for overpayment of Interconnection Costs.

iii. For a termination arising from an Event of Default by Owen, Owen shall be liable for a Termination Payment equal to the amount of any refund due to Seller for overpayment of Interconnection Costs.

b. No Waiver. Any waiver at any time by any Party of its rights with respect to an Event of Default under this Agreement, or with respect to any other matters arising in connection with this Agreement, shall not be deemed to be a waiver with respect to any subsequent Event of Default or other matter. Any waiver under this Agreement must be in writing.

c. Costs, Expenses and Attorneys’ Fees. In pursuing all remedies available to it in law or equity pursuant to this Section 9.03, the non-defaulting Parties shall also be entitled to recover any

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reasonable costs, expenses or attorneys' fees arising from or relating to the pursuit of remedies set forth above.

9.04 Suspension of Performance. Notwithstanding any other provision of this Agreement, if an Event of Default shall have occurred and be continuing, the non-defaulting Parties, upon notice to the defaulting Party, shall have the right, but not the obligation: (i) to suspend performance under this Agreement with respect to such defaulting Party pending the exercise of other remedies provided hereunder (provided, however, that Seller may suspend performance immediately upon the delivery of a notice to EKPC when EKPC has committed an Event of Default pursuant to Section 9.01(e)), which suspension may continue for a period not to exceed sixty (60) days; and (ii) to exercise any remedy available at law or in equity; provided, however, that the collection of the Termination Payment shall be the non-defaulting Party's sole and exclusive remedy for any damages due hereunder.

9.05 Election of Remedies

a. Except as specifically limited in this Agreement, each and every right, power and remedy of a Party, whether specifically stated in this Agreement, or otherwise existing, may be exercised concurrently or separately, from time to time, and so often and in such order as may be deemed expedient by the exercising Party, and the exercise or the beginning of the exercise of any such right, power or remedy shall not be deemed a waiver of the right to exercise, at the same time or thereafter, any other right, power or remedy. No delay or omission of a Party in the exercise of any right, power or remedy shall impair or operate as a waiver thereof or of any other right, power or remedy then or thereafter existing.

b. Notwithstanding any other provision of this Article, neither Party shall terminate this Agreement following the occurrence of an Event of Default by another Party if, prior to the defaulting Party's receipt of a notice of such termination, and notwithstanding the expiration or unavailability of any cure period provided under this Agreement, the defaulting Party shall have cured the Event of Default.

c. Each Party agrees that it has a duty to mitigate damages and covenants that it will use commercially reasonable efforts to minimize damages it may incur as a result of another Party's performance or non-performance of this Agreement.

9.06 Dispute Resolution.

a. General Provisions. Every dispute of any kind or nature between EKPC, Owen and Seller arising out of or in connection with this Agreement (each a "Dispute") shall be resolved in accordance with this Section, to the extent permitted by law.

b. Referral to Senior Management.

i. Upon the occurrence of a Dispute, any Party may deliver a notice to the other Parties requesting that the Dispute be referred to the senior management of such Party. Such notice shall include the names of the senior management of such Party to resolve the Dispute, and a schedule of their availability during the ninety (90) day period following the date of the notice. Any such notice shall be delivered within a reasonable time after

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the Dispute arises, but in no event shall it be delivered less than thirty (30) days before the institution of legal or equitable proceedings based on such Dispute would be barred by any applicable statute of limitations.

ii. Within seven (7) days after receipt of a notice pursuant to the preceding paragraph, the other Parties shall provide a notice to the requesting Party indicating the names of the senior management of the Party nominated to attempt to resolve the Dispute, and a schedule of their availability during the remainder of the thirty (30) day period following the date of the notice.

iii. During the remainder of the thirty (30) day period following delivery of the original notice, the nominated members of the senior management of the Parties shall meet as frequently as possible, and shall attempt in good faith to resolve the Dispute. Unless the Parties agree otherwise in writing prior to the commencement of such thirty (30) day period, neither Party shall be entitled to invoke or rely on any admissions, settlement offers or other statements made during the course of such discussions in any subsequent arbitration or legal proceedings.

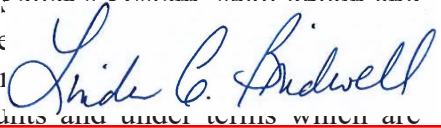
c. Commission Proceeding. Any Dispute that has not been resolved within thirty (30) days of the delivery of a notice in accordance with Section 9.06(b) shall be resolved by: (i) the filing of an appropriate pleading before the Kentucky Public Service Commission to the extent that the subject matter of the Dispute is within the jurisdiction of the Commission; or (ii) the filing of an appropriate action in the Circuit Court of Clark County, Kentucky.

d. Continued Performance. During the conduct of Dispute resolution procedures pursuant to this Section: (i) the Parties shall continue to perform their respective obligations under this Agreement; and (ii) no Party shall exercise any other remedies hereunder arising by virtue of the matters in dispute; provided, however, that nothing in this Section shall be construed: (A) to prevent Seller from suspending performance in the event that EKPC has not paid undisputed amounts due and owing to Seller under this Agreement; or (B) to prevent EKPC from suspending performance hereunder (other than payments for power previously provided to EKPC) in the event that Seller ceases providing power hereunder.

9.07 Effect of Termination. No termination of this Agreement following an Event of Default shall relieve the defaulting Party of its liability and obligations hereunder, and a non-defaulting Party may take whatever action at law or in equity may appear necessary or desirable to enforce performance and observance of any obligations under this Agreement, and the rights given hereunder shall be in addition to all other remedies available to the Parties, either, at law, in equity, or otherwise, for the breach of this Agreement, provided, however, that any damages for the termination of this Agreement shall be as provided in Section 9.03.

ARTICLE X – INSURANCE

10.01 Coverage and Amounts. Seller, and all contractors and subcontractors performing any services in connection with the operation or maintenance of the Seller's System, shall obtain and maintain in force commercial general liability and umbrella or excess liability coverage and property insurance for injury to persons and property, and workers' compensation insurance and workman's compensation insurance, all in amounts and under terms which are generally carried by owners or lessees, operators or maintainers of projects similar to the

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Qualifying Facility, but in no case less than \$2,000,000.00 for public liability for bodily injury and \$1,000,000.00 for property damage. Seller's liability under this Agreement is not limited to the amount of insurance coverage required herein.

10.02 Evidence of Insurance. Upon request made on or after the Authorization Date, Seller shall provide EKPC and Owen with insurance certificates reasonably acceptable to EKPC and Owen evidencing that insurance coverages for the Qualifying Facility are in compliance with the specifications for insurance coverage set forth in this Article X. Such insurance and certificates shall: (a) include EKPC and Owen as additional insured beneficiaries under the commercial general liability and umbrella liability policies; (b) provide a waiver of any rights of subrogation against EKPC, its affiliates and subsidiaries; and (c) indicate that the commercial general liability and umbrella liability policies have been extended as described above. All policies shall be written with insurers with A.M. Best Company ratings of at least A-. All policies shall be written on an occurrence basis, except as provided in Section 10.04. The commercial general liability and umbrella liability policies shall: (i) provide that Seller's policy shall be primary in all instances regardless of like coverages, if any, carried by EKPC or Owen; and (ii) provide for claims by one insured against another such that, except for the limits of insurance, the insurance shall apply separately to each insured against whom a claim is made or suit is brought.

10.03 Modification of Insurance. If any insurance required to be maintained by Seller hereunder ceases to be available on commercially reasonable terms in the commercial insurance market, Seller shall provide written notice of such fact to EKPC and Owen, accompanied by a certificate from an independent insurance advisor of recognized national standing, certifying that such insurance is not available on commercially reasonable terms in the commercial insurance market for electric generating plants of similar type, geographic location and design. Upon delivery of such notice, Seller shall be relieved of the affected obligation, and Seller shall use commercially reasonable efforts to obtain other insurance that would provide comparable protection against the risk to be insured.

10.04 Term Insurance. All insurance required under this Agreement shall cover occurrences during the term(s) of this Agreement. In the event that any insurance as required herein is commercially available only on a "claims-made" basis, such insurance shall provide for a retroactive date not later than the Authorization Date and such insurance shall be maintained by Seller, with a retroactive date not later than the retroactive date required above, for a minimum of three (3) years after the expiration of the final term of this Agreement.

10.05 Insurance – EKPC and Owen. Each of EKPC and Owen, and their respective contractors and subcontractors performing any services in connection with this Agreement, shall obtain and maintain in force commercial general liability and umbrella or excess liability insurance, public liability coverage and property insurance for injury to persons and property, automobile liability insurance and workman's compensation insurance, all in amounts and under terms which are generally carried by utility companies, but in no case less than \$2,000,000.00 for public liability for bodily injury and \$1,000,000.00 for property damage. The liability of each of EKPC and Owen under this Agreement shall not be limited to the amount of insurance coverage required herein.

ARTICLE XI - SALE, TRANSFER OR AS

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11.01 Assignment to Non-Affiliates. This Agreement may not be assigned, in whole or in part, by any Party without the prior written consent of the other Parties. Such consent may require that: (i) the assignee agrees in writing, in form and substance satisfactory to the non-assigning Parties, to assume and to perform each and every obligation of the assignor under this Agreement; (ii) the assignment does not impair any security given by the assigning Party hereunder unless the assignee posts replacement security which meets the requirements of this Agreement; and (iii) the assignee has obtained, prior to the assignment, such Authorizations as may be required by Applicable Law and Regulations. Any assignment in violation hereof shall be null and void and shall constitute an Event of Default by the assigning Party.

11.02 Assignment to Affiliates. Notwithstanding Section 11.01, any Party may assign this Agreement to an affiliate of such Party without the consent of the other Parties, and Seller shall be permitted to assign this Agreement in connection with a sale of the Property without the consent of the other Parties, provided, however, that the assigning Party shall remain liable for all of its obligations under this Agreement unless and until the consent of the non-assigning Parties is secured in accordance with Section 11.01. The assigning Party shall notify the other Parties of the occurrence of any event described in this paragraph.

ARTICLE XII - MISCELLANEOUS

12.01 Representations and Warranties.

a. Representations and Warranties of EKPC and Owen. EKPC and Owen, solely as applied to each of them in their individual capacity, make the following representations and warranties to Seller:

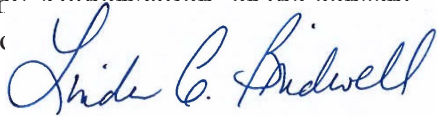
i. It is a corporation duly organized and in good standing under the laws of the Commonwealth of Kentucky, and is duly qualified to conduct business in Kentucky.

ii. It possesses all requisite legal power and authority to enter into and perform its obligations under this Agreement and to carry out the transaction(s) contemplated herein. It has all legal power and authority to transact the business in which it engages or proposes to engage, and holds or reasonably expects to obtain all Authorizations necessary and required therefore.

iii. Its execution, delivery and performance of this Agreement have been duly authorized by, and are in accordance with, its articles of incorporation or other organization documents; this Agreement has been duly executed and delivered for it by the signatories so authorized; and this Agreement constitutes its legal, valid and binding obligation, enforceable against it in accordance with the terms thereof.

iv. Its execution and delivery of this Agreement: (A) will not result in a material breach or violation of, or constitute a material default under, any applicable law or Authorization, or any contract, lease or other agreement or instrument to which it is a party, or by which it or its properties may be bound or affected; and (B) does not require any Authorization, or the consent, authorization or notification of any other person, or any other act of any other person.

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v. Its performance of this Agreement: (A) will not result in a material breach or violation of, or constitute a material default under, any applicable law or Authorization, or any contract, lease or other agreement or instrument to which it is a party, or by which it or its properties may be bound or affected; and (B) does not require any Authorization, or the consent, authorization or notification of any other person, or any other actions by or with respect to any other person, other than: (I) Kentucky Public Service Commission approval; (II) such Authorizations, consents, authorizations, notifications, and other actions as have already been obtained, made, or taken, as applicable; and (III) such Authorizations, consents, approvals, notifications, or other actions which are not required to have been obtained, made, or taken, as applicable, prior to the date on which the representation and warranty is made, and which are reasonably expected to be obtained, made or taken on a timely basis and in due course.

vi. No suit, action or arbitration, or legal, administrative or other proceeding is pending, or to its knowledge, has been threatened against it that would affect the validity or enforceability of this Agreement or the ability of such buyer to perform its obligations hereunder in any material respect, or that would, if adversely determined, have a material adverse effect on its business or financial condition. There are no bankruptcy, insolvency, reorganization, receivership or other arrangements proceedings, pending against or being contemplated by it, or, to its knowledge, threatened against it.

vii. It is not in breach of, in default under, or in violation of, any applicable law, or the provisions of any Authorization, or in breach of, in default under, or in violation of, any provision of any promissory note, indenture or any evidence of indebtedness or security therefore, lease, contract or other agreement by which it is bound, except for any such breaches, defaults or violations which, individually or in the aggregate, could not reasonably be expected to have a material adverse effect on its business or financial condition or its ability to perform any obligations hereunder.

b. Representations and Warranties of Seller. Seller makes the following representations and warranties to EKPC and Owen:

i. Seller is a corporation duly organized and in good standing under the laws of the Commonwealth of Kentucky, and is duly qualified to conduct business in Kentucky.

ii. Seller possesses all requisite legal power and authority to enter into and perform its obligations under this Agreement and to carry out the transaction(s) contemplated herein. Seller has all legal power and authority to transact the business in which it engages or proposes to engage, and holds or reasonably expects to obtain all Authorizations necessary and required therefore.

iii. Seller's execution, delivery and performance of this Agreement have been duly authorized by, and are in accordance with, its articles of incorporation or other organization documents; this Agreement has been duly executed and delivered for it by the signatories so authorized; and this Agreement constitutes its legal, valid and binding obligation, enforceable against it in accordance with the terms thereof.

iv. To Seller's actual knowledge, Seller's execution and delivery of this Agreement: (A) will not result in a material breach or violation of, or constitute a material default

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under, any applicable law or Authorization, or any contract, lease or other agreement or instrument to which it is a party, or by which it or its properties may be bound or affected; and (B) does not require any Authorization, or the consent, authorization or notification of any other person, or any other action by or with respect to any other person.

v. To Seller’s actual knowledge, Seller’s performance of this Agreement: (A) will not result in a material breach or violation of, or constitute a material default under, any applicable law or Authorization, or any contract, lease or other agreement or instrument to which it is a party, or by which it or its properties may be bound or affected; and (B) does not require any Authorization, or the consent, authorization or notification of any other person, or any other actions by or with respect to any other person, other than: (I) such Authorizations, consents, authorizations, notifications, and other actions as have already been obtained, made, or taken, as applicable; and (II) such Authorizations, consents, approvals, notifications, or other actions which are not required to have been obtained, made, or taken, as applicable, prior to the date on e which the representation and warranty is made, and which are reasonably expected to be obtained, made or taken on a timely basis and in due course.

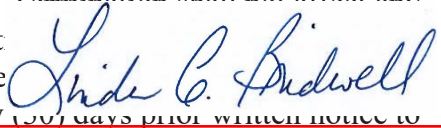
vi. No suit, action or arbitration, or legal, administrative or other proceeding is pending, or to Seller’s knowledge, has been threatened against Seller that would affect the validity or enforceability of this Agreement or the ability of such buyer to perform its obligations hereunder in any material respect, or that would, if adversely determined, have a material adverse effect on the business or financial condition of Seller. There are no bankruptcy, insolvency, reorganization, receivership or other arrangements proceedings, pending against or being contemplated by Seller, or, to Seller’s knowledge, threatened against it.

vii. Seller is not in breach of, in default under, or in violation of, any applicable law, or the provisions of any Authorization, or in breach of, in default under, or in violation of, any provision of any promissory note, indenture or any evidence of indebtedness or security therefore, lease, contract or other agreement by which it is bound, except for any such breaches, defaults or violations which, individually or in the aggregate, could not reasonably be expected to have a material adverse effect on the business or financial condition of Seller or its ability to perform its obligations hereunder.

12.02 Term. This Agreement, and any amendments hereto, shall have an Initial Term commencing on the effective date and expiring five (5) years after the date that the last required Authorization was granted by the Kentucky Public Service Commission, the Administrator of the Rural Utilities Service or any other applicable Governmental Authority (“Authorization Date”). Upon the expiration of the Initial Term, the Agreement shall automatically renew on a year to year basis until terminated, unless terminated as provided in Section 9.03(a) or Section 12.03.

12.03 Termination. In addition to an early termination pursuant to Section 9.03, any party may terminate this Agreement at the expiration of the Initial Term or during any subsequent one year term thereafter by giving the other parties at least ninety (90) days advance notice in writing prior to the end of such Initial Term or any subsequent one year term. Termination shall not affect any obligation accrued prior to such termination or any other obligation of this Agreement, survives termination. Additionally, Seller may terminate this Agreement for convenience, at any time, upon no less than thirty (30) days prior written notice to EKPC and Owen, in which event this Agreement shall terminate on the date set forth in such

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notice. Upon termination of this agreement pursuant to this section or Section 9.03, and until a new power purchase agreement is executed, Owen shall, upon prior notice to Seller, disconnect the Qualifying Facility from the load at the Property via the safety disconnect switch as described in Section 2.03(d). The safety disconnect switch shall be locked by Owen and remained locked to prevent the Seller's Qualifying Facility from suppling surplus flow of energy to Owen's system until a new Authorization Date is established pursuant to a subsequent power purchase agreement.

12.04 Notices. Any notice required by this Agreement to be given in writing shall be deemed properly given if and when delivered in person, or sent by registered or certified mail, postage prepaid to the person specified below:

If to EKPC:

President & Chief Executive Officer
East Kentucky Power Cooperative, Inc.
4755 Lexington Road
P.O. Box 707
Winchester, Kentucky 40392-0707

If to Owen:

President & Chief Executive Officer
Owen Electric Cooperative, Inc.
48205 HWY 127 North
PO Box 400
Owenton, Kentucky 40359

If to Seller:

Global Mail, Inc
2700 S. Commerce Pkwy, Suite 300
Weston, Florida 33331

With a copy to:

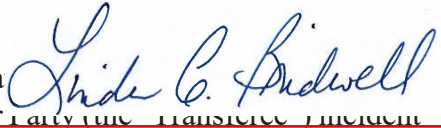
DHL Express (USA), Inc.
1210 South Pine Island Road
Plantation, Florida 33324
Attn: Legal – 1st Floor

Notice may also be delivered to such other person or address as a Party may have been designated in a written notice given by or on behalf of the Party entitled to receive notice to the other Parties.

12.05 Confidentiality.

a. Duty of Confidentiality. Any Proprietary Information which is disclosed to or otherwise received or obtained by another Party (the "Transferee") incident to this Agreement is disclosed, and shall be held, in confidence, and the Transferee shall not

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(subject to paragraphs (b) and (c) below) publish or otherwise disclose any Proprietary Information of the Transferor to any person for any reason or purpose whatsoever, or use any Proprietary Information for any purpose other than performance under this Agreement, without the prior written approval of the Transferor, which approval may be granted or withheld by the Transferor in its sole discretion. Without limiting the generality of the foregoing, each Party shall observe at a minimum the same safeguards and precautions with regard to the Transferor's Proprietary Information which such Party observes with respect to its own information of the same or similar kind.

b. Disclosures to Employees, Contractors and Affiliates. Each Party agrees that it will make available Proprietary Information received from another Party to its employees, contractors and affiliates only on a need-to-know basis, and that all persons to whom such Proprietary Information is made available will be made aware of the confidential nature of such Proprietary Information, and will be required to agree to hold such Proprietary Information in confidence under terms substantially identical to the terms hereof.

c. Disclosures to Governmental Authorities. Notwithstanding the foregoing:

i. A Transferee may provide any Proprietary Information to any Governmental Authority having jurisdiction over or asserting a right to obtain such information, provided that: (A) such Governmental Authority orders that such Proprietary Information be provided; and (B) unless prohibited from so doing by applicable law, the Transferee promptly advises the Transferor of any request for such information by such Governmental Authority and cooperates in giving the Transferor an opportunity to present objections, requests for limitation, and/or requests for confidentiality or other restrictions on disclosure or access, to such Governmental Authority.

ii. Each Party may, to the extent required, disclose Proprietary Information to any Governmental Authority in connection with the application for any required Authorization, provided that, unless prohibited from so doing by applicable law, the Transferee shall advise the Transferor of any Proprietary Information that Transferee will disclose to the Governmental Authority prior thereto and shall cooperate in giving the Transferor an opportunity to present objections, requests for limitation, and/or requests for confidentiality or other restrictions on disclosure or access, to such Governmental Authority.

iii. Either Party may disclose such Proprietary Information regarding the terms of this Agreement as such Party deems necessary to enable it to comply with the Securities Exchange Act of 1934, or the rules, regulations and forms of the Securities and Exchange Commission, issued thereunder or the applicable rules of any stock exchange.

d. Injunctive Relief. In the event of a breach or threatened breach of the provisions of paragraph (a) above by any Transferee, the Transferor shall be entitled to an injunction restraining such Party from such breach. Nothing contained herein shall be construed as prohibiting the Transferor from pursuing any other remedies available at law or equity for such breach or threatened breach of this Agreement.

e. Continuing Obligation. The obligation to retain Proprietary Information in confidence shall continue in full force and effect during the term of the Agreement and for a period

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of two (2) years thereafter, notwithstanding the expiration or termination of this Agreement, with respect to any information obtained by any Party prior to such expiration or termination.

f. Definition of Proprietary Information:

i. The term "Proprietary Information" means all information, written or oral, which has been or is disclosed by the Transferor, or by any person on behalf of the Transferor, or which otherwise becomes known to the Transferee, or to any person associated with such Transferee, or any other person in a confidential relationship with, the Transferee, and which: (A) relates to matters such as patents, trade secrets, research and development activities, draft or final contracts or other business arrangements, books and records, resource data and analysis, generation data and analysis, budgets, cost estimates, pro forma calculations, engineering work product, environmental compliance, vendor lists, suppliers, manufacturing processes, energy consumption, pricing information, private processes, and other similar information, as they may exist from time to time; (B) relates to the existence or the terms, including pricing, of this Agreement; or (C) the Transferor expressly designates in writing to be confidential.

ii. Notwithstanding anything to the contrary in the preceding paragraph, Proprietary Information shall exclude information falling into any of the following categories: A) information that, at the time of disclosure hereunder, is in the public domain, other than information that entered the public domain by breach of this Agreement by Transferee; B) information that, after disclosure hereunder, enters the public domain, other than information that enters the public domain by breach of this Agreement by Transferee; C) information, other than that obtained from third parties, that prior to disclosure hereunder, was already in Transferee's possession, either without limitation on disclosure to others or subsequently becoming free of such limitation; D) information obtained by Transferee from a third party having an independent right to disclose the information; or E) information that is available through independent research without use of or access to the Proprietary Information.

12.06 No Partnership. Notwithstanding any provision of this Agreement to the contrary, Seller, EKPC and Owen do not intend to create hereby any lease, joint venture, partnership, association taxable as a corporation, or other entity for the conduct of any business for profit. No Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, another Party. The Parties agree to take, on a timely basis, all voluntary action as may be necessary to be excluded from treatment as a partnership under the Internal Revenue Code, and, if it should appear that one or more changes to this Agreement would be required in order to prevent the creation of such a business entity, the Parties agree to negotiate promptly in good faith with respect to such changes.

12.07 No Duty To Third Parties. Except as provided in Article X and Article XI, this Agreement is for the sole benefit of the Parties hereto, and nothing in this Agreement nor any action taken hereunder shall be construed to create any duty, liability or standard of care to any person not a party to this Agreement. Except as specifically provided herein, no person shall have any rights or interest, direct or indirect, in this Agreement or the services to be provided hereunder, or both, except the Parties hereto. Except as provided in Article X and A, the Parties hereto disclaim any intent to create any rights in any person as a third-party beneficiary of the services to be provided hereunder, or both.

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12.08 Dedication. No undertaking by one Party to the other under this Agreement shall constitute the dedication of that Party's system or any portion thereof to another Party or to the public or affect the status of Seller as an independent entity and not a public utility or public service company.

12.09 Duplicative Terms. The Parties acknowledge and agree that the following portions of the Interconnection Manual are superseded by the corresponding provisions set forth herein above: Section 9.01 (Assignment), Section 9.02 (Indemnification), Section 9.03 (Limitation of Liability and Damages), Section 9.04 (Force Majeure) and Section 9.06 (Confidentiality).

12.10 Entire Agreement. This Agreement contains the entire agreement among the Parties hereto with respect to the subject matter hereof and supersedes all prior agreements and understandings relating to such subject matter. Except for any modification which this Agreement expressly authorizes a party to make unilaterally, no modification or waiver of any term or provision of this Agreement shall be effective unless it is in writing and signed by all of the Parties.

12.11 Interpretation. The headings of the Articles in this Agreement have been inserted for convenience only and shall in no way affect the interpretation of any of the terms or provisions hereof.

12.12 Applicable Law and Venue. This Agreement shall be construed and interpreted in accordance with the laws of the Commonwealth of Kentucky except to the extent federal law is applicable. Any action, case, proceeding, matter or dispute shall be filed in the Circuit Court of Clark County, Kentucky.

12.13 Severability. Whenever possible, each provision of this Agreement shall be interpreted in such manner as to be effective and valid, but if any provision of this Agreement or the application thereof shall be prohibited or held invalid, such prohibition or invalidity shall not affect any other provisions or the application of any other provision which can be given without the invalid provision or application, and to this end the provisions of this Agreement are declared to be severable.

12.14 Counterparts. This Agreement may be executed simultaneously in three (3) or more counterparts. All executed counterparts together shall constitute one and the same document, and any counterpart signature pages may be detached and assembled to form a single original document. The parties shall be entitled to sign and transmit an electronic signature of this Lease (whether by facsimile, PDF, the electronic signature system known as "DocuSign," or other email transmission), which signature shall be binding on the party whose name is contained therein. Any party providing an electronic signature agrees to promptly execute and deliver to the other parties an original signed Lease upon request.

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IN WITNESS WHEREOF, the parties have caused this Agreement to be executed by their duly authorized officers and have caused their seals to be affixed as of the date first written above.

EAST KENTUCKY POWER COOPERATIVE, INC.

BY: David Crews

ITS: Sr. VP, Power Supply

OWEN ELECTRIC COOPERATIVE, INC

BY: Michael Cobb

ITS: President & CEO

**GLOBAL MAIL, INC,
an Ohio corporation
d/b/a DHL eCommerce**

BY: Bettina Staffa

ITS:  6D9BEBF7380848D...



Schedule A – Interconnection Facilities

Interconnection Facilities owned by Seller - Provided herein.

Interconnection Facilities owned by Owen – None.

Interconnection Facilities owned by EKPC – None.



Schedule B – Interconnection Manual

Provided by EKPC to Seller



**Manual of Small Generator Interconnection
Requirements for Direct Interconnection
with EKPC Member Cooperative
Distribution Systems
(For Generating Facilities of 10 MW or Less)**

Owen Electric Cooperative

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PREAMBLE

The Manual of Small Generator Interconnection Requirements for Direct Interconnection with Member Distribution Systems (For Generating Facilities of 10 MW or Less) (the “Manual”) is a compendium of the technical, legal and financial requirements which must be satisfied in order for an electric generation facility with a rated capacity of 10 MW or less to directly interconnect and operate in parallel with the electric distribution system of a distribution cooperative within the East Kentucky Power Cooperative, Inc. (“EKPC”) system. The purpose of these requirements is to provide reasonable protection and minimize the risks to the personnel and property of the Member Distribution System (“Member”), EKPC, and the Interconnection Customer arising from the construction and operations of unaffiliated generation sources that will potentially impact the value, safety and reliability of the Member’s Distribution System, as required by the Member’s co-generation tariff on file with the Kentucky Public Service Commission.

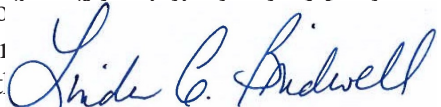
ARTICLE I - DEFINITIONS

1.01 “Affected System” shall mean an electric transmission or distribution system other than the Member's Distribution System that may be affected by the proposed interconnection, including, but not limited to the EKPC Transmission System.

1.02 “Applicable Laws and Regulations” shall mean all duly enacted applicable federal, state and local laws, regulations, rules, ordinances, codes, decrees, judgments, directives, or judicial or administrative orders, permits and other duly authorized actions of any Governmental Authority.

1.03 “Business Day” shall mean each day of the week, Monday through Friday inclusive, but shall not include Federal Reserve bank holidays.

1.04 “Confidential Information” shall mean all information, written or oral, which has been or is disclosed by the Member, EKPC, or the Interconnection Customer, or by any Person on behalf of the Member, EKPC, or the Interconnection Customer, or which otherwise becomes known to the Member, EKPC, or the Interconnection Customer, or to any Person associated with the Member, EKPC, or the Interconnection Customer, or any other Person in a confidential relationship with the Member, EKPC, or the Interconnection Customer, and which: a) relates to matters such as patents, trade secrets, research and development activities, draft or final contracts or other business arrangements, books and records, solar data and analysis, generation data and analysis, budgets, cost estimates, pro forma calculations, engineering work product, environmental compliance, vendor lists, suppliers, manufacturing processes, energy consumption, pricing information, private processes, and other similar information, as they may exist from time to time; b) relates to the existence or the terms of this Manual; or c) the Member, EKPC, or the Interconnection Customer expressly designates in writing to be confidential. Confidential Information shall exclude information falling into any of the following categories: a) information that, at the time of disclosure hereunder or thereafter, is in the public domain, other than information that entered the public domain by breach of the duty of confidentiality of EKPC, or the Interconnection Customer; b) information, other than information that entered the public domain, that prior to disclosure hereunder, was already in the public domain.


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Interconnection Customer's possession, either without limitation on disclosure to others or subsequently becoming free of such limitation; c) information obtained by the Member, EKPC, or the Interconnection Customer from a third party having an independent right to disclose the information; or d) information that is available through independent research without use of or access to the Confidential Information.

1.05 "Delivery Meter" shall have the meaning given in Section 5.01(a).

1.06 "Delivery Point" shall mean the Delivery Meter.

1.07 "Distribution System" shall mean the Member's facilities and equipment used to distribute electricity to end users directly from nearby generators or from interconnections with EKPC's Transmission System which transports bulk power.

1.08 "Distribution Upgrades" shall mean any and all additions, modifications or upgrades to the Member's Distribution System required at or beyond the Delivery Point at which the Small Generating Facility interconnects with the Member's Distribution System to accommodate the interconnection of the Small Generating Facility with the Member's Distribution System. "Distribution Upgrades" shall exclude Interconnection Facilities.

1.09 "Emergency Condition" shall mean a condition or situation: a) that in the judgment of the party making the claim is imminently likely to endanger life or property; or b) that, in the case of the Member, is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to the Member's Distribution System, the Member's Interconnection Facilities or the EKPC Transmission System; or c) that, in the case of the Interconnection Customer, is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to, the Small Generating Facility or the Interconnection Customer's Interconnection Facilities.

1.10 "Energy" shall mean three-phase, 60 hertz, alternating current energy generated at the Small Generating Facility.

1.11 "Force Majeure" shall mean an event or circumstance beyond the reasonable control of and without the fault or negligence of the party claiming Force Majeure, which, despite the exercise of reasonable diligence, cannot be or be caused to be prevented, avoided or removed by such party. Force Majeure shall include, to the extent consistent with the preceding sentence: an act of God; war (declared or undeclared); sabotage; riot; insurrection; civil unrest or disturbance; military or guerilla action; banditry; terrorist activity or a threat of terrorist activity which, under the circumstances, would be considered a precursor to actual terrorist activity; economic sanction or embargo; civil strike, work stoppage, slow down, or lock out that are of an industry or sector-wide nature and that are not directed solely or specifically at the affected party; explosion; fire; earthquake or seaquake; abnormal weather condition; hurricane; flood; lightning; high winds; drought; peril of the sea; the binding order of any Governmental Authority (provided that the affected party has in good faith considered reasonably c to act on the part of any Governmental Authority (provided th requested and diligently pursued); unavailability of equipment, s

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the extent caused by an event of circumstance of Force Majeure; and failure of equipment. With respect to the Interconnection Customer, Force Majeure shall also include (to the extent beyond the reasonable control of and without the fault or negligence of the Interconnection Customer) any interruption in distribution service on Member's side of the Delivery Point. No party shall be deemed to have suffered an event of Force Majeure due to the failure of equipment which that party is responsible for operating or maintaining unless the equipment has been operated and maintained in accordance with Good Utility Practice. Neither the lack of money nor changes in market conditions shall constitute an event of Force Majeure.

1.12 “Good Utility Practice” shall mean any of the practices, methods and acts employed by owners and/or lessors, operators or maintainers of electric generation, transmission or distribution facilities similar in size and operational characteristics to the Small Generating Facility, Interconnection Facilities, Distribution System and Transmission System which, in the exercise of reasonable judgment in the light of the facts known or that reasonably should have been known at the time that a decision was made, could reasonably have been expected to accomplish the desired result at the lowest reasonable cost, consistent with licensing and regulatory considerations, environmental considerations, reliability, safety, protection of lives and property, expedition, the technical specifications and manufacturer's maintenance requirements, and the applicable requirements of any Governmental Authority. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in the region.

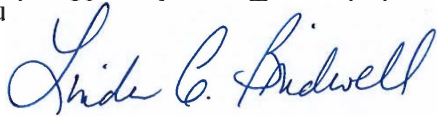
1.13 “Governmental Authority” shall mean the federal government of the United States, and any state, county or local government, and any regulatory department, body, political subdivision, commission (including the Kentucky Public Service Commission and FERC), agency, instrumentality, ministry, court, judicial or administrative body, taxing authority, or other authority of any of the foregoing (including any corporation or other entity owned or controlled by any of the foregoing), any regional transmission organization or independent system operator, any national or regional reliability organization or council (including NERC) or any reliability coordinator, in each case, having jurisdiction or authority over the Manual (or any portion thereof), the Member, the Interconnection Customer, the Facility or the Buyer’s Distribution System, whether acting under actual or assumed authority.

1.14 “Independent Party” shall mean a party not affiliated with the Member, EKPC, or the Interconnection Customer.

1.15 “Interconnection Customer” shall mean any Person that proposes to interconnect its Small Generating Facility with the Member's Distribution System.

1.16 “Interconnection Facilities” shall mean all facilities, lines, equipment and appurtenances between the Small Generating Facility and the Member’s Distribution System, including any modification, additions or upgrades that are necessary to physically and electrically interconnect the Small Generating Facility to the Member’s Distribution System. Interconnection Facilities are sole use facilities and shall not include Distribution System Upgrades.

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1.17 "Letter of Credit" shall mean an irrevocable, transferable, standby letter of credit, issued by a major U.S. commercial bank or a financial institution with a Credit Rating of at least: a) "A-" by Standard and Poor's or "A3" by Moody's Investment Services; and b) assets of at least \$1,000,000,000.

1.18 "Member" shall mean a Kentucky cooperative corporation: a) formed under Chapter 279 of the Kentucky Revised Statutes for the primary purpose of distributing electricity to end users; b) that has been granted a certified service territory by the Kentucky Public Service Commission; and c) has entered into a membership agreement with EKPC.

1.19 "Operating Requirements" shall mean any operating and technical requirements that may be imposed by a regional transmission organization, independent system operator, control area coordinator, balancing authority, Member or EKPC.

1.20 "Person" shall mean any legal or natural person, including any individual, corporation, partnership, limited liability company, joint stock company, association, joint venture, trust, governmental or international body or agency, or other entity.

1.21 "Reasonable Efforts" shall mean efforts that are timely and consistent with Good Utility Practice and are otherwise substantially equivalent to those a Person would use to protect its own interests.

1.22 "Small Generating Facility" shall mean the Interconnection Customer's device for the production of electricity, but shall not include the Interconnection Customer's Interconnection Facilities.

1.23 "Tariff" shall mean the Member's or Affected System's Tariff through which transmission service or interconnection service are offered, as filed with the Kentucky Public Service Commission or FERC, and as amended or supplemented from time to time, or any successor tariff.

1.24 "Transmission System" shall mean the facilities owned, controlled or operated by EKPC that are used to transmit electric power to the Member and to or from Affected Systems.

1.25 "Transmission Upgrades" shall mean any and all additions, modifications or upgrades to EKPC's Transmission System to accommodate the interconnection of the Small Generating Facility with the Member's Distribution System or to allow wheeling of power across EKPC's transmission system.

ARTICLE 2 – SCOPE

2.01 Scope. The Manual and all attachments hereto, shall govern the terms and conditions under which the Interconnection Customer's Small Generating Facility may directly interconnect with, and operate in parallel with, the Member's Distribution System. This Agreement shall remain in full force and effect throughout the term of any po

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into between the Member and the Interconnection Customer or the period of actual interconnection, whichever is longer.

2.02 Power Purchases. The Manual does not constitute an agreement to purchase or deliver the Interconnection Customer's power by either the Member or EKPC. The purchase or delivery of power and other services that the Interconnection Customer may require must be set forth in a separate power purchase agreement(s) between the Member and the Interconnection Customer.

ARTICLE 3 – INTERCONNECTION OBLIGATIONS

3.01 Obligations of the Member, the Interconnection Customer, and EKPC. The Member, the Interconnection Customer, and EKPC shall perform all obligations set forth herein in accordance with all Applicable Laws and Regulations, Operating Requirements, and Good Utility Practice. The Member, the Interconnection Customer, and EKPC shall respectively, construct, operate, maintain, repair, inspect, and be fully responsible for the Interconnection Facilities that each currently or subsequently may own unless otherwise specified in the Attachments incorporated herein. The Interconnection Facilities shall adequately protect the personnel and property of the Member, The Interconnection Customer, and EKPC and other Persons from damage and injury. The allocation of responsibility for the design, installation, operation, maintenance and ownership of Interconnection Facilities shall be delineated in the Attachments to this Manual.

3.02 Obligations of the Interconnection Customer.

a. General. The Interconnection Customer shall design, construct, interconnect, operate and maintain its Small Generating Facility and construct, operate, and maintain its Interconnection Facilities as set forth herein and in accordance with all Applicable Laws and Regulations, Operating Requirements, Good Utility Practice and shall reasonably minimize the likelihood of a disturbance adversely affecting or impairing the Member's Distribution System, EKPC's Transmission System, or any other Affected Systems.

b. Standards. Without limiting the obligations owed by the Interconnection Customer, the Small Generating Facility and Interconnection Customer's Interconnection Facilities shall meet or exceed: 1) specifications provided by the National Electrical Safety Code, the American National Standards Institute, IEEE and Underwriter's Laboratory that are in effect at the time of construction; 2) the technical and functional interconnection requirements set forth in Attachment 4; and 3) any other applicable federal, state or local codes or standards.

c. Manufacturer's Maintenance Schedules. The Interconnection Customer shall adhere to the recommended maintenance schedule of the applicable manufacturer of each component of the Small Generating Facility and Interconnection Facilities.

3.03 Obligations of the Member and EKPC.

~~es. The Interconnection Customer shall adhere to the recommended maintenance schedule of the applicable manufacturer of each component of the Small Generating Facility and Interconnection Facilities.~~

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a. General. The Member shall design, construct, operate, and maintain its Distribution System and Interconnection Facilities as set forth herein and in accordance with all Applicable Laws and Regulations, Operating Requirements and Good Utility Practice. EKPC shall design, construct, operate, and maintain its Transmission System and Interconnection Facilities as set forth herein and in accordance with all Applicable Laws and Regulations, Operating Requirements and Good Utility Practice.

b. Coordination. EKPC shall coordinate with the Member to support the interconnection of the Small Generating Facility into the Member’s Distribution System. When applicable, the Member shall inform EKPC of activities relating to the engineering studies and commissioning tests set forth in Attachment 4.

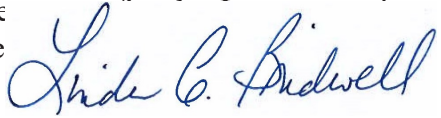
3.04 Milestones. The Member and Interconnection Customer shall agree on milestones for which each is responsible and list them in Attachment 3 of this Manual. A deadline for performance of the obligations under this provision may be extended by agreement. If the Member or Interconnection Customer anticipates that it will be unable to meet a milestone for any reason other than a Force Majeure Event, it shall: a) immediately notify the other party of the reason(s) for not meeting the milestone; b) propose the earliest reasonable alternate date by which it can attain this and future milestones, and c) request appropriate amendments to Attachment 3. The party affected by the failure to meet a milestone shall not unreasonably withhold agreement to such an amendment unless: a) it will suffer significant uncompensated economic or operational harm from the delay; b) attainment of the same milestone has previously been delayed; or c) it has reason to believe that the delay in meeting the milestone is intentional or unwarranted. EKPC shall be provided with a copy of Attachment 3 and all amendments thereto.

3.05 Infrastructure Protection. Infrastructure security of electric system equipment and operations and control hardware and software is essential to ensure day-to-day reliability and operational security. The Member and Interconnection Customer shall, to the greatest extent possible, comply with Good Utility Practice regarding infrastructure protection, including satisfaction of basic standards for system infrastructure and operational security, including physical, operational, and cyber-security practices.

ARTICLE 4 – AUTHORIZATION, TESTING AND RIGHT OF ACCESS

4.01 Authorization Required Prior to Parallel Operation. The Interconnection Customer shall not operate its Small Generating Facility in parallel with the Member's Distribution System without prior written authorization of the Member. The Member will provide such authorization once the Member receives notification that the Interconnection Customer has complied with all applicable parallel operation and testing requirements. Such authorization shall not be unreasonably withheld, conditioned, or delayed. The Member shall use Reasonable Efforts to list any applicable parallel operation requirements other than those set forth in the Attachments hereto. Additionally, the Member shall notify the Interconnection Customer of any changes to these requirements as soon as they are known. The Member shall make Reasonable Efforts to cooperate with the Interconnection Customer in meeting requirements necessary for the Interconnection Customer to commence parallel operations by the in-service date.

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4.02 Initial Testing and Inspection. The Interconnection Customer shall test and inspect its Small Generating Facility prior to interconnection. Such testing shall, at a minimum, comply with the requirements of Attachment 4. The Interconnection Customer shall notify the Member of such activities no fewer than five (5) Business Days (or as may otherwise be mutually agreed) prior to such testing and inspection. Testing and inspection shall occur on a Business Day. The Member and EKPC may, at its own expense, send properly accredited representatives to the Small Generating Facility site to inspect the Small Generating Facility and observe the testing. If requested at the time of testing, the Interconnection Customer shall provide the Member with a written test report within five (5) business days when such testing and inspection is completed. The Member shall acknowledge that it has received the Interconnection Customer's written test report, however, such written acknowledgment shall not be deemed to be or construed as any representation, assurance, guarantee, or warranty by the Member as to the safety, durability, suitability, or reliability of the Small Generating Facility or any associated control, protective, and safety devices owned or controlled by the Interconnection Customer or the quality of power produced by the Small Generating Facility.

4.03 Right of Access. Following the initial inspection process described above, the Interconnection Customer shall allow properly accredited representatives of the Member to have access to the Facility, upon advance notice and during any Business Day, to observe the operation and maintenance of the Small Generating Facility or Interconnection Customer's Interconnection Facilities. Such representatives shall observe such safety precautions as may be required by the Interconnection Customer and communicated to the Member in writing and shall conduct themselves in a manner that will not interfere with the operation or maintenance of the Small Generating Facility or Interconnection Customer's Interconnection Facilities.

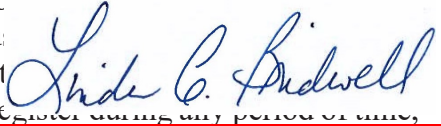
ARTICLE 5 – METERING

5.01 Installation.

a. Location. Energy delivered by the Interconnection Customer to the Member pursuant to a power purchase agreement shall be measured by a meter (“Delivery Meter”) located at the Delivery Point, and shall have the metering instrument transformers, which measure the output of the Small Generating Facility, located on the Member's side of any transformer of the Interconnection Facilities. Should the Interconnection Customer require an express feeder to deliver energy directly to a Member substation, the Delivery Meter shall be located within the Member substation.

b. Cost and Installation. The Member shall specify, install, own, operate, and maintain the Delivery Meter. All Delivery Metering equipment, installation, maintenance, and operating costs will be borne by the Interconnection Customer. The Delivery Meter used to determine the billing hereunder shall be sealed, and such seals shall be broken only when tested by the Member, and only when the Delivery Meter is to be inspected, tested, adjusted, or replaced as described in Section 5.02 and Section 5.03. If applicable, the Interconnection Customer shall provide access, per 807 KRS 5:006 Section 19, for the Member to the Delivery Meter at all reasonable times for the purposes of inspecting, testing, adjusting, or replacing the meter, provided that such access shall not unreasonably interfere with the Member's normal business operations. In the event that the Delivery Meter fails to register during any period of time,

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the Member shall estimate the amount of Energy delivered during such period using an appropriate methodology.

5.02 Meter Testing. The accuracy of the Delivery Meter shall be tested and verified by the Member, at the Interconnection Customer's expense, prior to commercial operation of the facility. The Delivery Meter shall be tested by the Member, at the Interconnection Customer's expense, per 807 KRS 5:006 General Rules Sections 16 and 17, and 807 KAR 5:041 Electric. The Interconnection Customer may, at its own expense, at any time, per 807 KAR 5:006 Section 18, request the Member to test the Delivery Meter. Upon receiving written notice, the Member shall have forty-five (45) days to perform such test. All tests shall be coordinated to minimize the impact on Small Generating Facility operations.

5.03 Corrections and Maintenance. If, upon testing, the Delivery Meter is found to be inaccurate, the Delivery Meter shall be promptly adjusted or replaced by the Member to record correctly. The Interconnection Customer shall have the right to have a representative present whenever the Delivery Meter is, replaced, repaired, tested, calibrated, or adjusted.

ARTICLE 6 – SMALL GENERATING FACILITY OPERATIONS

6.01 Reactive Power. The Interconnection Customer shall design the Small Generating Facility to maintain a composite power delivery at continuous rated power output at the Point of Delivery at a power factor within the range specified in Attachment 4 of this document unless the Member has established different requirements that apply to all similarly situated generators in the control area on a comparable basis. The requirements of this paragraph shall not apply to wind generators.


6.02 Disconnection.

a. Expiration/Termination of a Power Purchase Agreement. The Small Generating Facility shall be disconnected from the Member's Distribution System upon the expiration or termination of any purchase power agreement in effect between the Interconnection Customer and the Member. All costs required to effectuate such disconnection shall be borne by the Interconnection Customer unless the disconnection is the result of a default under an applicable power purchase agreement or a violation of any term of this Manual by the Member.

b. Temporary Disconnections. Temporary disconnections shall continue only for so long as reasonably necessary under Good Utility Practice. Permissible temporary disconnections shall include:

(i) Emergency Conditions. Under Emergency Conditions, the Member may immediately suspend interconnection service and temporarily disconnect the Small Generating Facility. The Member shall notify the Interconnection Customer promptly when it becomes aware of an Emergency Condition that may reasonably be expected to affect the Interconnection Customer's operation of the Small Generating Facility. The Interconnection Customer shall notify the Member promptly when it becomes aware of an Emergency Condition that may reasonably be expected to affect the Member's Distribution Systems, including EKPC's Transmission System. To the extent that the Member

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notification shall describe the Emergency Condition, the extent of the damage or deficiency, the expected effect on the operation of the facilities and operations of both the Member and Interconnection Customer, its anticipated duration, and the necessary corrective action.

(ii) Routine Maintenance, Construction, and Repair. Either the Member or the Interconnection Customer may interrupt interconnection service or curtail the output of the Small Generating Facility and temporarily disconnect the Small Generating Facility from the Member's Distribution System when necessary for routine maintenance, construction, and repairs on the Member's Distribution System or the Small Generating Facility. Both the Member and the Interconnection Customer shall use Reasonable Efforts to provide the other with five (5) Business Days notice prior to any such interruption. The Member and Interconnection Customer shall use Reasonable Efforts to coordinate such reduction or temporary disconnection with each other.


(iii) Forced Outages. During any forced outage affecting either the Small Generating Facility or the Member's Distribution System, the affected party may suspend interconnection service to effect immediate repairs. The affected party shall use Reasonable Efforts to provide the other party with prior notice. If prior notice is not given, written documentation explaining the circumstances of the disconnection shall be provided after the fact upon request.

c. Reconnection. The Interconnection Customer and Member shall cooperate with each other to restore the Small Generating Facility, Interconnection Facilities, and the Member's Distribution System to their normal operating state as soon as reasonably practicable following a temporary disconnection.

6.03 Adverse Operating Effects. The Member shall notify the Interconnection Customer as soon as practicable if, based on Good Utility Practice, operation of the Small Generating Facility may cause disruption or deterioration of service to other customers served by the Member, or if operating the Small Generating Facility could cause damage to the Member's Distribution System or Affected Systems, including EKPC's Transmission System. Supporting documentation used to reach the decision to disconnect shall be provided to the Interconnection Customer upon request. If, after notice, the Interconnection Customer fails to remedy the adverse operating effect within a reasonable time, the Member may disconnect the Small Generating Facility. Except to the extent that an Emergency Condition exists, the Member shall provide the Interconnection Customer with five (5) Business Days notice of such disconnection.

6.04 Modification of the Small Generating Facility. The Interconnection Customer must receive written authorization from the Member before making any change to the Small Generating Facility that may have a material impact on the safety or reliability of the Member's Distribution System. Such authorization shall not be unreasonably withheld. Modifications shall be done in accordance with Good Utility Practice. If the Interconnection Customer makes such modification without the Member's prior written authorization, the latter shall have the right to temporarily disconnect the Small Generating Facility. The Member shall notify EKPC prior to authorizing any such modification to the Small Generating Facility.

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6.05 Environmental Releases. The Interconnection Customer shall notify the Member, first orally and then in writing, of the release of any hazardous substances, any asbestos or lead abatement activities, or any type of remediation activities related to the Small Generating Facility or the Interconnection Facilities, each of which may reasonably be expected to affect the Member. The notifying party shall: a) provide the notice as soon as practicable, provided such party makes a good faith effort to provide the notice no later than twenty-four (24) hours after such party becomes aware of the occurrence; and b) promptly furnish the Member with copies of any publicly available reports filed with any Governmental Authorities addressing such events.

6.06 Wheeling. Unless otherwise required by law or tariff, the Distribution System may allow for any excess Energy produced by the Small Generating Facility to be wheeled across its distribution system for delivery to the EKPC Transmission System or other Affected Systems. Unless otherwise required by law or tariff, wheeling fees shall be calculated in accordance with Attachment 6. The Interconnection Customer may wheel power across EKPC’s Transmission System in accordance with EKPC’s Open Access Transmission Tariff.

ARTICLE 7 – COST ALLOCATION FOR INTERCONNECTION FACILITIES AND DISTRIBUTION UPGRADES

7.01 Interconnection Facilities. The Interconnection Customer shall pay for the capital, operations and maintenance costs of the Interconnection Facilities itemized in Attachment 1. The Member shall provide a best estimate cost for the purchase and construction of its Interconnection Facilities and shall provide a detailed itemization of such costs. Costs associated with Interconnection Facilities may be shared with other entities that may benefit from such facilities by agreement of the Interconnection Customer, such other entities, and the Member. The Interconnection Customer shall pay all reasonable expenses associated with a) owning, operating, maintaining, repairing, and replacing its own Interconnection Facilities; and b) operating, maintaining, repairing, and replacing the Member's Interconnection Facilities.


7.02 Distribution Upgrades. The Member shall design, procure, construct, install, and own the Distribution Upgrades described in Attachment 5 of this Manual. If the Member and the Interconnection Customer agree, the Interconnection Customer may construct Distribution Upgrades that are located on land owned by the Interconnection Customer. The capital, operations and maintenance costs of the Distribution Upgrades shall be paid to the Member by the Interconnection Customer.

7.03 Billing and Payment Procedures; Audits.

a. Billing and Payment. The Member shall bill the Interconnection Customer for the costs of Member’s Interconnection Facilities, Distribution Upgrades and Transmission Upgrades, described in Attachments 1 and 5, and actually incurred, on a monthly basis, or as otherwise agreed by them. The Interconnection Customer shall pay each bill within 30 calendar days of receipt, or as otherwise agreed to by Interconnection Customer and Member. Billings and payments shall be addressed as follows:

If to the Member:

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Member: _____
Attention: _____
Address: _____
City: _____ State: _____ Zip: _____
Phone: _____ Fax: _____

If to the Interconnection Customer:

Interconnection Customer: _____
Attention: _____
Address: _____
City: _____ State: _____ Zip: _____
Phone: _____ Fax: _____

b. Final Accounting. Within three months of completing the construction and installation of the Member's Interconnection Facilities, Distribution Upgrades and Transmission Upgrades described in Attachments 1 and 5, the Member shall provide the Interconnection Customer with a final accounting report. If the Interconnection Customer's cost responsibility exceeds its previous aggregate payments, the Member shall invoice the Interconnection Customer for the amount due and the Interconnection Customer shall make payment to the Member within 30 calendar days. If the Interconnection Customer's previous aggregate payments exceed its cost responsibility, the Member shall refund to the Interconnection Customer an amount equal to the difference within 30 calendar days of the final accounting report.

7.04 Interconnection Customer's Credit Support. Within five (5) Business Days of entering into any power purchase agreement to which this Manual shall apply, the Interconnection Customer shall deliver to the Member a Letter of Credit in the amount of \$_____ to secure the Interconnection Customer's obligations as set forth in Article 7 and Article 8 herein. The Letter of Credit shall remain in place for at least six (6) months, and any outstanding Letter of Credit shall be renewed or replaced prior to its expiration by a replacement Letter of Credit in the same amount and for a term of at least six (6) months (provided, however, that the last such Letter of Credit shall have an expiration date that is no earlier than ninety (90) days following the date of the Member's issuance of the final accounting report required by Section 7.03(b)), which Letter of Credit shall be delivered to Buyer no later than twenty (20) days before the expiration of the replaced Letter of Credit, and which process shall be repeated as necessary until the Member has been paid for the costs of all Interconnection Facilities, Distribution System Upgrades and Transmission Upgrades. The Letter of Credit shall include a provision for at least thirty (30) days advance notice to Member of any expiration or early termination of the Letter of Credit so as to allow Member sufficient time to exercise its rights under the Letter of Credit if the Interconnection Customer fails to renew or replace the Letter of Credit prior to such expiration or early termination.

**ARTICLE 8 – COST ALLOCATION FOR
EKPC TRANSMISSION SYSTEM UPGRADES**

8.01 Applicability. Article 8 shall apply in the event the Interconnection Customer anticipates using the EKPC Transmission System to Upgrade its Transmission Systems; or b) the Interconnection Customer or the Member

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operating conditions, the Small Generating Facility may cause a backflow of power onto the EKPC Transmission System.

8.02 Consultations. Prior to the Member authorizing the Interconnection Customer to begin operation of the Small Generating Facility in parallel to the Member’s Distribution System, the Member and EKPC shall consult regarding the anticipated and foreseeable affects of the Small Generating Facility on the EKPC Transmission System.

8.03 Transmission Upgrades. In the event that EKPC determines, in its sole discretion, that upgrades will be reasonably necessary to facilitate wheeling of power from the Small Generating Facility across the EKPC Transmission System or to protect the EKPC Transmission System from any backflow of power from the Small Generating Facility, EKPC shall provide a best estimate cost for the purchase and construction of the Network Upgrades and shall provide a detailed itemization of such costs in Attachment 5. Upon execution of any power purchase agreement between a Member and an Interconnection Customer and the posting of the Interconnection Customer’s Credit Support set forth in Section 7.04, EKPC shall construct the Transmission Upgrades in accordance with Good Utility Practice.

8.04 Billing and Payment. The capital cost of the Transmission Upgrades shall be paid by the Member as a one-time payment due prior to the commencement of construction or installation of the Transmission Upgrades. The Member shall be reimbursed for the cost of the Transmission Upgrades by the Interconnection Customer in accordance with Section 7.03. Payments to EKPC shall be addressed as follows:

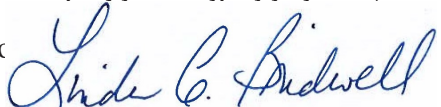
East Kentucky Power Cooperative, Inc.
Attention: CFO
P.O. Box 707
Winchester, KY 40392-0707
Tel. (859) 744-4812
Fax. (859) 744-6008

ARTICLE 9 - ASSIGNMENT, INDEMNITY, LIABILITY AND DAMAGES, FORCE MAJEURE, INSURANCE AND CONFIDENTIALITY

9.01 Assignment.

a. Assignment to Non-Affiliates. No rights, obligations or obligations arising from this Manual may be assigned, in whole or in part, by either the Member or Interconnection Customer without the prior written consent of the non-assigning party. Such consent may require that: i) the assignee agrees in writing, in form and substance satisfactory to the non-assigning party, to assume and to perform each and every obligation of the assignor under this Manual; ii) the assignment does not impair any security given by the assigning party hereunder unless the assignee posts replacement security which meets the requirements of Section 7.04; and, iii) the assignee has obtained, prior to the assignment, such authorizations as may be required by law. Any assignment in violation hereof shall be null and void and shall be of no effect by the assigning party.

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b. Assignment to Affiliates. Notwithstanding Section 9.01(a), either the Interconnection Customer or Member may assign this Manual to an affiliate of such party without the consent of the non-assigning party, provided, however, that the assigning party shall remain liable for all of its obligations under this Manual unless and until the consent of the non-assigning party is secured in accordance with Section 9.01(a). The assigning party shall notify the other party of the occurrence of any event described in this paragraph.

9.02 Indemnity.

a. Duty to Indemnify. The Interconnection Customer shall indemnify, defend and hold the Member and EKPC and its employees, directors, officers, managers, members and agents, harmless from and against any and all third party claims, suits, damages, losses, liabilities, expenses and costs (including reasonable attorneys' fees) including, but not limited to, those arising out of property damage to the property of the Member and EKPC, environmental claims, and personal injury and bodily injury (including death, sickness and disease) to the extent caused by a material breach of any obligation contained in this Manual, negligence or willful misconduct of the Interconnection Customer. The duty to indemnify under this paragraph shall continue in full force and effect notwithstanding the expiration or termination of any power purchase agreement between the Interconnection Customer and the Member with respect to any cost or expense arising out of an event or condition which occurred or existed prior to such expiration or termination, or during the period of interconnection, whichever is longer.

b. Employees. The Interconnection Customer shall not be deemed an employee of the Member or EKPC nor shall it bring any claim against the Member or EKPC with respect to any liability for compensation under any applicable state or federal worker's compensation act, including worker's compensation and/or employer's liability claims of employees. The Interconnection Customer shall be liable for all claims of their employees arising out of any provision of any workers' compensation law.

9.03 Limitation of Liability and Damages. The Member or EKPC shall not be liable for consequential, incidental, punitive exemplary or indirect damages, lost profits or other business interruption damages, by statute (to the extent permitted by law), in tort or contract or otherwise (except to the extent that an Indemnifying Party is obligated under Section 9.02 to indemnify against third party claims for consequential, incidental, punitive, exemplary or indirect damages or lost profits or business interruption damages). The limitations herein imposed on remedies and the measure of damages is without regard to the cause or causes related thereto, including the negligence of the Member or EKPC, whether such negligence be sole, joint or concurrent, or active or passive. EXCEPT AS SET FORTH IN THIS MANUAL, THERE ARE NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE SUBJECT MATTER OF THIS MANUAL.

9.04 Force Majeure. If a Force Majeure event prevents the Interconnection Customer from fulfilling any obligations under the Manual, the Force Majeure event ("Affected Party") shall promptly notify

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via the telephone, of the existence of the Force Majeure event. The notification must specify in reasonable detail the circumstances of the Force Majeure event, its expected duration, and the steps that the Affected Party is taking to mitigate the effects of the event on its performance. The Affected Party shall keep the others informed on a continuing basis of developments relating to the Force Majeure event until the event ends. The Affected Party will be entitled to suspend or modify its performance of obligations under this Manual (other than the obligation to make payments) only to the extent that the effect of the Force Majeure event cannot be mitigated by the use of Reasonable Efforts. The Affected Party will use Reasonable Efforts to resume its performance as soon as possible.

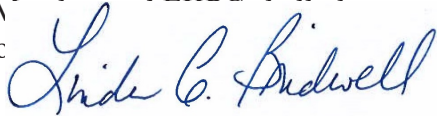
9.05 Insurance. In addition to, or as a part of, any insurance required by a power purchase agreement, the Interconnection Customer shall, at its own expense, maintain in force general liability insurance without any exclusion for liabilities related to the interconnection. The amount of such insurance shall be sufficient to insure against all reasonably foreseeable direct liabilities given the size and nature of the generating equipment being interconnected, the interconnection itself, and the characteristics of the system to which the interconnection is made, but in no event shall be less than \$ _____. Such insurance shall be obtained from an insurance provider authorized to do business in Kentucky and certification that such insurance is in effect shall be provided upon request of the Member, except that the Interconnection Customer shall show proof of insurance to the Member no later than ten (10) Business Days prior to the anticipated commercial operation date.

9.06 Confidentiality.

a. Duty of Confidentiality. Any Confidential Information of the Member or EKPC which is disclosed to or otherwise received or obtained by the Interconnection Customer incident to an interconnection shall be held, in confidence, and the Interconnection Customer (subject to paragraphs (b) and (c) below) may not publish or otherwise disclose any Confidential Information of the Member or EKPC to any Person for any reason or purpose whatsoever, or use any Confidential Information for any purpose other than to effectuate the interconnection, without the prior written approval of the Member (or EKPC), which approval may be granted or withheld by the Member (or EKPC) in its sole discretion. Without limiting the generality of the foregoing, the Interconnection Customer shall observe at a minimum the same safeguards and precautions with regard to the Member's or EKPC's Confidential Information which such party observes with respect to its own information of the same or similar kind.

Any Confidential Information of the Interconnection Customer which is disclosed to or otherwise received or obtained by the Member or EKPC incident to an interconnection shall be held, in confidence, and the Member and EKPC (subject to paragraphs (b) and (c) below) may not publish or otherwise disclose any Confidential Information of the Interconnection Customer to any Person for any reason whatsoever, or use any Confidential Information for any purpose other than to effectuate the interconnection, without prior written approval of the Interconnection Customer, which approval may be granted or withheld by the Interconnection Customer in its sole discretion. Without limiting the generality of the foregoing, the Member and EKPC shall observe at a minimum the same safeguards and precautions with regard to

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Confidential Information which such party observes with respect to its own information of the same or similar kind.

b. Disclosures to Employees, Contractors and Affiliates. The Interconnection Customer will make available Confidential Information received from the Member or EKPC to its employees, contractors and affiliates only on a need-to-know basis, and all Persons to whom such Confidential Information is made available will be made aware of the confidential nature of such Confidential Information, and will be required to agree to hold such Confidential Information in confidence under terms substantially identical to the terms hereof. The Member and EKPC shall observe the same conduct towards the Interconnection Customer’s Confidential Information disclosures.


c. Disclosures to Governmental Authorities. Notwithstanding the foregoing, the Interconnection Customer may provide any Confidential Information to any Governmental Authority having jurisdiction over or asserting a right to obtain such information, provided that: i) such Governmental Authority: A) orders that such Confidential Information be provided; or B) such Governmental Authority requires disclosure of the Confidential Information in connection with the application for any required authorization; and ii) unless prohibited from so doing by applicable law, the Interconnection Customer promptly advises the Member (or EKPC) of any request for such information by such Governmental Authority and cooperates in giving the Member (or EKPC) an opportunity to present objections, requests for limitation, and/or requests for confidentiality or other restrictions on disclosure or access, to such Governmental Authority. The Member and EKPC shall observe the same conduct towards the Interconnection Customer’s Confidential Information disclosures.

d. Injunctive Relief. In the event of a breach or threatened breach of the provisions of paragraph (a) above by the Interconnection Customer, the Member (or EKPC) shall be entitled, without limitation, to an injunction restraining such party from such breach, or likewise, in the event of a breach or threatened breach of the provisions of paragraph (a) above by the Member or EKPC, the Interconnection Customer shall be entitled, without limitation, to an injunction restraining such party(s) from such breach

e. Continuing Obligation. The obligation to retain the Member’s, EKPC’s, or the Interconnection Customer’s Confidential Information in confidence shall continue in full force and effect throughout the period of interconnection and for a period of two (2) years thereafter, notwithstanding the expiration or termination of any power purchase agreement between the Member and the Interconnection Customer.

ARTICLE 10 – MISCELLANEOUS

10.01 Waiver. The failure of the Member or the Interconnection Customer to insist, on any occasion, upon strict performance of any provision of this Manual will not be considered a waiver of any obligation, right, or duty of, or imposed upon, such party. Any waiver of this Manual shall, if requested, be provided in writing.

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10.02 No Partnership. This Manual shall not be interpreted or construed to create an association, joint venture, agency relationship, or partnership between the Parties with respect to the interconnection or to impose any partnership obligation or partnership liability upon the Member, EKPC, or the Interconnection Customer. No Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind any other Party.

10.03 Subcontractors. Any Party may utilize the services of any subcontractor(s) deemed appropriate to perform the obligations set forth herein; provided, however, that subcontractors comply with all applicable terms and conditions of this Manual in providing such services. The creation of any subcontract relationship shall not relieve any Party of any of its respective obligations hereunder. Each Party shall be fully responsible to any other Party for the acts or omissions of any subcontractor hired as if no subcontract had been made. Any applicable obligation imposed herein upon any Party shall be equally binding upon, and shall be construed as having application to, any subcontractor of such party. The obligations under this paragraph will not be limited in any way by any limitation of subcontractor’s insurance.

10.04 Notices. Any written notice, demand, or request required or authorized herein shall be deemed properly given if delivered in person, via overnight U.S. mail or courier service or facsimile. Any notice or request required or permitted to be given and not required herein to be given in writing may be so given by telephone. All notices shall be delivered to the designated representative specified below:

If to the Interconnection Customer:

Interconnection Customer: _____
Attention: _____
Address: _____
City: _____ State: _____ Zip: _____
Phone: _____ Fax: _____

If to the Member:

Member: _____
Attention: _____
Address: _____
City: _____ State: _____ Zip: _____
Phone: _____ Fax: _____

If to East Kentucky Power Cooperative, Inc.

East Kentucky Power Cooperative, Inc.
Attention: CEO
Address: PO Box 707
City: Winchester State: KY Zip: 40392-0707
Phone: 859-744-4812 Fax: 859-744-6008



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Attachment 1

Description and Costs of the Interconnection Facilities and Metering Equipment

Equipment, including the Interconnection Facilities, and metering equipment shall be itemized and identified as being owned by the Interconnection Customer, the Member, or EKPC. The Member will provide a best estimate itemized cost of its Interconnection Facilities and metering equipment, and a best estimate itemized cost of the annual operation and maintenance expenses associated with its Interconnection Facilities and metering equipment.



Attachment 2

**One-line Diagram Depicting the Small Generating Facility, Interconnection
Facilities, Metering Equipment, and Distribution Upgrades.
Operating Procedures**



Attachment 3

Milestones

In-Service Date: _____

Critical milestones and responsibility as agreed to by the Parties:

Milestone/Date Responsible Party

- (1) _____
- (2) _____
- (3) _____
- (4) _____
- (5) _____
- (6) _____
- (7) _____
- (8) _____
- (9) _____
- (10) _____

Agreed to by:

For the Member _____ Date _____

For the Transmission Owner (If Applicable) _____ Date _____

For the Interconnection Customer _____ Date _____



Attachment 4

**Technical and Functional Requirements for Interconnecting the Interconnection
Customer's Small Generating Facility with the Member's Distribution System**



Attachment 5

Description of Distribution Upgrades and Transmission Upgrades and Best Estimate of Such Costs

The Member and EKPC shall describe Distribution Upgrades and Transmission Upgrades and provide an itemized best estimate of the cost of the Distribution Upgrades and Transmission Upgrades and annual operation and maintenance expenses associated with each. The costs and annual expenses shall be functionalized as either distribution or transmission related.



Attachment 6

Calculation for Wheeling Energy Across a Member Distribution System to the EKPC Transmission System

Distribution Wheeling Rate

The Distribution Wheeling Rate shall be calculated by applying an Annual Fixed Charge Rate to the Net Distribution Line Investment. The result of this calculation will be divided by the 12-month sum of the monthly wholesale coincident peak demands for the EKPC Member Cooperative. The resulting Distribution Wheeling Rate per kW shall be multiplied by the capacity wheeled by the third party or EKPC. The Distribution Wheeling Rate shall be based on the financial information filed in the EKPC Member Cooperative’s annual report to the Kentucky Public Service Commission (Commission). The Distribution Wheeling Rate shall be recalculated every June 1st to reflect the most current financial information.

Annual Fixed Charge Rate. The Annual Fixed Charge Rate shall allow for the recovery of depreciation expense, operation and maintenance (O&M) expense, and administrative and general (A&G) expenses associated with EKPC Member Cooperative’s distribution system. The Annual Fixed Charge Rate shall also include a return on the investment in the distribution facilities of EKPC Member Cooperative. The components of the Annual Fixed Charge Rate shall be calculated in the following manner:

- a. Depreciation Expense. The annual depreciation expense associated with the distribution plant shall be divided by the calendar year-end total distribution plant to calculate the depreciation portion of the Annual Fixed Charge Rate. The annual depreciation expense associated with the distribution plant shall be calculated by multiplying the total annual depreciation expense by the percentage of the calendar year-end total distribution plant to the calendar year-end total electric plant in service.
- b. O&M Expense. The annual distribution O&M expense shall be divided by the calendar year-end total distribution plant to calculate the O&M portion of the Annual Fixed Charge Rate.
- c. A&G Expense. The annual A&G expense associated with the distribution plant shall be divided by the calendar year-end total distribution plant to calculate the A&G portion of the Annual Fixed Charge Rate. The annual A&G expense associated with the distribution plant shall be calculated by multiplying the total annual A&G expense by the percentage of the calendar year-end total distribution plant to the calendar year-end total electric plant in service.
- d. Return on Investment. The return on investment r... capital approach. The debt portion of capitalizatio... end balance of all long-term debt. The equity port...

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the calendar year-end balance in the Patronage Capital account minus EKPC generation and transmission capital credits (G&TCCs). The cost of debt is calculated by dividing the calendar year-end balance for interest on long-term debt by the calendar year-end balance of all long-term debt. The cost of equity is based on the Times Interest Earned Ratio (TIER) authorized by the Commission in the EKPC Member Cooperative's last base rate case. The cost of equity is calculated by dividing the amount of margins required to achieve the authorized TIER by the calendar year-end balance in the Patronage Capital account minus EKPC G&TCCs.

Net Distribution Line Investment. The Net Distribution Line Investment is the net book value for two distribution plant accounts: Poles, Towers and Fixtures – Account 364, and Overhead Conductors and Devices – Account 365. The net book value for each account is determined by taking the calendar year-end balance for the account minus the corresponding accumulated depreciation at calendar year-end. The corresponding accumulated depreciation is calculated by multiplying the total accumulated depreciation balance for distribution plant at calendar year-end by a percentage of the calendar year-end balances for either Account 364 or 365 to the total calendar year-end total distribution plant.



Attachment 7

SMALL GENERATOR INTERCONNECTION REQUEST APPLICATION FORM

Member: _____

Designated Contact Person: _____

Address: _____

Telephone Number: _____

Fax: _____

E-Mail Address: _____

An Interconnection Request is considered complete when it provides all applicable and correct information required below.

Preamble and Instructions

An Interconnection Customer who requests an interconnection must submit this Interconnection Request by hand delivery, mail, e-mail, or fax to the Member.

Processing Fee or Deposit:

The Interconnection Customer shall submit to the Member a deposit not to exceed \$1,000 towards the cost of the feasibility study.

Interconnection Customer Information

Legal Name of the Interconnection Customer (or, if an individual, individual's name)

Name: _____

Contact Person: _____

Mailing Address: _____

City: State: Zip: _____

Facility Location (if different from above): _____

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

Fax: _____ E-Mail Address: _____



Alternative Contact Information (if different from the Interconnection Customer)

Contact Name: _____

Title: _____

Address: _____

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

Fax: _____ E-Mail Address: _____

Application is for: New Small Generating Facility
 Capacity addition to Existing Small Generating Facility

If capacity addition to existing facility, please describe:

Will the Small Generating Facility be used for any of the following?

Net Metering? Yes No
To Supply Power to the Interconnection Customer? Yes No
To Supply Power to Others? Yes No

For installations at locations with existing electric service to which the proposed Small Generating Facility will interconnect, provide:

(Local Electric Service Provider*)

(Existing Account Number*)

[*To be provided by the Interconnection Customer if the local electric service provider is different from the Member]

Contact Name: _____

Title: _____

Address: _____

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

Fax: _____ E-Mail Address: _____

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Requested Point of Interconnection: _____

Interconnection Customer's Requested In-Service Date: _____

Small Generating Facility Information

Data apply only to the Small Generating Facility, not the Interconnection Facilities.

Energy Source: ___ Solar ___ Wind ___ Hydro ___

Hydro Type (e.g. Run-of-River): _____

Diesel ___ Natural Gas ___ Fuel Oil ___ Other (state type) _____

Prime Mover: _____ Fuel Cell _____ Recip Engine _____ Gas Turb
_____ Steam Turb _____ Microturbine _____ PV _____ Other

Type of Generator: ___ Synchronous ___ Induction ___ Inverter

Generator Nameplate Rating: _____ kW

Generator Nameplate Rating: _____ kVAr

Interconnection Customer or Customer-Site Load: _____ kW (if none, so state)

Typical Reactive Load (if known): _____

Maximum Physical Export Capability Requested: _____ kW

List components of the Small Generating Facility equipment package that are currently certified:

Equipment Type	Certifying Entity
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____

Is the prime mover compatible with the certified protective relay package? ___ Yes ___ No

Generator (or solar collector)

Manufacturer, Model Name & Number: _____

Version Number: _____

Nameplate Output Power Rating in kW: (Summer) _____

Nameplate Output Power Rating in kVA: (Summer) _____

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Individual Generator Power Factor

Rated Power Factor: Leading: _____ Lagging: _____

Total Number of Generators in wind farm to be interconnected pursuant to this

Interconnection Request: _____ Elevation: _____ Single phase ___ Three phase _____

Inverter Manufacturer, Model Name & Number (if used): _____

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

Note: A completed Power Systems Load Flow data sheet must be supplied with the Interconnection Request.

Small Generating Facility Characteristic Data (for inverter-based machines)

Max design fault contribution current: _____ Instantaneous or RMS? _____

Harmonics Characteristics: _____

Start-up requirements: _____

Small Generating Facility Characteristic Data (for rotating machines)

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 Subtransient Reactance, X'' d: _____ P.U.

Negative Sequence Reactance, X2: _____ P.U.

Zero Sequence Reactance, X0: _____ P.U.

KVA Base: _____

Field Volts: _____

Field Amperes: _____

Induction Generators:

Motoring Power (kW): _____

I2 t or K (Heating Time Constant): _____

Rotor Resistance, Rr: _____

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

Note: Please contact the Member prior to submitting the Interconnection Request to determine if the specified information above is required.

Excitation and Governor System Data for Synchronous Generators Only:

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.

Interconnection Facilities Information

Will a transformer be used between the generator and the point of common coupling?
 __ Yes __ No

Will the transformer be provided by the Interconnection Customer? ___ Yes ___ No

Transformer Data (If Applicable, for Interconnection Customer-Owned Transformer):

Is the transformer: ___ single phase ___ three phase? Size: _____ kVA
 Transformer Impedance: _____ % on _____ kVA Base

If Three Phase:

Transformer Primary: _____ Volts _____ Delta _____ Wye _____ Wye Grounded
 Transformer Secondary: _____ Volts _____ Delta _____ Wye _____ Wye Grounded
 Transformer Tertiary: _____ Volts _____ Delta _____ Wye _____ Wye Grounded

Transformer Fuse Data (If Applicable, for Interconnection Customer-Owned Fuse):

(Attach copy of fuse manufacturer's Minimum Melt and Total CI

Manufacturer: _____ Type: _____

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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 Setpoints for the protective equipment or software:

	Setpoint Function	Minimum	Maximum
1.	_____		
2.	_____		
3.	_____		
4.	_____		
5.	_____		
6.	_____		

If Discrete Components:

(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: _____ Style/Catalog No.: _____ Proposed Setting: _____
 Manufacturer: Type: _____ Style/Catalog No.: _____ Proposed Setting: _____
 Manufacturer: Type: _____ 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: _____

Manufacturer: _____
Type: _____ Accuracy Class: _____ ~~Proposed Ratio Connection: _____~~

Potential Transformer Data (If Applicable):

Manufacturer: _____
Type: _____ Accuracy Class: _____ Prop



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

General Information

Enclose copy of site electrical one-line diagram showing the configuration of all Small 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 Small Generating Facility is larger than 50 kW. Is One-Line Diagram Enclosed?

____ Yes ____ No

Enclose copy of any site documentation that indicates the precise physical location of the proposed Small Generating Facility (e.g., USGS topographic map or other diagram or documentation). Proposed location of protective interface equipment on property (include address if different from the Interconnection Customer's address)

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).

Are Schematic Drawings Enclosed? __ Yes ____ No

Applicant Signature

I hereby certify that, to the best of my knowledge, all the information provided in this Interconnection Request is true and correct.


For Interconnection Customer: _____

Date: _____ KENTUCKY PUBLIC SERVICE COMMISSION
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Certification of Small Generator Equipment Packages

- 1.0 Small Generating Facility equipment proposed for use separately or packaged with other equipment in an interconnection system shall be considered certified for interconnected operation if (1) it has been tested in accordance with industry standards for continuous utility interactive operation in compliance with the appropriate codes and standards referenced below by any Nationally Recognized Testing Laboratory (NRTL) recognized by the United States Occupational Safety and Health Administration to test and certify interconnection equipment pursuant to the relevant codes and standards listed in SGIP Attachment 3, (2) it has been labeled and is publicly listed by such NRTL at the time of the interconnection application, and (3) such NRTL makes readily available for verification all test standards and procedures it utilized in performing such equipment certification, and, with consumer approval, the test data itself. The NRTL may make such information available on its website and by encouraging such information to be included in the manufacturer's literature accompanying the equipment.
- 2.0 The Interconnection Customer must verify that the intended use of the equipment falls within the use or uses for which the equipment was tested, labeled, and listed by the NRTL.
- 3.0 Certified equipment shall not require further type-test review, testing, or additional equipment to meet the requirements of this interconnection procedure; however, nothing herein shall preclude the need for an on-site commissioning test by the parties to the interconnection nor follow-up production testing by the NRTL.
- 4.0 If the certified equipment package includes only interface components (switchgear, inverters, or other interface devices), then an Interconnection Customer must show that the generator or other electric source being utilized with the equipment package is compatible with the equipment package and is consistent with the testing and listing specified for this type of interconnection equipment.
- 5.0 Provided the generator or electric source, when combined with the equipment package, is within the range of capabilities for which it was tested by the NRTL, and does not violate the interface components' labeling and listing performed by the NRTL, no further design review, testing or additional equipment on the customer side of the point of common coupling shall be required to meet the requirements of this interconnection procedure.
- 6.0 An equipment package does not include equipment provided by the utility.
- 7.0 Any equipment package approved and listed in a state by that state's regulatory body for interconnected operation in that state prior to the effective date of these Small Generator interconnection procedures shall be considered certified under these procedures for use in that state.

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**Data to Be Provided by the Interconnection Customer
with the Facilities Study Agreement**

Provide location plan and simplified one-line diagram of the plant and station facilities. For staged projects, please indicate future generation, distribution circuits, etc.

On the one-line diagram, indicate the generation capacity attached at each metering location. (Maximum load on CT/PT)

On the one-line diagram, indicate the location of auxiliary power. (Minimum load on CT/PT) Amps

One set of metering is required for each generation connection to the new ring bus or existing Member station. Number of generation connections: _____

Will an alternate source of auxiliary power be available during CT/PT maintenance?
Yes _____ No _____

Will a transfer bus on the generation side of the metering require that each meter set be designed for the total plant generation? Yes _____ No _____
(Please indicate on the one-line diagram).

What type of control system or PLC will be located at the Small Generating Facility?

What protocol does the control system or PLC use?

Please provide a 7.5-minute quadrangle map of the site. Indicate the plant, station, distribution line, and property lines.

Physical dimensions of the proposed interconnection station:

Bus length from generation to interconnection station:

Line length from interconnection station to Member's Distribution

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Tower number observed in the field. (Painted on tower leg)*:

Number of third party easements required for distribution lines*:

* To be completed in coordination with Member.

Is the Small Generating Facility located in Member's service area?

Yes _____ No _____

If No, please provide name of local provider:

Please provide the following proposed schedule dates:

Begin Construction Date: _____

Generator step-up transformers receive back feed power Date: _____

Generation Testing Date: _____

Commercial Operation Date: _____



EAST KENTUCKY POWER COOPERATIVE, INC

FOR ALL COUNTIES SERVED

P.S.C. No. 35, Sixth Revised Sheet No. 39
 Canceling P.S.C. No. 35, Fifth Revised Sheet No. 39

Cogeneration and Small Power Production
Power Purchase Rate Schedule Over
100 kW from Dispatchable Generation Sources

Availability

Available only to qualified cogeneration or small power production facilities with a design capacity of over 100 kW which have executed a contract with EKPC and one of EKPC's member distribution systems for the purchase of electric power by EKPC. Qualified cogeneration or small power production facilities must be able to be dispatched by EKPC. Non-dispatchable qualified cogeneration or small power production facilities are covered under a separate tariff. Pursuant to Federal Energy Regulatory Commission ("FERC") regulations 18 C.F.R. §§ 292.303(a), 292.309, and 292.310, EKPC is no longer obligated to purchase electric energy and/or capacity from qualifying cogeneration or small power production facilities with a net capacity of over 5 MW.

T

Rates

The rates set forth below shall be used as the basis for negotiating a final purchase rate with qualifying facilities pursuant to Section 7 of 807 KAR 5:054.

1. Capacity - \$18.81 per kW per year is applicable if cogenerator or small power producer is dispatched by EKPC.
2. Energy – A Qualifying Facility ("QF") will be credited monthly for the electric power produced by dispatchable generation facilities at the actual real-time locational marginal price for energy set by PJM at the EKPC zonal node during each hour of the day at the time of delivery. The payments will be offset by a market administration fee of \$0.00012 per kWh to cover EKPC's market participation costs.


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Terms and Conditions

1. Pursuant to FERC regulations 18 C.F.R. §§ 292.303(a), 292.309, and 292.310, EKPC is no longer obligated to purchase electric energy and/or capacity from qualifying cogeneration or small power production facilities with a net capacity of over 5 MW.
2. All power from a QF will be sold only to EKPC.
3. Seller must provide good quality electric power within a reasonable range of voltage, frequency, flicker, harmonic currents, and power factor.
4. QF shall provide reasonable protection for EKPC and the member cooperative's system.
5. QF shall design, construct, install, own, operate, and maintain the QF in accordance with all applicable codes, laws, regulations, and generally accepted utility practices.

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EAST KENTUCKY POWER COOPERATIVE, INC**FOR ALL COUNTIES SERVED****P.S.C. No. 35, Sixth Revised Sheet No. 42
Canceling P.S.C. No. 35, Fifth Revised Sheet No. 42****Cogeneration and Small Power Production
Power Purchase Rate Schedule Equal To or Less Than
100 kW from Dispatchable Generation Sources****Availability**

Available only to qualified cogeneration or small power production facilities with a design capacity of 100 kW or less which have executed a contract with EKPC and one of EKPC's member distribution systems for the purchase of electric power by EKPC. Qualified cogeneration or small power production facilities must be able to be dispatched by EKPC. Non-dispatchable qualified cogeneration or small power production facilities are covered under a separate tariff.

Rates

1. Capacity - \$18.81 per kW per year is applicable if cogenerator or small power producer is dispatched by EKPC. R
2. Energy - QF will be credited monthly for the electric power produced by dispatchable generation facilities at the actual real-time locational marginal price for energy set by PJM at the EKPC zonal node during each hour of the day at the time of the delivery. The payments will be offset by a market administration fee of \$0.00012 per kWh to cover EKPC's market participation costs. R

Terms and Conditions

1. All power from a QF will be sold only to EKPC.
2. Seller must provide good quality electric power within a reasonable range of voltage, frequency, flicker, harmonic currents, and power factor.
3. QF shall provide reasonable protection for EKPC and the member cooperative's system.
4. QF shall design, construct, install, own, operate, and maintain the QF in accordance with all applicable codes, laws, regulations, and generally accepted utility practices.
5. QF shall reimburse EKPC and its member cooperative for all costs incurred as a result of interconnecting with the QF, including operation, maintenance, administration, and billing.
6. QF shall obtain insurance in the following minimum amounts for each occurrence:
 - a. Public Liability for Bodily Injury - \$1,000,000.00
 - b. Property Damage - \$500,000.00
7. Initial contract term shall be for a minimum of five years.
8. QFs proposing to supply as available (non-firm) electric power shall not be entitled to a capacity payment.
9. Qualifying cogeneration and small power production facilities must meet the definition set forth in 807 KAR 5:054 to be eligible for this tariff.

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EAST KENTUCKY POWER COOPERATIVE, INC

FOR ALL COUNTIES SERVED

P.S.C. No. 35, Sixth Revised Sheet No. 44
 Canceling P.S.C. No. 35, Fifth Revised Sheet No. 44

**Cogeneration and Small Power Production Power Purchase
 Rate Schedule Over 100 kW from Non-Dispatchable Generation Sources**

Availability

Available only to qualified cogeneration or small power production facilities that are not able to be dispatched by ("EKPC") which have executed a contract with EKPC and one of EKPC's member distribution systems for the purchase of electric power by EKPC. Pursuant to FERC regulations 18 C.F.R. §§ 292.303(a), 292.309, and 292.310, EKPC is no longer obligated to purchase electric energy and/or capacity from qualifying cogeneration or small power production facilities with a net capacity of over 5 MW. T

Rates

1. Capacity - \$0.00 per kW per year is applicable for the cogenerator or small power producer. N
2. Energy - QF will be credited monthly for the electric power produced by non-dispatchable generation facilities at the value of the real-time locational marginal price for energy set by PJM at the EKPC zonal node during each hour of the day at the time of delivery. The payments will be offset by a market administration fee of \$0.00012 per kWh to cover EKPC's market participation costs. T
R

Terms and Conditions

1. Pursuant to FERC regulations 18 C.F.R. §§ 292.303(a), 292.309, and 292.310, EKPC is no longer obligated to purchase electric energy and/or capacity from qualifying cogeneration or small power production facilities with a net capacity of over 5 MW. T
2. All power from a QF will be sold only to EKPC
3. Seller must provide good quality electric power within a reasonable range of voltage, frequency, flicker, harmonic currents, and power factor.
4. QF shall provide reasonable protection for EKPC and the member cooperative's system.
5. QF shall design, construct, install, own, operate, and maintain the QF in accordance with all applicable codes, laws, regulations, and general accepted utility practices.
6. QF shall reimburse EKPC and its member cooperative for all costs incurred as a result of interconnecting with the QF, including operation, maintenance, administration, and billing.
7. QF shall obtain insurance in the following minimum amounts for each occurrence:
 - a. Public Liability for Bodily Injury - \$1,000,000.00.
 - b. Property Damage - \$500,000.00

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EAST KENTUCKY POWER COOPERATIVE, INC

FOR ALL COUNTIES SERVED

**P.S.C. No. 35, Second Revised Sheet No. 45
Canceling P.S.C. No. 35, First Sheet No. 45**

Over 100 kW from Non-Dispatchable Generation Sources (continued)

- 8. Initial contract term shall be for a minimum of five years.
- 9. QFs proposing to supply as available (non-firm) electric power shall not be entitled to a capacity payment.
- 10. Qualifying cogeneration and small power production facilities must meet the definition set forth in 807 KAR 5:054 to be eligible for this tariff.
- 11. In negotiating a final purchase rate, consideration shall be given to the factors affecting purchase rates as set forth in 807 KAR 5:054, Section 7(5)(a).
- 12. Updated rates will be filed with the Public Service Commission of Kentucky by March 31 of each year. T

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EAST KENTUCKY POWER COOPERATIVE, INC

FOR ALL COUNTIES SERVED

**P.S.C. No. 35, Sixth Revised Sheet No. 46
Canceling P.S.C. No. 35, Fifth Revised Sheet No. 46**

**Cogeneration and Small Power Production Power Purchase
Rate Schedule 100 kW or Less from Non-Dispatchable Generation Sources**

Availability

Available only to qualified cogeneration or small power production facilities that are not able to be dispatched by EKPC which have executed a contract with EKPC and one of EKPC's member distribution systems for the purchase of electric power by EKPC.

Rates


- 1. Capacity - \$0.00 per kW per year is applicable for the cogenerator or small power producer. N
- 2. Energy - QF will be credited monthly for the electric power produced by non-dispatchable generation facilities at the value of the real-time locational marginal price for energy set by PJM at the EKPC zonal node during each hour of the day at the time of delivery. The payments will be offset by a market administration fee of \$0.00012 per kWh to cover EKPC's market participation costs. T
R

Terms and Conditions

- 1. All power from a QF will be sold only to EKPC.
- 2. Seller must provide good quality electric power within a reasonable range of voltage, frequency, flicker, harmonic currents, and power factor.
- 3. QF shall provide reasonable protection for EKPC and the member cooperative's system.
- 4. QF shall design, construct, install, own, operate, and maintain the QF in accordance with all applicable codes, laws, regulations, and general accepted utility practices.
- 5. QF shall reimburse EKPC and its member cooperative for all costs incurred as a result of interconnecting with the QF, including operation, maintenance, administration, and billing.
- 6. QF shall obtain insurance in the following minimum amounts for each occurrence:
 - a. Public Liability for Bodily Injury - \$1,000,000.00.
 - b. Property Damage - \$500,000.00
- 7. Initial contract term shall be for a minimum of five years.
- 8. QFs proposing to supply as available (non-firm) electric power shall not be entitled to a capacity payment.
- 9. Qualifying cogeneration and small power production facilities must meet the definition set forth in 807 KAR 5:054 to be eligible for this tariff.
- 10. Updated rates will be filed with the Public Service Commission of Kentucky by March 31 of each year. T

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PURSUANT TO 807 KAR 5:011 SECTION 9 (1)

Technical and Functional Requirements for Interconnecting Distributed Generation with the EKPC Electrical Distribution System



East Kentucky Power Cooperative

Prepared by:

Paul A. Dolloff, Ph.D.
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Linda C. Bridwell Executive Director
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REVISION HISTORY

**Technical and Functional Requirements for
Interconnecting Distributed Generation with the
EKPC Electrical Distribution System**



EAST KENTUCKY POWER COOPERATIVE

A Touchstone Energy[®] Cooperative 

Date	Rev #	Description
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APPROVALS

**Technical and Functional Requirements for
Interconnecting Distributed Generation with the
EKPC Electrical Distribution System**



Senior Engineer

Date

Senior Vice President – Power Supply

Date

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PURSUANT TO 807 KAR 5:011 SECTION 9 (1)

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COMPANY OVERVIEW

East Kentucky Power Cooperative (EKPC) is a not-for-profit, generation and transmission (G&T) electric utility cooperative that is owned by sixteen (16) distribution electric utility cooperatives, collectively known as the Member Systems. EKPC's purpose is to generate and deliver wholesale electricity to the Member Systems who distribute power to retail customers (members). The Member Systems own and maintain their own distribution and metering systems; EKPC owns and maintains all distribution substations.

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INTRODUCTION

This document specifies the minimum requirements for the safe and effective operation of Distributed Generation (DG) up to 10 MVA interconnecting with either an existing Member System’s radially operated electrical distribution feeder (up to 25kV) or directly to an EKPC distribution substation via an express feeder. DG systems may not be interconnected to loop feed distribution systems, spot networks, or grid networks.

All DG interconnections that do NOT qualify for net metering in Kentucky must be approved by both EKPC and the Member System to which the DG will be interconnected.

For simplicity, this document will use the term “DG” to refer to any distributed generator, co-generator, or small power producer facility that does NOT qualify for net metering. The term “utility” will be used to refer to either EKPC or the Member System (as appropriate) to which interconnection is being sought.

DG owners/operators and utility personnel shall use this document when planning the installation of interconnected DG systems. Although this document establishes criteria and requirements for interconnection, this manual is not a design handbook.

This document provides the minimum functional technical requirements that are universally needed to help assure a safe and technically sound interconnection. As such, the requirements contained within this document may not cover all details for specific DG installations. Therefore, the DG is encouraged to discuss project plans with the Member System and EKPC before designing, constructing, and purchasing equipment for the DG facility.

The interconnection requirements set forth in this document for the parallel operation of DG with the utility’s distribution system are provided for substation and distribution interconnections of synchronous generators, induction generators, D.C. generators with inverters, and other inverter based generating technologies.

At the utility’s discretion, all requirements in this document may be superseded by requirements given in the following standards:

ANSI Std. 1547-2003, “IEEE Standard for Interconnecting Distributed Resources with Electric Power Systems;”

ANSI C84.1-1995, “Electric Power Systems and Equipment – Voltage Ratings (60Hz);”

IEEE Std 519-1992, “Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems;”

IEEE Std. 929-2000, “Recommended Practice for Utility Interface of Photovoltaic (PV) Systems;”

IEEE Std. 485-1983, “Recommended Practice for Sizing Large Lead Storage Batteries for Generating Stations and Substations.”

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LIMITATIONS

As their wholesale and service provider, this interconnection document has been developed by EKPC on behalf of the Member Systems. All applicants must check with the Member System from which permission to interconnect is being sought to determine if additional requirements exist.

This document is not intended for net metering installations. Net metering rules and regulations are included in each Member System's net metering tariff.

DG installations with capacity greater than 10 MVA will need to contact EKPC for interconnection rules and regulations.

This document is not intended for DG installations seeking to interconnect with the EKPC transmission system at voltages 69 kV and above. For these installations, all applicants must contact EKPC for the appropriate documents.

The minimum required protective relaying and safety devices and requirements specified in this document are necessary to ensure the safety of utility workers and the public. In addition, these requirements are intended to protect utility facilities and other customer equipment from damage and disruptions caused by faults, malfunctions, and improper operation of the DG facility. The minimum protective relaying and interconnection requirements given in this document do not necessarily include additional protective and safety devices as may be required by industry and/or government codes and standards, equipment manufacturer requirements, and prudent engineering design and practice to fully protect the DG facility or facilities; compliance with these regulations are the sole responsibility of the DG.

The information in this document contains general information about the interconnection requirements for customer owned DG facilities. All applicable regulatory, technical, safety, and electrical requirements and codes are not contained in their entirety in this document. DG facilities are also subject to contractual and other legal requirements, which are only summarized in this document. Those regulations, requirements, contracts, and other materials contain complete information concerning DG interconnection and take precedence over the general provisions in this document.

This document, as well as the various other agreements and rate schedules, are subject to revision. Therefore, the DG is encouraged to check with the Member System and EKPC for the latest revision prior to commencing a DG project requiring interconnection and parallel operation with the utility distribution system.



DG GENERATING REQUIREMENTS

The utility will permit any applicant to operate DG in parallel with the utility’s electrical distribution system whenever such operation can take place without adversely affecting other customers, the general public, utility equipment, and utility personnel. To minimize this interference caused by the interconnection of DG, the DG shall meet the criteria given in this attachment.

The DG operating requirements outlined in this attachment shall be met at the point of common coupling (PCC). The PCC is defined as that electrical point where the distribution system owned and operated by the utility interconnects to the DG facility’s distribution system. Often, but not always, the PCC is the metering point. The PCC is not to be confused with the DG point of interconnection. The DG point of interconnection is that electrical point where the output terminals of a DG system interconnect to an electrical distribution system, which may or may not be the same point as the PCC.

The DG operating requirements outlined in this attachment apply to the interconnection of either a single DG unit or the aggregate of multiple DG units within a single DG facility.

The DG operating requirements outlined in this attachment are functional and apply to all generating technologies: Synchronous generators, induction generators, D.C. generators with inverters, and other inverter based generating technologies.

VOLTAGE¹

The DG shall not actively regulate the voltage at the PCC.

In general, the Member System maintains a voltage schedule consistent with ANSI Std. C84.1-1995 Range A. With that, a DG shall produce voltages within 5% of the nominal voltage of the distribution system to which the DG is interconnected.


Under certain emergency situations, the Member System distribution system may operate within ± 10% of nominal voltage. The DG is required to provide voltage sensing equipment and an automatic means of disconnecting to protect their equipment during abnormal voltage operation.

The DG must disconnect its generating equipment if the DG cannot maintain a voltage within 10% of the nominal voltage of the Member System’s distribution system.

FREQUENCY

The nominal operating frequency of the utility’s distribution system is 60 Hz. The DG shall be designed for this frequency and will not contribute to any variation from the prevailing frequency when the DG is in operation.

¹ 807 KAR 5:041. Electric. Section 6. Voltage and Frequency.

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POWER FACTOR

DG systems using synchronous generators shall absorb or produce reactive energy (VAr) such that the overall power factor is between 0.90 lagging and unity or between unity and 0.9 leading, respectively. The utility may request that the DG adjust the power factor within the above stated limits.

DG systems using induction generators with nameplate power factor below unity, shall install reactive energy capacity (capacitors) such that the DG will operate within 1% (leading or lagging) of unity power factor.

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POWER QUALITY

The interconnection of DG to the utility distribution system shall not degrade the power quality for existing utility customers. The utility may install power quality monitoring equipment to verify compliance of the DG with the power quality requirements outlined in this document. Should the DG be found to be out of compliance, the DG will be responsible for reimbursing the utility for the cost of the power quality monitoring equipment, telecommunication equipment and services, and studies of the power quality data analysis.

FLICKER

Though defining the particular amount and frequency of voltage flicker that constitutes a problem is highly subjective, this requirement is necessary to minimize the adverse voltage effects to other customers on the utility system.

Any voltage flicker resulting from the interconnection of the DG to the utility distribution system shall not exceed the "Border Line of Irritation" curve given in Figure 10-3 – Maximum Permissible Voltage Fluctuations of IEEE Std 519-1992.

SYNCHRONIZATION

When energizing the DG in parallel with the utility's distribution system, the DG shall:

- i. Not cause a voltage fluctuation greater than $\pm 5\%$ of the prevailing voltage on the utility's distribution system;
- ii. Not cause a dip in voltage on the utility's distribution system due to inrush currents in excess of two volts on a 120 volt base;
- iii. Meet the flicker requirements outlined in this document.

HARMONICS

In general, the utility restricts the injection of voltage and current harmonics to limits defined in the IEEE Std. 519-1992. With that, the total harmonic distortion (THD) of voltage or current created by a DG must not exceed 5% of the fundamental, 60 Hz voltage or current waveform.

$$\% THD = \frac{\sqrt{\sum_{i=2}^{\infty} h_i^2}}{h_1} \times 100$$


Where:

h_i = the magnitude of the i^{th} harmonic of either voltage or current;

h_1 = the magnitude of the fundamental voltage or current.

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Any single harmonic shall not exceed 3% of the fundamental frequency.

$$\% \text{ Single Harmonic Component Distortion} = \frac{h_i}{h_1} \times 100$$


Where:

h_i = the magnitude of the i^{th} harmonic of either voltage or current;

h_1 = the magnitude of the fundamental voltage or current.

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SYSTEM PROTECTION

Abnormal conditions can arise on the utility’s distribution system that require a response from interconnected DG to ensure safety of utility personnel and the general public. Additionally, the DG shall provide adequate protection to ensure safety to DG personnel and avoid damage to DG facilities.

The DG shall provide adequate protection to avoid damage to utility facilities and other utility customers’ facilities during abnormal DG operation or DG fault conditions.

TRANSFER TRIP

If at any time it is determined that the DG cannot provide adequate protection to the utility distribution system for any abnormal condition discussed in this attachment, the DG shall furnish and install a transfer trip receiver(s) at its facility to receive a tripping signal(s) originating from a utility location(s). This additional protection would also necessitate the DG to reimburse the utility for the purchase and installation of transfer trip equipment at the utility location(s) and a communications channel and associated equipment between the utility location(s) and the DG facility.

Should the utility deem that a transfer trip system is required, the utility will specify all equipment and the choice of telecommunication including protocol necessary for the transfer trip scheme. The DG shall purchase and install a utility approved Remote Terminal Unit (RTU) and a utility grade relay with targets. This relay will be used to trip the DG interconnection breaker(s) and provide an alarm(s) to the RTU.

In some instances, it may be advantageous to simultaneously trip both the DG interconnection breaker(s) and the DG generator breaker(s). The DG is encouraged to discuss this additional functionality of the transfer trip scheme with the utility.


With utility approval, a generator breaker contact may be used to disable transfer trip of the interconnection breaker when the generator breaker is open.

The DG shall not be allowed to operate in parallel with the utility if either the RTU or the associated telecommunication system necessary for the transfer trip scheme is out of service or otherwise unavailable.

INADVERTENT ENERGIZATION

The DG shall not interconnect and operate in parallel with the utility distribution system when the utility distribution system is de-energized.

The DG interconnection breaker shall be automatically locked out into a de-energized or partially de-energized (loss of any one phase) utility distribution system. The interconnection breaker close circuit shall include a synch check and an over/under voltage permissive contact to prevent closing the breaker when unfavorable

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FAULTS ON THE UTILITY

The DG shall detect and automatically disconnect from the utility distribution system for faults on the utility distribution system to which it is connected.

See the Reclosing Coordination and Reconnection requirements given in this attachment.

UNINTENTIONAL ISLANDING

An island is the condition in which a portion of the utility’s distribution system is energized solely by the DG, while that portion of the distribution system is electrically separated from the rest of the utility’s distribution system.

At no time shall the DG be allowed to form an island in which a portion of the utility’s distribution system is energized solely by the DG. The DG shall detect and disconnect from the utility’s distribution system within two seconds of the formation of an island.

RECLOSING COORDINATION

The EKPC transmission lines have automatic instantaneous and time delay reclosing. Likewise, the Member System distribution feeders have automatic instantaneous and time delay reclosing.

The DG is responsible for protecting its equipment and facility from being reconnected out-of-synchronism with the utility distribution system after automatic reclosing of a utility transmission line or distribution feeder breaker. The DG shall provide high speed protective relaying to remove its equipment from the utility’s distribution system prior to automatic reclosures.

To avoid the DG from providing fault current, the DG shall disconnect from the utility distribution system to which it is connected prior to reclosure by utility breakers.

The DG will receive reclosing timing schemes for the distribution feeder and transmission line relays, as applicable, from the utility. As a general rule, those utility breakers set for instantaneous reclosing will have a re-strike time in the range of 6 to 8 cycles (0.1 to 0.133 seconds).

VOLTAGE

The DG shall disconnect from the utility distribution system when the prevailing voltage on utility distribution system is less than 88% or greater than 110% of the nominal voltage of the utility’s distribution system.

FREQUENCY

The DG shall disconnect from the utility distribution system when the prevailing frequency on utility distribution system is less than 59.8 Hz or greater than 60.5 Hz.

RECONNECTION

Following an abnormal condition on the utility’s distribution system the DG shall attempt to reconnect to the utility to ascertain if and/or when the utility distribution system has returned to normal.

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configuration can accommodate reconnection of the DG. The DG must obtain permission from the utility prior to reconnecting in parallel with the utility distribution system.²

DG INTERCONNECTION BREAKER RELAY

The following are the minimum relay requirements for the interconnection and generator (as appropriate) breakers:

- A. All DG interconnection and generator (as appropriate) breaker relays shall be utility grade;
- B. Phase over-current relays (one per phase) with instantaneous and voltage restraint time delay. One ground over-current relay with instantaneous and time delay elements. Each element of the phase and ground relays shall have its own target;
- C. Over/under voltage relays, which monitors (is installed) on the utility side of the interconnection breaker;
- D. Over/under frequency relays, which monitors (is installed) on the utility side of the interconnection breaker;
- E. Directional power (reverse power flow) relays may be required to limit power flow to contractual agreements;
- F. All solid state relays requiring an auxiliary power source shall be powered from a DG station battery; ac to DC converters are unacceptable. The station battery shall be sized for an eight hour duty cycle in accordance with IEEE Std. 485-1983. At the end of the duty cycle, the battery shall be capable of tripping and closing all DG interconnection and generator (as appropriate) breakers;
- G. All DG interconnection relaying shall have dedicated current transformers (CTs). All relaying CTs shall have a minimum accuracy of C200. Saturation current shall not be more than 10% of the available fault current at the PCC.

ISOLATION DEVICE

The DG shall install and maintain a lockable, visible-break isolation device (disconnect switch) or motor-operated disconnecting device at the PCC (or at the generator terminals, as appropriate, for co-generation installations). The disconnecting device shall be appropriately labeled and accessible to utility personnel at all times.

² See agreed upon operating procedures.

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MAINTENANCE AND OPERATING REQUIREMENTS

After the DG is in service, the utility reserves the right to test or review, on request, the calibration and operation of all protective equipment including relays, circuit breakers, batteries, etc. at the interconnection, as well as review DG maintenance records. A review of the calibration and operation of protective equipment may include utility-witnessed trip testing of the interconnection and generator (as appropriate) breakers by its associated protective relays.

The failure of the DG to maintain its interconnection equipment in a manner acceptable to the utility or to furnish maintenance records on demand may result in the DG being prevented from operating in parallel with the utility.

OWNERSHIP

The protective equipment (relays, breakers, etc.) located at the PCC required to disconnect the DG from the utility shall be owned, operated, and maintained by the DG.

INTERCONNECTION BREAKER RELAY SETTING CALCULATIONS

All calculations for the DG’s interconnection breaker relay shall be submitted for review and acceptance by the utility to assure protection of utility equipment and reliability of service to the adjacent utility customers.

The DG shall be required to change relay settings, if necessary, to accommodate changes in the utility system.

CALIBRATION AND FUNCTIONAL TRIP TESTS

The DG shall be responsible to have calibration and functional trip tests performed on its fault and isolation protection equipment including the DG station batteries. These tests shall be performed prior to placing equipment in service. Thereafter, station batteries will be tested annually, while relays will be tested once every three years.

Copies of these test results shall be submitted to the utility no later than five working days after completion of the tests.

All testing and calibration shall be performed by a qualified, independent, testing organization acceptable to the utility in accordance with industry standards and shall be submitted to the utility for review and acceptance. Battery tests shall meet the requirements of IEEE Std. 450-1987. The utility reserves the right to witness and accept or reject the results of all tests. The utility shall be notified of testing five business days in advance.

POWER QUALITY

If harmonic distortion or flicker problems affecting other customers' equipment can be traced to the parallel operation of the DG with the utility, the DG shall not be allowed to operate in parallel with the utility until the problem is corrected.

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DG SITE WORK

If the utility is requested to work at the DG site, the utility operating and maintenance personnel shall inspect the site to ensure that all utility safety requirements have been met. If not, commencement of the requested work shall be delayed until conditions are deemed safe by the utility.

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SPECIAL CONSIDERATIONS

REAL-TIME MONITORING

For those DG systems with rated (nameplate) capacity of 1 MW or greater (single unit or aggregate behind a single PCC), a Supervisory Control and Data Acquisition (SCADA) system is required. As part of the SCADA system, the DG shall purchase and install a utility approved Remote Terminal Unit (RTU) that shall provide key operating parameters of the DG to EKPC's Energy Management System (EMS) in real-time. The key DG operating parameters include but are not limited to:

- A. Status
 - i. Interconnection breaker and generator breakers;
 - ii. Generator or inverter run and availability;
- B. Alarms
 - i. Loss of DC to interconnection and generator breakers;
 - ii. Loss of DC to RTU and loss of ac to RTU battery charger;
- C. Analog Telemetry
 - i. Real time voltage, current, real power (watts), reactive power (VArS), and power factor at each breaker at the PCC;
 - ii. Metering Data: Dual direction, pulse accumulation of MWhr and MVARhr;
- D. Transfer Trip (if equipped)
 - i. Output trip signal;
 - ii. Input trip/alarm signal from interconnection breaker target relay;
 - iii. Loss of transfer trip alarm.

When real-time monitoring of the DG is required, the utility will specify all equipment and the choice of telecommunication including protocol necessary for the scheme.

The DG shall not be allowed to operate in parallel with the utility if either the RTU or the associated telecommunication system necessary for the transfer trip scheme is out of service or otherwise unavailable.

With utility permission, the DG shall be allowed to operate in parallel with the utility if either the RTU or the associated telecommunication system necessary for providing all but the transfer trip scheme to the utility is out of service or otherwise unavailable.

All costs for additional hardware and software for integration on the utility's EMS necessary for the DG interconnection shall be the responsibility of the DG.

Should the Member System have a SCADA system in place and wish to receive any or all of these same DG operating parameters:

- i. The Member System reserves the right to require DG to be available for DG installations of less than 1 MW;

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- ii. The Member System will make every effort to reduce or eliminate redundant equipment and telecommunications burden of the DG by leveraging existing telecommunications in-place between EKPC and the Member System.

DIRECT SUBSTATION INTERCONNECTIONS

All costs associated with upgrading the utility’s distribution substation to accommodate an interconnection of the DG by means of a dedicated (express) feeder are the responsibility of the DG. These costs include, but are not limited to:

- A. Engineering design;
- B. Labor for construction, inspection, and testing;
- C. Equipment:
 - i. Breaker and associated protection equipment;
 - ii. Grade work;
 - iii. Additional fencing;
 - iv. Ground grid extension;
 - v. Bus extension and associated support structures
 - vi. Foundation work.

Details of the cost of construction, operation, long term maintenance, and ownership issues of the distribution feeder shall be negotiated between the DG and the utility.

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METERING

Depending upon the contractual agreement between the DG and the utility, metering may be required by EKPC, the Member System, or both. The DG shall contact EKPC and/or the Member System, as appropriate to the installation, to obtain metering requirements.

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ENGINEERING STUDIES

Final acceptance of the interconnection by the utility will be contingent upon the utility’s acceptance of all of the DG systems interconnection equipment.

The utility will perform engineering studies to determine the exact electrical configuration of the interconnection and DG systems and to identify any required additions, modifications, upgrades, or changes to the utility system. Major equipment requirements such as circuit breakers and special protective relaying shall also be studied.

Items and issues requiring investigation include:

- A. Equipment short circuit duty;
- B. DG breaker relay protection coordination with:
 - i. Transmission relay breakers;
 - ii. Distribution substation relay breakers;
 - iii. Distribution feeder breakers;
 - iv. Down-line distribution feeder breakers;
 - v. Distribution branch circuit fuses;
- C. Breaker failure requirements;
- D. Dead-line Operating Constraint mechanisms and schemes;
- E. Voltage profile and reactive energy (VAr) requirements;
- F. Evaluation of distribution system capacity constraints.

PRELIMINARY REVIEW

To help avoid unnecessary costs and delays, a substation one-line diagram should be submitted to the utility for acceptance prior to ordering equipment or commencing construction. Installing the DG without prior written acceptance of the equipment by the utility is done at the DG’s own risk. The DG shall be solely responsible for all costs associated with the replacement of any equipment that has not been accepted by the utility.

If the DG makes changes in the design of the project, any previous information furnished by the utility shall be subject to review and possible changes.

The DG shall meet all applicable local, county, municipal, and state (electrical, zoning, building, etc.) codes.

IMPACT STUDY

The Impact Study requires the DG to complete Attachment 7 Small Generator Interconnection Request Application Form

In addition, the DG must submit two copies of the following to EMSO Member System:

- A. Substation one-line diagram;

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- B. Relay functional diagram showing:
 - i. Current transformer (CT) circuits and turns ratio;
 - ii. Potential transformer (PT) circuits and turns ratio;
 - iii. Relay connections;
 - iv. Protective control circuits;Note: All interconnections with utility circuits should be clearly labeled.
- C. Three-line:
 - i. ac schematic diagrams of transformers;
 - ii. ac schematic diagrams of the bus protection relay;
 - iii. Transformer connections;
 - iv. Grounding connections;
- D. Interconnection breaker data:
 - i. ac and DC schematic diagrams;
 - ii. Speed curve;
- E. Protective relay equipment list:
 - i. Manufacturer make and model number;
 - ii. Relay ranges;
 - iii. Manufacturer bulletins;
 - iv. Relay curves and proposed settings;
- F. Generator nameplate data:
 - i. Transient impedance;
 - ii. Sub-transient impedance;
 - iii. Synchronous impedance;
- G. Transformer
 - i. Nameplate data;
 - ii. Positive sequence impedance;
 - iii. Negative sequence impedance;
- H. Generator protection scheme.
- I. Equipment specifications
- J. Telecommunication Protocol



COMMISSIONING TEST

The DG will not be allowed to interconnect and operate in parallel with the utility's distribution system until appropriate commission tests, specified in this document, have been performed.

After construction is complete, functional tests of all protective equipment shall be performed by a qualified testing company acceptable to the utility. The utility reserves the right to witness such tests. For these tests, the utility must be given at least five business days written notice (or as otherwise mutually agreed) of the test schedule.

If the protective relay settings have been correctly applied and the functional tests are successful, the utility will permit the DG to interconnected and operate in parallel with the utility distribution system.

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EAST KENTUCKY POWER COOPERATIVE

Requirements for Facilities Connecting to the EKPC Transmission System



Approved: *Darin Adams*

KENTUCKY PUBLIC SERVICE COMMISSION	
Linda C. Bridwell Executive Director	Date: <i>3/19/2010</i>
<i>Linda C. Bridwell</i>	
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Rev. #	Reason for Revision	Date
1	Added document review and availability information - RLO	3/24/09
2	Added paragraph 2 in section 1, wording on VAR support in section 9, and edited line grounding detail attachments – RLO	3/18/10
3	Revised section 2.1 to include requirements to be consistent with NERC Reliability Standard FAC-002-0 involving coordination of plans for new facilities.	5/3/10

Review History	Date
RLO	3/18/10
DWA	5/3/10

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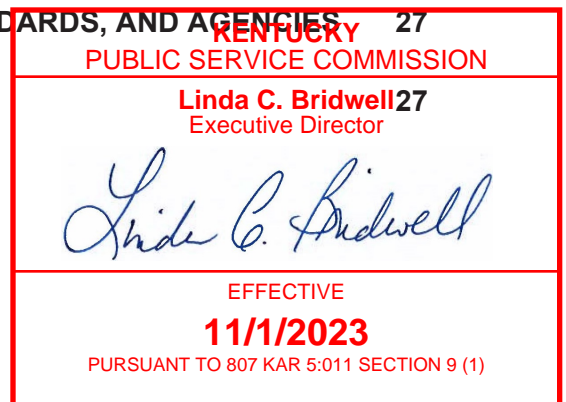
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1.0 Introduction

East Kentucky Power Cooperative (EKPC) has prepared this document, which outlines the minimum requirements for all **Transmission Interconnection** or **End-User facilities** and **Generation facilities** (hereinafter referred to as **Requesters**) connecting to the EKPC Transmission System.

All new connections or modifications to existing connections to the EKPC transmission system, including EKPC self-built facilities, must be in compliance with all applicable EKPC connection requirements. Such connections must also comply with all applicable Planning, Operations, and Critical Infrastructure Protection Reliability Standards of the Federal Regulatory Energy Commission's (FERC) approved Electric Reliability Organization (ERO), which is currently the North American Electric Reliability Corporation (NERC), and with all SERC Reliability Corporation (SERC) Supplements to the NERC Reliability Standards.

This document will be reviewed every twelve months to ensure best practices. Upon request, the most recent document of EKPC's Facility Connection Requirements, will be made available within four business days.

1.1 Background


The present electric utility environment is characterized by deregulation, open access to the transmission network, wholesale and retail competition, etc., This present era of rapid change places additional challenges in the planning and operation of electric systems to maintain reliability, safety, and quality of service.

The purpose of this document is to facilitate meeting the demands of this competitive environment. Each request to connect to and use the EKPC Transmission System will be reviewed to identify the impacts and necessary system improvements on the EKPC system. These reviews ensure that comparable treatment is given to all users, and that reliability, safety, and quality of service are maintained.

1.2 Scope

This document informs entities seeking facility connections to the EKPC Transmission System of the connection requirements. These requirements are not a substitute for specific Interconnection Agreements between EKPC and entities connecting to the EKPC Transmission System.

The scope of this document satisfies the NERC Planning Standards by identifying requirements for connections to the bulk transmission system at voltages generally 100 kV and above. This document applies to those systems designated as transmission facilities at voltages, which include 69 kV. Requirements apply

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Interconnection, End-User, and Generation facilities are covered. These requirements will be applied in a consistent manner to both EKPC-owned facilities and non-EKPC facilities wishing to interconnect to the EKPC transmission system.

The minimum requirements pertaining to connected facilities are contained herein. Reliability concerns in particular are such that additional facility and operational requirements may need to be imposed on connecting facilities based on their location within the system, facility power level and the associated impacts on EKPC’s system performance. The need for additional requirements can only be evaluated once certain details of a proposed facility are made known and system impact studies have been conducted. The requirements for initial facility connection apply equally to any upgrades, additions, enhancements, or changes of any kind to an existing connected facility.


The scope of this document is limited to the technical requirements for connected facility design and operation. **Requesters** requiring transmission service are also referred to the [EKPC Open Access Transmission Tariff](#).

1.3 Objectives

EKPC has prepared this document based on the following objectives:

- (a) Maintain system reliability, personnel and equipment safety, and quality of service as load, system modifications, and new facilities are added to the transmission network.
- (b) Ensure comparability in the requirements imposed upon the various entities seeking to connect facilities to the transmission network.
- (c) Satisfy compliance with NERC Planning Standard FAC-001 and corresponding SERC Supplement(s) pertaining to documentation of facility connection requirements by those entities responsible for system reliability.
- (d) Inform those entities that seek facility connections to the EKPC Transmission System of the various requirements for system reliability, reporting requirements, (as specified by the NERC Reliability Standards and SERC supplements), and other applicable standards and documents.
- (e) Facilitate uniform and compatible equipment specification, design, engineering, and installation practices to promote safety and quality of service.

2.0 Procedures for Coordinated Studies and Notification of new or modified Facilities to Others (R2.1.1 & R2.1.2)

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Contact one of the following EKPC personnel to request a new facility connection or significant change to an existing connected facility. This type of request will require a joint study to determine the implications on surrounding system facilities.

Type of Customer to Be Connected	Type of Service or Activity Required from EKPC	EKPC Contact
Generation Interconnection	Initial Contact To Request a Connection or Study	Manager Transmission Planning
Transmission Interconnection	Joint Transmission Planning Studies	Manager Transmission Planning
Transmission End-User	Initial Contact To Request a Connection or Study	Manager Transmission Planning

Following the initial contact regarding a proposed **Generation, Interconnection, or End-User** facility connection, when the proposed location and power level are established, a plan of service is prepared and system impact studies are undertaken and coordinated by EKPC. The information needed to develop a plan of service and to conduct the system impact studies is identified in this document and should be provided to EKPC at this point. The system impact studies may, as noted above, identify additional requirements for reliability beyond the minimum requirements covered by this document.

EKPC approval of a proposed facility or facility change is contingent upon a design review of the proposed connected facility. Operation of a connected facility is also subject to continuing compliance with all applicable construction, maintenance, testing, protection, monitoring, and documentation requirements described herein, as well as the applicable NERC Reliability Standards and SERC Supplement(s).


2.1 System Impact Studies

The Generator Owner, Transmission Owner, Distribution Provider, and/or Load-Serving Entity seeking to integrate **Generation Facilities, Transmission Facilities, and/or End-User Facilities** into the EKPC transmission system shall each coordinate and cooperate on its assessments with the EKPC Transmission Planner/Planning Authority. The assessment shall include:

- Evaluation of the reliability impact of the connections on the interconnected transmission system

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- Ensurance of compliance with NERC Reliability Standards and applicable SERC and EKPC planning criteria and facility connection requirements.
- Evidence that the parties involved in the assessment have coordinated and cooperated on the assessment of the reliability impacts of the new facilities on the interconnected transmission systems. The results of these studies shall be jointly evaluated and coordinated by all of the entities involved.
- Evidence that the assessment included steady-state, short-circuit, and dynamics studies as necessary to evaluate system performance in accordance with NERC Reliability Standards.
- Documentation of study assumptions, system performance, alternatives considered, and jointly coordinated recommendations.

In order to assess the impact of a proposed facility connection on system reliability, system impact studies need to be conducted. These system impact studies, as a minimum, examine the transmission line and transformer loading, voltage profiles and schedules, and power quality impacts of the proposed facility for a range of expected seasonal loading and power transfer conditions. The effect of the proposed facility on short circuit duties would be examined for all transmission connections. A multi-step approach to the proposed facility may be considered where the impact of each step is assessed separately.

The criteria EKPC used to determine what constitutes acceptable performance in the above system impact studies is readily available from EKPC's FERC Form 715 filing.

The system impact studies will be coordinated with neighboring transmission system owners/operators as appropriate. As a minimum, all interconnected neighbors and other impacted parties will be notified of significant transmission system additions or modifications as soon as practical. In addition, significant additions and modifications will be reflected in the power flow models as submitted by EKPC to SERC. These additions and modifications will also be identified in the regional transmission system assessments as appropriate.

EKPC shall retain its documentation of its evaluation of the reliability impact of the new facilities and their connections on the interconnected transmission systems for three years and shall provide the documentation to SERC and NERC within 30 calendar days of a request.

2.1.1 Power Flow Analyses

Power flow analyses will be conducted to ex proposed facility on flows through transmission and voltage profiles. These analyses may typically determine the

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maximum load demand in the case of **End-User** facilities or through flow in the case of an **Interconnection** that can be accommodated with minimal or no upgrades to the transmission system. Contingencies consisting of single or multiple outages of lines and/or transformers are considered in these analyses. Where the analyses indicate that transmission upgrades are necessary, alternative reinforcement plans may be devised and evaluated for their capability to accommodate the proposed facility.

2.1.2 Short Circuit Analyses

Short circuit analyses are conducted to examine the impact of the proposed facility on equipment duties. These analyses are primarily concerned with **Generation** and **Interconnection** facilities. Increased fault duties may require upgrading existing circuit breakers and other equipment.

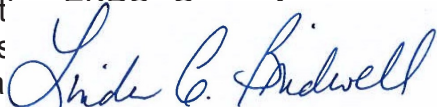
2.1.3 Additional Analyses

Other analyses may be required as part of system impact studies based on power flow analysis and depending on the nature of the proposed connected facility and its location within the transmission network:

- (a) Power quality analyses are undertaken for all **End-User** load that could potentially cause harmonic current or voltage, voltage flicker, and/or telephone interference.
- (b) The possibility of adverse subsynchronous torsional interaction is investigated wherever the **End-User's** equipment such as arc-furnaces and/or cycloconverters is to be located in close electrical proximity to existing generation.
- (c) Stability studies (transient, small-signal, voltage, etc.) will be performed for Generation, Transmission, and End-User Interconnections whenever deemed necessary by EKPC or a neighboring utility.
- (d) Impacts on transfer capabilities for EKPC and neighboring utilities will be assessed for Generation, Transmission, and End-User Interconnections.

The scope of all the above system impact studies will be determined by EKPC based on the type, location, and power level of the proposed facility. Normally, EKPC will perform the system impact studies. The cost of these studies will be chargeable to the **Requester** in accordance with the Transmission Tariff. Reports documenting the conclusions of the system impact studies are made available to the **Requester**.

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EKPC must be notified of new facilities, upgrades, or additions such as an increase in load or generating capability of existing facilities connected to the transmission system within the EKPC Control Area. System impact studies are to be conducted to determine the need for any upgrades of transmission equipment or transmission system additions to accommodate the changes in the connected facility. Notification must be provided to EKPC sufficiently in advance of the proposed new facility or the facility modification to allow adequate time for EKPC to assess impacts and perform any necessary transmission-system modifications that may be deemed necessary to accommodate the new facility/facility modification.

3.0 Voltage Level and MW and MVAR Demand (R2.1.3)

The **Requester** will specify the voltage level at which it intends to interconnect to the EKPC transmission system. Nominal transmission system voltages presently on the EKPC system are: 345kV, 161kV, 138kV, and 69kV. The **Requester** connecting to EKPC’s Transmission System, should expect voltage levels which generally under system normal conditions and single transmission element outage conditions range between 92% and 105% of nominal. All Interconnected Facilities are expected to operate in this range at all times. If the **Requester’s** supply voltage requirements are more restrictive than the 92% to 105% range, EKPC recommends that the **Requester** consider the addition of voltage regulation equipment in their facility.

Under certain emergency conditions, the EKPC Transmission System may operate for a period of time outside of the 92% to 105% range. The **Requester** is responsible for providing any voltage sensing equipment required to protect their equipment during abnormal voltage operation.

Electrical system design of the interconnected facility (e.g., transformers, tap settings, motors and other loads, generator/exciter, voltage regulator) should not restrict any mode of project operation within the EKPC transmission system’s allowable voltage range and regulation.

Transmission interconnected equipment should have the tap ranges and self-regulation necessary to operate within EKPC’s transmission system voltage range and regulation. All reactive compensation devices associated with an Interconnected Facility must be coordinated with EKPC during both the design phase and system operations.

The impacts of a new facility connection to the EKPC system with regard to neighboring utilities’ voltage and/or reactive compensation devices will be assessed. The Requester will be responsible for the adverse impacts on the neighboring system.

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For an End-Use Facility, the **Requester** will supply 10-year demand projections (both MW and MVARs). For a Transmission or Generation Interconnection, the **Requester** will provide all necessary information needed for EKPC to conduct a System Impact Study to adequately assess the voltage levels and MW/MVAR flows expected if the Transmission or Generation Interconnection is implemented. This information typically will involve detailed modeling data for the transmission network that will be connected to the EKPC system sufficient for power flow, short-circuit, and other engineering analyses.

The Owner of a generating facility connected to the EKPC transmission system will be required to provide the net demonstrated real and reactive power capability of each generating unit to EKPC as required by SERC. The NERC Reliability Standards MOD-024 and MOD-025 provide additional information regarding the requirements for Generator Owners to be in compliance. All data accumulated from testing in compliance with the NERC and SERC requirements should be provided to EKPC in a timely manner. Other generator parameters must also be provided as required by EKPC.

4.0 Breaker Duty and Surge Protection (R2.1.4)


4.1 Interrupting Device / Breaker Duty

The **Requester** shall provide three-phase circuit interrupting device(s) with appropriate protective relaying systems (as stated in Section 5). The device(s) shall isolate the Facility from the EKPC electrical system for all faults, loss of EKPC supply, or abnormal operating conditions regardless of whether or not the Facility is operating.

This device shall be capable of interrupting the greater of the maximum available fault current at that location available from the Transmission System or from the Facility. EKPC will provide, existing and estimated future, 3 phase fault and single line to ground fault amps short circuit data. Recommended change of an interrupting device due to overrating short circuit capabilities, will be the responsibility of the utility causing the increased fault currents.

The three-phase device shall interrupt all three phases simultaneously and shall have maximum operation time of 2 cycles or less from time of energization of the trip coils(s). EKPC may accept 3 cycle interrupting devices depending on their location within the EKPC system. The tripping control of the circuit-interrupting device shall be powered independently of the Transmission System or Facility AC sources in order to permit operation upon loss of the Transmission System connection or the Facility AC supply. The protective trips to the interrupting device should be arranged into two independent trip circuits including separate relay trips, separate DC control busses and two trip coil

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Generally, automatic reclosing of the Facility's interrupting device is not desired. If the Facility's configuration requires automatic reclosing, EKPC will provide the specific reclosing times for the Facility's interrupting devices.

4.2 Surge Protection (Lightning Arresters)

Lightning arrester allowable separation distance from the equipment being protected is based on Table 4 of IEEE Std. C62.22. Consult the manufacturer's catalog for details concerning arrester protective characteristics, ratings, and application. Location and ratings of lightning arresters will be addressed during the design phase of the project.

5.0 System Protection and Coordination (R2.1.5)

The **Requester** is responsible, under all system operating conditions, for providing adequate protection to their facilities as well as EKPC facilities and maintain the safety of the general public. The **Requester** is also responsible for providing adequate protection to their generating facility under any EKPC transmission system operating condition whether or not their generation is in operation.

EKPC will perform relay coordination and short circuit analysis, along with other studies as related to the system, in the area of the new facility. EKPC will provide functional specifications and relay settings for all protective relays at the **Requester's** facility that have a potential impact on the reliability of the EKPC transmission system. The criteria for these functional specifications and settings will be based on existing EKPC protection practices. EKPC reserves the right to specify the type and manufacturer for these protective relays to ensure compatibility with existing relays. The specific recommendations and requirements for protection will be made by EKPC based on the individual substation location, voltage and configuration.

5.1 Requester Protection

It is the **Requester's** responsibility to assure protection, coordination and equipment adequacy within their facility for conditions including but not limited to:

- (a) Single phasing of supply
- (b) System faults
- (c) Equipment failures
- (d) Deviations from nominal voltage or frequency
- (e) Lightning and switching surges
- (f) Harmonic voltages
- (g) Negative sequence voltages
- (h) Separation from EKPC supply
- (i) Synchronizing generation.



- (j) Synchronism checking of manual and automatic reclosing of transmission interconnections.
- (k) Islanding

The protection systems should minimize system disturbances, outage area, and equipment outage times.

If at any time it is determined that the use of the above relay systems cannot provide adequate protection to the EKPC system, the **Requester** shall furnish and install upon the request of EKPC, a transfer trip receiver(s) at its facility to receive tripping signals originating from an EKPC location(s). This additional protection would also necessitate the purchase and installation of transfer trip equipment at the EKPC location(s) and a communication channel between the EKPC location(s) and the **Requester's** facility. If these systems are required EKPC will coordinate the protection of these devices.

5.2 Automatic Underfrequency Load Shedding

EKPC may require automatic underfrequency load shedding relaying on connected loads to comply with NERC Reliability Standards PRC-006 through 009 and the applicable SERC Supplement. This document requires SERC control areas to shed at least 30% of their connected load in successive steps during system underfrequency emergencies.

EKPC, as a SERC member, is obligated to have an automatic underfrequency load shedding plan in effect, which meets the SERC Supplement. Connecting parties without an automatic underfrequency load shedding plan meeting SERC Supplement requirements may need to install underfrequency relaying at the request of EKPC. The amount of load to be shed and the frequency setpoints will be coordinated and specified by EKPC as required to meet SERC underfrequency load shedding compliance.


5.3 Parallel Generation Facility

The **Requester** shall provide the following utility-grade relays for protection of the EKPC system. All relays specified for the protection of the EKPC system, including time delay and auxiliary relays, shall be approved by EKPC. Relay operation for any of the listed functions shall initiate immediate separation of the **Requester's** generation from the EKPC Transmission System.

<u>Relay</u>	<u>Function</u>
Frequency	To detect under frequency and over frequency operation.
Overvoltage	To detect overvoltage operation.
Undervoltage	To detect undervoltage operation.

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Ground Detector	To detect a circuit ground on the EKP system (applicable to three-phase circuits only).
Directional Overcurrent	To detect the directional flow of current in excess of a desired limit
Transfer Trip Receiver	To provide tripping logic to the generation for isolation of the generation upon opening of the EKPC supply circuits.
Directional Power	To detect under all system conditions, a loss of EKPC primary source. The relay shall be sensitive enough to detect transformer magnetizing current supplied by the generation.

The purpose of these relays is to detect the **Requester's** energization of an EKPC circuit that has been disconnected from the EKPC system, to detect the generation operating at an abnormal voltage or frequency, or to detect a fault or abnormal condition on the EKPC system for which the **Requester** shall separate their generation.

Output contacts of these relays shall directly energize the trip coil(s) of the generator breaker or an intermediate auxiliary tripping relay, which directly energizes the breaker trip coil(s). The relaying system shall have a source of power independent from the AC system or immune to AC system loss or disturbances to assure proper operation of the protection scheme. Loss of this source shall cause removal of the generation from the EKPC system. The protective relays required by EKPC and any auxiliary tripping relay associated with those relays shall be utility-grade devices.

Utility grade relays are defined as follows:


- (a) Meet ANSI/IEEE Standard C37.90, "Relays and Relay Systems Associated with Electric Power Apparatus."
- (b) Have relay test facilities to allow testing without unwiring or disassembling the relay.
- (c) Have appropriate test plugs/switches for testing the operation of the relay.
- (d) Have targets to indicate relay operation.

It is the **Requester's** responsibility to determine that their internal protective equipment coordinates with the required EKPC protective equipment and is adequate to meet all applicable standards to which the generation is subject. EKPC further reserves the right to modify relay settings when deemed necessary to avoid safety hazards to utility personnel or the public and to prevent any disturbance, impairment, or interference with EKPC's ability to serve other customers.

The following items should be coordinated with each other

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- Volts/Hz and overexcitation protection/limiting.
- Loss-of-excitation and underexcitation limiting.

5.4 Power System Stabilizer

A Power System Stabilizer (PSS) is required to be installed, tuned, and activated with the excitation system for all new synchronous generators connected to the EKPC transmission system.

For generators already connected to the EKPC system that do not presently have a PSS, a PSS must be retrofitted when the excitation system or voltage regulator is replaced. These retrofitted stabilizers must be tuned and activated unless EKPC determines this is not necessary. If EKPC identifies a need for a PSS for an existing generating unit, the generator owner may be required to procure, install, tune, and activate a PSS.

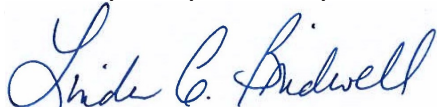
The PSS is expected to be an accelerating power delta-P-omega type. Other types that are functionally equivalent may be accepted on a case-by-case basis.

The generation owner will be responsible for the analysis, procurement, installation, tuning, and testing of the exciter and stabilizer controls for optimum performance. The generator owner must ensure that all necessary studies and field tests are performed to determine the optimum PSS settings prior to commercial operation of the generating unit. EKPC shall perform (or contract to have performed on its behalf) other relevant studies, and shall coordinate with the generator owner and the equipment vendor to establish reliable settings for the PSS. The PSS tuning test documentation – including the PSS dynamic model and final settings – shall be provided to EKPC for its review prior to the commencement of commercial operations for new generating units. For existing generating units that are retrofitted with a PSS, the documentation shall be provided when the testing of the PSS is complete.

If future system conditions change significantly, EKPC may require the generator owner to reset the PSS parameters to more appropriate settings to preserve the overall reliability of the transmission system.

A PSS may be taken out of service for scheduled maintenance only with EKPC's prior approval. The generator owner will be required to take the PSS out of service if EKPC identifies transmission system operating conditions during which the operation of the PSS would adversely affect the stability of the transmission system or its connected generators. If a PSS is removed from service or is not capable of automatic operation, the generator owner shall immediately notify EKPC. Operating limits may be applied in such limitations identified by EKPC.

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If system studies or field experience do not show need for a PSS, EKPC may waive these requirements for generators rated at 50 MVA or less, or for generators connected at 69 kV or below. These requirements will not be waived for any generating units at a single generating station with total rated output greater than 300 MVA.

5.5 Remote Relay Access

All new facilities, or upgrades to existing facilities, should use digital relays with fault recording capabilities. All digital relays, used for protection of EKPC transmission facilities, shall have the capability of recording system disturbance information and EKPC shall be allowed access to all relay records.

5.6 Relay and Equipment Data

At least three (3) months prior to the in-service date, the following data shall be received by EKPC. If the data is not available three months prior to the in-service date, the **Requester** shall provide estimates based on their design information. Such data shall be identified as "estimated" and replaced with actual data by the **Requester** as it becomes available prior to installation.

The purpose of the data to be provided to EKPC by the **Requester** is to ensure proper coordination to protect against equipment or facility damage, to mitigate safety hazards to utility personnel and the public, and to minimize disturbances, impairment, or interference with EKPC's ability to serve other transmission system users.

5.6.1 Data on Equipment to be installed

- (a) Interrupting Devices and Relays - Complete manufacturer's data for interrupting devices and relays or fuses used for the protection of the EKPC system and/or the generation.
- (b) Power Transformers - Complete nameplate or test sheet data, including manufacturer, serial number, high- and low-side voltage taps, kVA ratings, impedance, load loss and no load loss watts, high- and low-side voltage winding connections, low-side voltage winding grounding (if used), and high voltage inrush current.
- (c) Power Capacitors – Location, KV, and KVAR rating of capacitor banks, number of units, and bank configuration.

5.6.2 Additional Data on the Generation Protection Equipment

- (a) Including make-before-break transfer switches, fuses, breakers, relays, relay settings associated with the proposed gen

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- (b) Complete manufacturer's data and specifications for make-before-break transfer switches, including transfer times and conditions of transfer, testing procedures, equipment schematics, and backup protection.

5.6.3 Final Generator Data

- (a) Type (synchronous, induction, DC with solid-state inverter, etc.)
- (b) Nameplate data and ratings, including any rectifying, regulating, or inverting equipment.
- (c) Harmonic content at full rated output
- (d) Detailed Dynamic Performance Data in accordance with Appendix A.
- (e) Real and Reactive capabilities at scheduled voltages.

6.0 Revenue Metering and Telemetry Requirements (R2.1.6)

6.1 Revenue Metering

EKPC approved revenue class metering equipment shall be installed at the delivery point to meter the aggregated load of the connected facility consisting of instantaneous bi-directional real and reactive power and integrated hourly real and reactive energy metering.

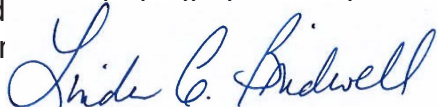
The metering equipment will include potential and current transformers, meters and test switches. The accuracy of the instrument transformers will be 0.3 percent or better. The secondary wiring and burdens of the instrument transformers will be configured so that they do not degrade the total accuracy by more than 0.3 percent. The metering equipment should meet or exceed accuracy class 0.2 and will be tested periodically as defined in the service agreement and the test results will be available to all involved parties. The meters, test switches and wiring termination equipment will be sealed and the seal may be broken only when the meters are to be tested, adjusted or repaired. Proper authorities from both parties will be notified when seals are broken.

Three metering elements will be used to measure all real and reactive power crossing the metering point. Bi-directional energy flows including watt-hour and var-hour will be separately measured on an hourly basis. Appropriate demand quantities will be metered in terms of kilowatts, kilovars or kilovolt-amperes. If required, voltage measurements will be provided.

The instrument transformers used for revenue metering shall be installed on the high voltage side of the **Requester's** step-down transformer. Under special circumstances but only with written approval granted by EKPC, revenue metering may be performed on the low voltage side of the step-down transformer. Written approval shall only be given if the **Requester** can demonstrate that transformer loss compensation will be programmed in

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when instrument transformers are installed on the low voltage side of the step-down transformer.

6.2 Telemetry

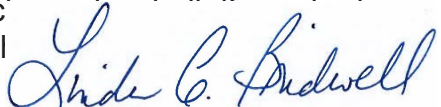
Suitable telemetry equipment will be installed at the metering point to provide real-time telemetry data to EKPC and to all other participating parties.

Telemetry equipment will include transducers, remote terminal units, modems, telecommunication lines, and any other equipment of the same or better function. The remote terminal unit, or equivalent device, must have multiple communication ports to allow simultaneous communications with all participating parties. That device will accommodate data communication requirements specified by each participating parties control center, including communication protocol, rate and mode (either synchronous or asynchronous). All metered values provided to the telemetry equipment will originate from common metering equipment. All transducers used for telemetry will have at least 0.2 percent accuracy. As part of real-time data to be provided, EKPC has the right to require the status and remote control of switching devices at the Receipt and/or Delivery Points.

A continuous, accumulating record of megawatt-hours and megavar-hours will be provided by means of the registers on the meter. Freezing accumulation data for transmission will be taken every clock hour. The freezing signals must be provided by only one agreed-upon party. If the freeze signal is not received within a predefined time window, the remote terminal unit, or equivalent device, will be capable of freezing data with its own internal clock.

The metering, if external power supply is required, and telemetry equipment will be powered from a reliable power source, such as a station control battery, in order to allow the equipment to be continuously operational under any abnormal power supply situations. Proper surge protection will be provided for each communication link to protect communication hardware from ground-potential-rise due to any fault conditions. A separate communication media shall be provided to allow EKPC to remotely retrieve billing quantities from the meters. When real-time telemetry is required, a back-up data link must be provided in case of the outage of the primary telemetry line. The back-up link can be a data communication link between involved control centers; the party requesting service is responsible for furnishing the back-up link.

At the discretion of EKPC, generation control facilities and supervisory control and data acquisition of specific electrical devices from the EKPC Control Center may be necessary to integrate the generation into EKPC's control area. Such additional facilities, including required communication c... be furnished and installed by the **Requester**. TI

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acquisition and control will depend on the generation capacity, system location and voltage, and the net generation input into EKPC System.

Data acquisition and control information will typically include, but not be limited to:

- (a) desired generation MW set point
- (b) automatic generation control status (on,off)
- (c) generator availability
- (d) generation MW, Mvar output
- (e) generator minimum and base MW capability
- (f) generator MW AGC high limit and low limit
- (g) connection facilities' breaker status/control/alarms
- (h) connection facilities' MW and Mvar line values and bus voltage
- (i) generator and substation metering (MWh) data

7.0 Grounding and Safety (R2.1.7)

7.1 Ground System Resistance

The grounding system should be designed in accordance with IEEE Standard 80 - latest revision, "IEEE Guide for Safety in AC Substation Grounding." In evaluating the step and touch potential the target body weight value should be set to 50 kg. If a reasonable grounding design is unobtainable using the 50 kgs, then consider a body weight of 70 kg as the absolute minimum allowable.

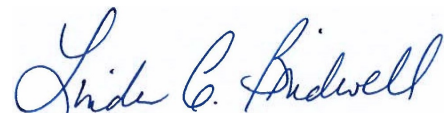
Ground fault levels from EKPC sources will be provided as needed for **Requester's** ground grid analysis. **Requester** equipment ground sources can contribute significant fault current independent of the ground fault values on EKPC's System. These **Requester** ground sources should be considered in the design of the grounding system.

If the facility structure is to be wood-pole type construction, the transmission line overhead ground wire, all switch bases, fuse bases, and other noncurrent-carrying metal parts shall be grounded to the station grid. See Appendix C for grounding installations.

7.2 Electrical Safety Clearances (Outdoor)

Electric facility design clearances are listed in the table in Appendix B. These design clearances should be used for electrical facilities up to and including any interrupting device connected directly to an EKPC transmission line and for all facilities that are part of the EKPC transmission system.

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The minimum vertical clearance of the conductors above ground and the vertical and horizontal clearance of conductors passing by but not attached to a building or wall shall be in accordance with the NESC or applicable state and local codes.

7.3 Facility Fence Safety Clearances

The fence safety clearances in the **Requester's** facility shall comply with Section 11 of ANSI C2-1997, "National Electrical Safety Code."

8.0 Insulation and Insulation Coordination (R2.1.8)

8.1 Insulators for Station

Required station post insulator types are listed in [Appendix B](#). Facilities in areas with significant airborne pollution may require a higher insulation level. Higher strength insulators are available and should be used if needed to meet bus momentary short circuit withstand values. Other requirements may be necessary due to atmospheric, geological, seismic, or environmental conditions and will be discussed during the design phase of the project.

8.2 Equipment Basic Insulation Levels

The minimum Basic Insulation Levels (BIL) for Equipment are listed in Appendix B. Facilities in areas with significant airborne pollution may require a higher insulation level.

9.0 Voltage, Reactive Power, and Power Factor (R2.1.9)


The NERC Reliability Standards state that distribution entities and customers connected directly to the transmission systems should plan and design their systems to operate at close to unity power factor to minimize the reactive power burden on the transmission systems. The EKPC interpretation of "close to unity power factor" is that the power factor of the connected load should be within the range of 0.95 lagging to 0.98 leading.

Unless otherwise restricted by Retail Tariffs, the maximum hourly reactive power (kVAr) demand, both leading and lagging, will be identified each month at the delivery point(s). An **End-User** will incur no charges for power factor if the maximum lagging kVAr demands do not exceed 33% of the real power (kW) demand or maximum leading kVAr demands do not exceed 20% of the real power (kW) demand in the same time interval. If the maximum hourly leading and/or lagging kVAr demands exceed these values, charges will be assessed. The charges will be based on the applicable state or FERC filed tariff.

Capacitors generally provide an effective means of con a **Requester's** facility. However, there are several

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addressed in applying capacitors. These factors can include, but are not limited to, transient voltages due to capacitor switching and voltage amplification due to resonance conditions. The services of a qualified consultant should be obtained to review the specific application and provide recommendations in regard to control of these phenomena.

For **Transmission Interconnections**, EKPC will evaluate whether the connection to the EKPC system creates a significant reactive burden. Potential reactive flows across the new Transmission Interconnection will be assessed for a wide range of conditions. Voltages in the vicinity of the Transmission Interconnection will also be assessed to identify potential degradation on the EKPC system. The **Requester** will be responsible for addressing any voltage or reactive flow issues that are created as a result of a proposed **Transmission Interconnection**.

All facilities interconnected to the EKPC transmission system should have the tap ranges and self-regulation necessary to accommodate the transmission system's reactive power flow requirements.

9.1 Generation Power Factor Requirements

The Interconnection Customer shall design its Generating Facility to maintain a composite power delivery at continuous rated power output at the Point of Interconnection at a power factor within the range of 0.95 leading to 0.95 lagging.

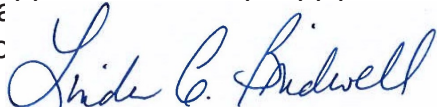
If an engineering study demonstrates that the Generating Facility cannot meet the reactive supply requirements, the Generating Facility must install power factor correction devices to support the VAR requirements in the local area.

9.2 Generation Voltage Schedules

All generators must contribute reactive power to the transmission system in order to maintain the reliability of the transmission system. NERC Planning Standards require that Generator Owners and Transmission Providers work jointly to optimize the use of reactive power capability. Therefore, all generators interconnected with the EKPC transmission system are required to maintain a prescribed voltage schedule in order to support VAR requirements in the local area.

The generation facility must be capable of continuous non interrupted operation at a specified voltage setpoint that is within a steady-state voltage range during both system normal and single-contingency conditions. This range is from 91.7% to 105.8%. During emergency and/or transient-system conditions, when voltage may temporarily be outside of this range, all reasons taken to avoid tripping the generator due to high or low

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design (e.g., transformer ratings/taps/impedance, cooling systems, generator/exciter ratings) should not limit continuous reactive capability.

EKPC's transmission system is designed to operate between 90% and 105% of nominal voltage during normal and single-contingency conditions. If the requirements of the Facility Owner's equipment is more restrictive than these limits, the installation of voltage regulation devices by the Facility Owner should be considered.

Specification of the generator voltage schedule will be provided to the interconnected generating facility by EKPC's System Operator. EKPC will exercise reasonable efforts to provide the Interconnection Customer with such schedules at least one (1) day in advance, and may make changes to such schedules as necessary to maintain the reliability of the transmission system. A steady-state deviation from this schedule between +2.5% and -2.5% of the voltage setpoint will be permissible.

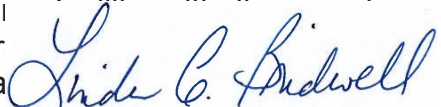
Once the Interconnection Customer has synchronized the generating facility with the transmission system, EKPC will require the Interconnection Customer to operate the generating facility to produce or absorb reactive power within the design limitations set forth above. EKPC's voltage schedules will treat all sources of reactive power in the Control Area in an equitable and not unduly discriminatory manner. The Interconnection Customer shall operate the generating facility to maintain the specified output voltage (or power factor, if appropriate) at the Point of Interconnection within the design limitations of the generating facility set forth above. This may require operation of the interconnected Generating Facility to its maximum reactive capability when necessary to maintain the specified voltage schedule. If the Interconnection Customer is unable to maintain the specified voltage (or power factor), it shall promptly notify EKPC's System Operators.

For generators with output at or above 20 MW, the generator must have an Automatic Voltage Regulator (AVR) capable of maintaining the generator output voltage within limits (generally +/- 5%) for generator loading from no-load up to rated output.

All synchronous generators connected to the EKPC transmission system shall be equipped with speed governing capability. This governing capability shall be unhindered in its operation.

Whenever the generating facility is operated in parallel with the transmission system, and the speed governors (if installed on the generating unit pursuant to Good Utility Practice) and voltage regulators are capable of operation, the Interconnection Customer shall operate the generating facility's speed governors and voltage regulators in automatic operation.

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automatic operation, the Interconnection Customer shall immediately notify EKPC's System Operator, or its designated representative, and ensure that such generating facility's reactive power production or absorption (measured in MVARs) are within the design capability of the generating facility's generating unit(s) and steady state stability limits.

EKPC typically specifies voltage regulation at the terminals of an interconnected generator. However, voltage regulator load compensation may be required to control voltage at a point beyond the generator terminals for a new generator interconnected to the EKPC transmission system. All appropriate excitation system settings of an Interconnected Generator must be coordinated with EKPC.

The Interconnection Customer shall not cause its generating facility to disconnect automatically or instantaneously from the transmission system or trip any generating unit comprising the generating facility for an under-frequency or over-frequency condition unless the abnormal frequency condition persists for a time period beyond the limits set forth in ANSI/IEEE Standard C37.106, or such other standard as applied to other generators in the EKPC Control Area on a comparable basis.

The Customer shall provide a current-limiting device for the generating unit's excitation system that will act in conjunction with, or supersede, the AVR to automatically reduce excitation so that generator field current is maintained at the allowable limit in the event of sustained undervoltages on the transmission system. This device must not prevent the exciter from going to and remaining at the positive ceiling following the inception of a fault on the power system. The amount of time that the exciter is allowed to remain at the positive ceiling shall be provided to EKPC upon request.

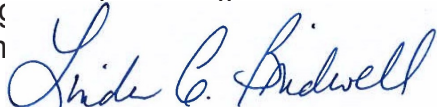
The Customer shall equip the generating unit with a limiter to prevent instability resulting from generator underexcitation.

EKPC studies may identify the need for the use of Power System Stabilizers (PSS) depending on the generating facility output capability, excitation system type and settings, facility location, area transmission configuration, or other factors. This will be determined on a case-by-case basis.

The Customer shall coordinate the Generator Step-Up (GSU) and auxiliary transformer impedances and tap specifications with EKPC. EKPC may require the Customer to change these values either prior to connection or after the generating facility has become operational to meet voltage schedule and/or reactive support requirements, as warranted by transmission system analyses.

The Customer shall ensure that the full range of capability is available for applicable normal and emergency ranges.

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The requirements for generators contained in this Section 9 applies to all generating facilities with a total gross rated output in excess of 20 MW. EKPC may require generating facilities below this threshold to provide reactive support capability on a case-by-case basis.

10.0 Power Quality Impacts (R2.1.10)

Power quality studies will be performed, as deemed necessary by EKPC, to define acceptable operating ranges and limits. Studies may include, but not be limited to the following design parameters:

- Harmonic Distortion
- Voltage Fluctuation
- Voltage Flicker
- Sensitive Electrical Equipment
- Transformer Protective Devices
- Unbalanced Electrical Conditions
- Subsynchronous Torsional Interaction
- Transient Overvoltage
- Temporary Overvoltage
- Temporary Undervoltage
- Operating Frequency
- Interruption/Outage Frequency

Studies may identify additional equipment necessary to meet power quality standards.

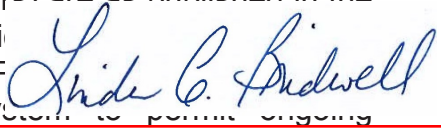
Connection of a generator, transmission facility, or end-user load to EKPC transmission system should not unacceptably compromise or degrade the power quality for existing EKPC customers.

Installation of power quality monitoring equipment by EKPC may be required to verify compliance with EKPC’s power quality performance requirements.

10.1 Harmonic Distortion, Voltage Fluctuations and Voltage Flicker

Certain electrical equipment located at the **Requester’s** facility (arc furnaces, cycloconverters, etc.) will generate voltage flicker and harmonic distortion, which can negatively impact the EKPC system. Should this be the case, the Requester shall take responsibility, initially or in the future, for limiting interfering levels of harmonic voltage, current distortion, and/or voltage flicker. Limits for harmonic distortion (including inductive telephone influence factors) are as published in the latest issues of ANSI/IEEE 519, "Recommended Practice for Harmonic Control in Electrical Power Systems." EKPC, in the future, require the installation of a monitoring system to permit ongoing

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assessment of compliance with these criteria. The monitoring system, if required, will be installed at the **Requester's** expense.

Situations where high harmonic voltages and/or currents originate from the transmission system are to be addressed in the Connection Agreement.

EKPC will evaluate requests for **Transmission Interconnection** to identify potential unacceptable voltage flicker and/or harmonic distortion that would be created by the **Transmission Interconnection**. The Requester will be responsible for any mitigation that is required.

Voltage flicker limits are as specified in IEEE Standard 141-1993. Voltage fluctuation limits are as specified in the applicable IEC-61000 set of standards. Steady-state voltages should remain within the voltage limits prescribed in Section 3.0.

10.2 Sensitive Electrical Equipment

Certain electrical equipment in the **Requester's** facility may be sensitive to normally occurring electric interference from nearby connected loads in the **Requester's** facility, from other **End-Users** connected to the power system, from natural causes, and system switching, etc. If sensitive electrical equipment is to be supplied directly from the electric power system, **Requester** or **Requester's** consultant should examine the equipment grounding requirements and power supply requirements prior to installation. Attention should be given to equipment tolerance to various forms of electric interference, including voltage sags and surges, momentary outages, transients, current and voltage harmonic distortion, or other electrical and electromechanical noise. When electrical disturbances to sensitive electrical equipment such as computers, electronics, controls, and communication equipment cannot be tolerated, the **End-User** shall install additional equipment as may be necessary to prevent equipment malfunctions and protect against equipment failure. The **End-User** should consult the supplier of such sensitive electrical equipment regarding the power supply requirements or the remedial measures to be taken to alleviate potential misoperation or failure of the equipment. The **End-User** may need to hire a power quality consultant to also perform a site survey of the electric power supply environment and furnish recommendations to provide the acceptable levels of reliability and quality of service.

10.3 Transformer Protective Devices

EKPC has typically installed circuit switchers or circuit breakers on the high side of transmission/step-down transformers.

The use of a remote tripping (transfer trip) system to trip breaker(s) to isolate an End-User's transformer will r

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primary protection scheme, but may be considered as a back up system to the circuit switcher or breaker. Transfer trip systems must include a local isolating motor operated air break switch to permit remote terminal circuit breakers to reclose and return the transmission line to service. Remote tripping systems will only be considered where continuity of service of the line is not critical.

A grounding switch installation designed to place faults on the system and isolate a fault in the transmission/step-down transformer is not to be applied to the EKPC system. Ground switches cause objectionable voltage sags and momentary interruptions to the other EKPC End-Users and unnecessary stresses to the power system.

10.4 Unbalanced Electrical Conditions

Situations where high unbalance, in voltage and/or current, originate from the transmission system are to be addressed in the Connection Agreement.

10.4.1 Voltage Balance

Voltage unbalance attributable to the **End-User** facilities shall not exceed 1.0% measured at the point-of-service. Voltage unbalance is defined as the maximum phase deviation from average as specified in ANSI C84.1, "American National Standard for Electric Power Systems and Equipment – Voltage Ratings, 60 Hertz."

10.4.2 Current Balance


Phase current unbalance attributable to the **End-User** facility shall not exceed that which would exist with balanced equipment in service, measured at the point-of-common coupling. In no event should current unbalance exceed 5% measured at the point of delivery.

10.5 Subsynchronous Torsional Interaction

Certain **End-User** equipment, in particular electric arc furnaces and cycloconverters, may cause adverse interactions and possible damage to existing turbine-generators located in close electrical proximity. These situations will be analyzed by EKPC, or EKPC's consultant, and appropriate corrective or preventive measures identified as needed. Corrective and preventive measures may consist of torsional current monitoring at a defined point of compliance, special protective relaying on the turbine-generator shaft(s), or constrained operation of the **End-User** equipment under certain system configurations. Costs of studies and the design and installation of protective and/or monitoring equipment shall be the responsibility of the **Requester**.

10.6 Transient and Temporary Overvoltages

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The design of facilities connected to the EKPC transmission system must address the mitigation of transient and temporary overvoltages that may be caused by lightning strikes, faults, breaker switching, etc. A facility connected to the EKPC transmission system shall not cause a peak transient voltage at the Interconnection Point that is 140% or more of the nominal system voltage. Furthermore, a facility connected to the EKPC transmission system shall not cause a peak temporary (lasting greater than 20 milliseconds) voltage at the Interconnection Point that is 120% or more of the nominal system voltage.

10.7 Temporary Undervoltages

A facility connected to the EKPC transmission system should not result in more than two occurrences in a 12-month period of a voltage level at the Interconnection Point that remains at 85% or less of the nominal system voltage for more than 20 milliseconds. During non-fault conditions, the voltage at the Interconnection Point should be at least 92% at all times.

10.8 Operating Frequency

The nominal operating frequency of the EKPC transmission system is 60 Hz. Operation of any Facility connected to the EKPC system shall be designed for this frequency. The Facility should not contribute to any variation from this frequency. As discussed in section 5.2, an End-User Facility may be required to participate in EKPC’s automatic load-shedding program. EKPC will also assess the impacts of Generation and Transmission facilities on system frequency to ensure that adequate protection exists to prevent significant frequency excursions from nominal system frequency.

10.9 Interruption/Outage Frequency

EKPC operates and maintains its system to provide reliable and safe service at all times. Connection of a Facility to the EKPC system requires that connected equipment not restrict timely outage coordination, automatic switching, or equipment maintenance scheduling. If a Facility is determined to present a potential risk to the reliability of the EKPC transmission system, additional switchgear, equipment redundancy, or bypass capabilities at the Interconnected Facility may be required.

The Interconnected Facility shall not cause an unplanned interruption/outage of another facility on the EKPC system more than once in any twelve-month period.

11.0 Equipment Ratings (R2.1.11)

For tap and looped connections, the **Requester’s** associated equipment, such as breakers, switches

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conductors shall have continuous, long-term emergency, short-term emergency, and momentary asymmetrical current ratings which: (1) do not limit the EKPC transmission system network capability and (2) have adequate capability for the initial and future system conditions identified by EKPC. All substations connected to the EKPC system shall meet the requirements of EKPC's substation design and construction standards, and must be designed to the applicable requirements of NESC, ANSI, and IEEE Standards. All interrupting devices, such as circuit breakers shall have interrupting capability sufficient to satisfactorily interrupt the maximum short-circuit currents that may occur at the location of the interconnection, including margin for circuit-breaker duty and DC offset. Where the substation becomes a facility within the intercepted path, EKPC shall design, construct, own, and maintain the facility at the Customer's expense.

For transmission lines interconnecting into EKPC's facilities, transmission line ratings shall meet the requirements of EKPC's transmission line design standards, including MVA, operating voltage, ampacity, insulation critical flashover, insulation clearances, shielding, tower grounding, and short circuit withstand requirements. In all cases the National Electric Safety Code (NESC) and OSHA requirements shall be satisfied. The Requester shall make available to EKPC all drawings and specifications, termination plans, and equipment ratings.

The effects resulting from wind storms, floods, lightning, altitude, temperature extremes, and/or earthquakes shall be considered in the design and operation of a facility connected to the EKPC system. Depending on the location, size, type, etc., of the facility, EKPC may impose additional requirements to be met by the owner/operator.

EKPC, as a borrower from the Rural Utilities Service (RUS), must comply with all RUS regulations, including following the NEPA environmental clearance processes. Any Project involving connection the the EKPC transmission system must follow these regulations.

Any equipment changes on the EKPC transmission system necessitated by connection of a new facility to the EKPC system will be performed by EKPC at the expense of the owner of the new facility requesting interconnection to the EKPC system. The proposed facility may not be allowed to connect to the EKPC system, or the facility's operations may be restricted, until any EKPC system limitations have been addressed.

12.0 Synchronizing Systems (R2.1.12)

All **Requester's** facilities, which include include trans End Users with backup generation and all Genera independent voltage support or power supply, shall ha

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or check for synchronism of the facility with the EKPC system. Connection or reclosing of the facility shall not be allowed for out-of-sync conditions to protect the EKPC and **Requester's** systems from damage or loss of stability. Remote synchronizing to the EKPC system will be acceptable provided the Requester have adequate synch check equipment installed, and approved by EKPC, at their facility.

The **Requester** shall assume all responsibility for properly synchronizing their generation for operation with the EKPC Transmission System. Upon loss of the EKPC supply, the **Requester** shall immediately and positively cause the generation to be separated from the EKPC system. Synchronizing of generation to the EKPC Transmission System may be, at EKPC's discretion, performed under the direction of the EKPC Control Center.


13.0 Maintenance Coordination and Scheduled Outages (R2.1.13)

The Requester is to consult and coordinate with an EKPC Operations Engineer on all requests for outages to a Requester's facility that affects the EKPC Transmission System. Outage requests should be made according to the schedule outlined in [EKPC's Outage Submission and Coordination document](#). After approval of the Requester's outage request by the Operations Engineer and, if applicable, the TVA Reliability Coordinator (RC), the Transmission Operator will follow [EKPC's Lock Out and Tag Out Procedure](#) to provide switching instructions to field personnel, issue Hold Cards and/or Caution Orders, and to issue safety working clearances to field personnel.

All **Requester** owned equipment up to and including the first protective fault interrupting device is to be maintained to EKPC standards. This may include substation equipment such as circuit breakers, circuit switchers, power fuses, instrument transformers, switches, surge arresters, bushings, relays, and associated equipment (including DC systems, grounding systems, etc.). Any **Requester** owned transmission line and its associated parts – up to the first fault interrupting device must also be maintained to EKPC standards. Detailed maintenance procedures shall be provided on request. EKPC is required to follow NERC Standard PRC-005 to maintain all equipment necessary to protect the system.

The **Requester** shall have an organization, approved by EKPC, test and maintain all devices and control schemes provided by the **Requester** for the protection of the EKPC system. Included in the testing and maintenance will be any initial set up, calibration, and check out of the required protective devices, periodic routine testing and maintenance, and any testing and maintenance necessary for an upgrade or changeout of the protective devices initiated by a **Requester** or EKPC.

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If the **Requester's** testing and maintenance program is not performed in accordance with EKPC's maintenance requirements, EKPC reserves the rights to inspect, test, or maintain the protective devices required for the protection of the EKPC System.

All costs associated with the testing and maintenance of devices provided by the **Requester** for the protection of the EKPC system, including costs incurred by EKPC in performing any necessary tests or inspections, shall be the responsibility of the **Requester**.

EKPC reserves the right to approve the testing and maintenance practices of a **Requester** when the **End-User's** system is operated as a network with the EKPC transmission system.

The owner/operator of a facility connected to the EKPC transmission system is responsible for the regularly scheduled calibration and/or maintenance of its equipment, including, but not limited to generators, circuit breakers, power transformers, protective relays, revenue metering, communications devices, trip circuits, interrupters, DC power sources, grounding systems, and transmission facilities. Maintenance practices should be consistent with Good Utility Practice, and should be performed at a level that ensures the reliability and continuity of service of the interconnected transmission system. All relevant maintenance records should be maintained and provided to EKPC within 15 business days of a request.

14.0 Operational Issues (R2.1.14)

Operational issues on EKPC's system, either during normal or emergency conditions, may affect EKPC's control performance. Under certain conditions the **Requester** may have to install disturbance monitoring and/or control equipment as appropriate and detailed in section 5.

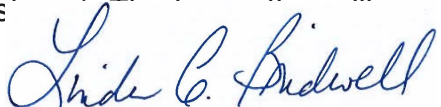
15.0 Inspection Requirements (R2.1.15)

The **Requester** is responsible for installing appropriate equipment and facilities to be compatible with the EKPC Transmission System. The **Requester** is also responsible for meeting any applicable federal, state, and local codes.

Before a **Requester** owned facility can be energized, it must pass a final inspection by EKPC personnel. EKPC will inspect all substation equipment from the point of interconnection to the first protective fault interrupting device and the ground system. This may include circuit breakers, circuit switchers, power fuses, instrument transformers, switches, surge arresters, bushings, and relays, and associated equipment (including DC and grounding systems). Inspections shall consist of a visual inspection of all major equipment as

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test results. Nameplate information on all equipment will need to be recorded and given to EKPC prior to final inspection.

The ground system must be checked before any overhead ground wires are attached from outside lines, by using the resistance measurement procedures in accordance with IEEE Standard 81 "Recommended Guide for Measuring Ground Resistance and Potential Gradients in the Earth." The EKPC inspection will be documented by completing a site-specific form supplied by EKPC. An example of the form, showing the types of information required is shown in [Appendix D](#).

EKPC should be allowed access, upon notification, to **Requester's** facility for any requirement related to NERC standards, which may need to be reported. Details of access and notification can be determined when agreement is reached.

16.0 Communications (R2.1.16)


For any abnormal system operational issues, emergency telephone numbers agreed on by both parties will be available prior to the actual interconnection date. Under no circumstance shall a **Requester** energize EKPC transmission facilities that have been de-energized without the consent from EKPC Control Center. Circuits that are electrically disconnected from the EKPC transmission system and are energized by a **Requester** constitute a potential safety hazard for both EKPC transmission personnel and the general public. Also, the energizing of such circuits at abnormal voltage or frequency could cause damage to electrical equipment of both the EKPC Transmission System and the generation.

The **Requester** is responsible for operating its generation with full regard for the safe practices of, and with full cooperation under the supervision of the EKPC Control Center.

16.1 Voice Communications

A. Normal – At EKPC's request, the **Requester** shall provide a dedicated voice communication circuit to the EKPC Control Center. Such a dedicated voice communication circuit would originate from the **Requester's** office staffed 24 hours a day and would be typically required for connected transmission facilities that significantly affect the EKPC transmission network capacity and operations.

All other normal voice communication concerning facility operations shall be conducted through the public telephone network to the Control Center phone number(s) issued by EKPC.

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B. Emergency – Voice communications in the event of a transmission facility emergency shall use the dedicated voice circuits, if available, or public telephone network and phone number(s) designated for emergency use.

It is the **Requester’s** responsibility to take prudent steps when an area or system wide capacity emergency is declared. Load reductions shall be implemented by reducing non-essential loads. This type of reduction is usually conveyed through the local media. If the **Requester** has generating units EKPC’s Control Center may give specific instructions regarding the operation of the **Requester’s** units, depending on the nature of the emergency.

The **End-User’s** EKPC representative is responsible for providing the EKPC Control Center a “customer contact list.” This listing contains the **End-User’s** EKPC representative and backup person as well as their business, home and pager numbers.

These **End-Users** shall be provided an unlisted phone number to be used for emergency or routine operations. Operational emergencies (equipment) warrant a direct call either way.

16.2 Interruptible Contracts

Owners of transmission facilities that have an EKPC interruptible contract shall install communication facilities with the EKPC Control Center as specified in the contract.

16.3 Emergency Operating Conditions


End-User’s facilities may be subject to EKPC’s System Restoration Plan that can require interruption of load to deal with generation deficiencies and/or transmission system emergencies. It is noted that interrupting of load will only be done in extreme conditions that would result in a more serious degradation of system performance than if the load were not shed.

17.0 Coordination with Other Codes, Standards, and Agencies

The information contained in this document is supplementary to and does not intentionally conflict with or supersede the National Electric Code (NEC) as approved by the American National Standards Institute (ANSI) or such federal, state and municipal laws, ordinances, rules or regulations as may be in force within the cities, towns or communities in which EKPC furnishes electric service. It is the responsibility of the **Interconnection** or **End-User** to conform to all applicable national, state and local laws, ordinances, rules, regulations, codes, etc.

18.0 Indemnification

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The use and reliance upon the information contained in this document shall in no way relieve the **Requester** or **Facility Owner** from the responsibility to meet NEC, NESC, ANSI, etc. requirements governing their design, construction, operation, and materials or from responsibility for the protection and safety of the general public.

The **Requester**, for itself, its successors, assigns and subcontractors agrees to pay, indemnify and save East Kentucky Power Cooperative, its successors and assigns, harmless from and against any and all court cost and litigation expenses, including legal fees, incurred or related to the defense of any action asserted by any person or persons for bodily injuries, death or property damage arising or in any manner growing out of the use and reliance upon the information provided by EKPC. Reliance upon this information shall not relieve the **Interconnection** or **End-User** from responsibility for the protection and safety of the general public.

Parties wishing to connect to the EKPC transmission system shall agree to the following terms to be included in any Interconnection Agreement:



Indemnity by (Entity)

(Entity) agrees to defend, indemnify and hold harmless EKPC, its directors, officers, employees and agents, from any and all damage, loss, claim, demand, suit, liability, penalty, or forfeiture of every kind and nature- including but not limited to attorney fees and other costs and expenses of defending against the same and payment of any settlement or judgment therefore, by reason of a) injuries or deaths to persons, (b) damages to, destruction of or interference with the use of properties, (c) pollutions, contaminations of or other adverse effects on the environment or (d) violations of governmental laws, regulations, or orders-whether suffered directly by EKPC itself or indirectly by reason of claims, demands or suits against it by third parties, resulting or alleged to have resulted from: acts or omissions of (Entity), its employees, agents, subcontractors or other representatives or from their presence on the premise of EKPC; from adverse impacts on EKPC's system, or other connected systems resulting from (Entity's) design, construction or operations of its facilities; or otherwise from performance of this Interconnection Agreement.

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APPENDIX A

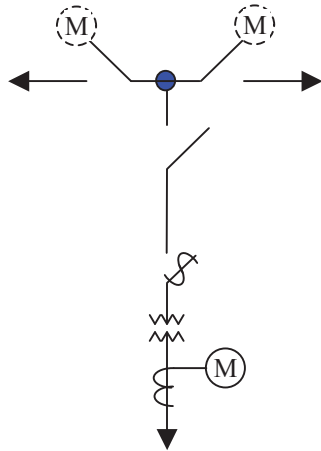
Figure 1 --Typical Transmission Tap Line Supply Configurations

Figure 2 – Typical Transmission Looped Supply Configurations (138 and 161 kV)

Figure 3 – Typical Transmission Looped Supply Configurations (345 kV)



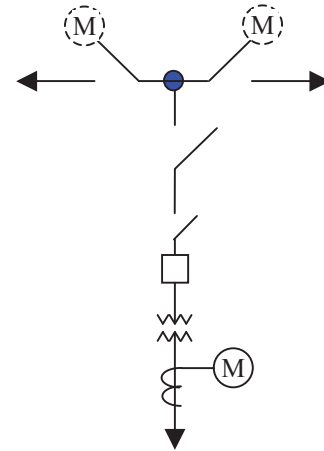
FIGURE 1 Typical Transmission Tap Line Supply Configurations



Transformers Under 10 MVA

Can Use Fuse Protection or Breaker Protection.

69 kV and below only.




Transformers at 10 MVA or Larger And All Above 69 kV

Provide Circuit Breaker or Circuit Switcher Protection

- (1) EHV End-User generally owns the step-down transformer
- (2) EHV End-User Metering is typically installed on the low-side of the step-down transformer and compensated to the high-side to cover losses.
- (3) All EHV and most >69 kV will have all facilities in a substation environment.
- (4) Tap configurations without breaker(s) may not be suitable for some EKPC lines.

----- Optional or Future

 Metering

 Motor Operated Air Break Switch

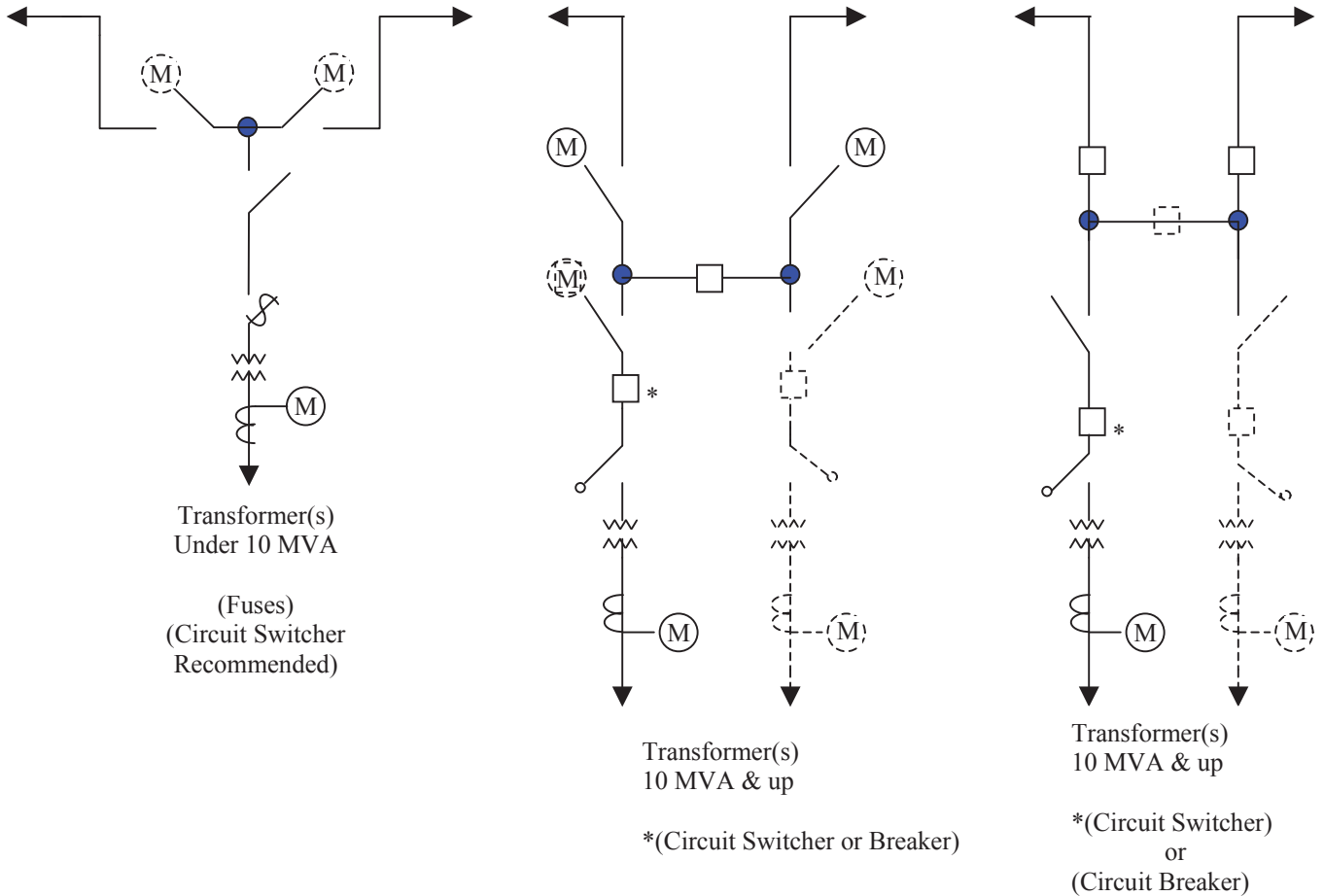
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**FIGURE 2 Typical Transmission Looped Supply Configurations
(for 138 and 161 kV)**



 Motor Operated Air Break Switch

----- Optional or Future

 Metering

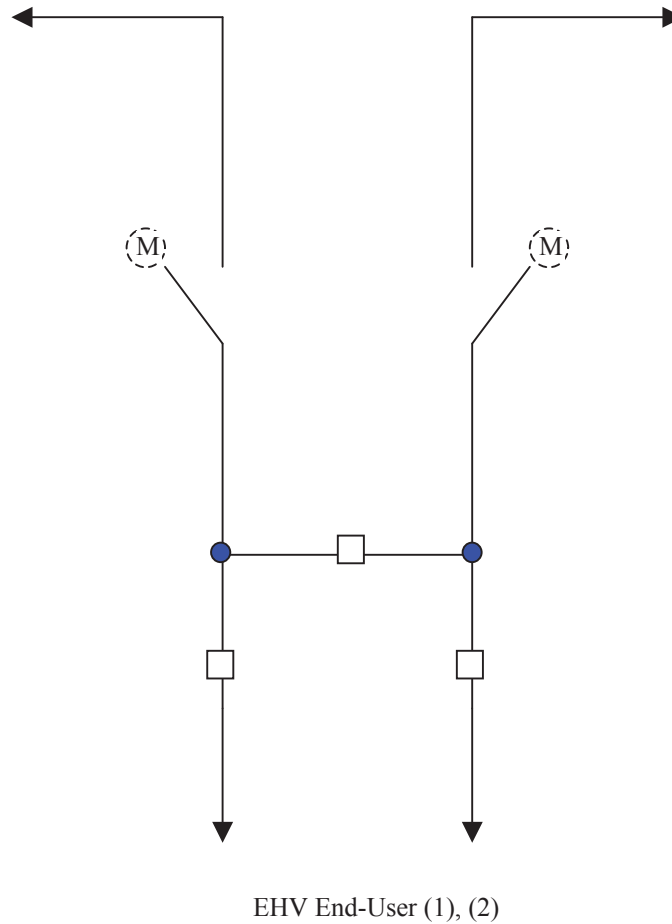
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**FIGURE 3 Typical Transmission Looped Supply Configurations
(for 345 kV)**



----- Optional or Future

(M) Motor Operated Air Break Switch

- (1) EHV End-User generally owns the step-down transformer.
- (2) EHV End-User Metering is typically installed on the low-side of the Step-down transformer and compensated to the high-side to cover losses.
- (3) All EHV switches and other equipment are to be in a substation.

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APPENDIX B

Electrical Clearances and Equipment Ratings



NOTE:

INSERT APPENDIX B TABLE IN PLACE OF THIS PAGE

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APPENDIX C

Switch Operator and Transmission Grounding Installations

[Figure 1 – TM-9C Drawing](#)

[Figure 2 – TM-9SP Drawing](#)

[Figure 3 – TM-9R Drawing](#)

[Figure 4 – TM-9RH Drawing](#)

[Figure 5 – TM-9HSP Drawing](#)

[Figure 6 – TM-9R3P Drawing](#)

[Figure 7 – TM-9-3SP Drawing](#)



APPENDIX C

Switch Operator and Transmission Grounding Installations

Reference to Drawings

All structures shall be grounded as shown on the TM-9SP or TM-9R and TM-9C drawings and subject to the following provisions.

Structure Grounding

1. East Kentucky Power (EKP) may require that ground resistance measurements be made for each structure and that additional grounding be added to that already provided by the basic structure grounding assemblies.
2. Where structure grounding tests are required by EKP the Installer shall measure the ground resistance after the structure is erected, but before the overhead ground wire is installed. The method of measuring ground resistance shall be subject to the approval of EKP.
3. All labor and materials for ground resistance measurement and installation of additional grounding shall be provided by the Installer.
4. The Installer shall install counterpoise only after approval of EKP.

Bonding of Ground Wire

1. The pole wire shall be continuous and not spliced from top of pole to the pole butt grounding assembly. Should damage occur during erection of the structure, the pole ground wire may be spliced only with EKP approval.
2. Hardware shall be bonded to the pole ground wire as shown on the drawings. The ground wire shall clear any un-bonded hardware by at least 3 inches.

Special Requirements

1. Installer shall follow the EKP Single Pole or Two Pole Ground Configuration Procedures in order to achieve an acceptable grounding system.
2. Additional measures beyond the above procedures may be required in difficult locations. This may require special Engineering assessments.



NOTE:

INSERT THE FOLLOWING IN PLACE OF THIS SHEET:

Drawings: TM-9C, TM-9R, TM-9RH, TM-9HSP, TM-9R3P, TM-9SP, TM-9-3SP

Grounding instructions sheets Titled:

Single pole "X" Configuration
Two Pole Grounding Configuration

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APPENDIX D

Inspection Requirements



Appendix D

**CONNECTING FACILITY
Electrical Facility Checkout Guide**

ITEM	ACTION/INFORMATION	BY	DATE
1. Facility Ground Resistance	Review Test Results	_____	_____
2. Air break and Disconnect Switch Alignment			
<i>a. Switch Device Number</i>	_____ Visual Inspection	_____	_____
<i>b. Switch Device Number</i>	_____ Visual Inspection	_____	_____
<i>c. Switch Device Number</i>	_____ Visual Inspection	_____	_____
<i>d. Switch Device Number</i>	_____ Visual Inspection	_____	_____
<i>e. Switch Device Number</i>	_____ Visual Inspection	_____	_____
<i>f. Switch Device Number</i>	_____ Visual Inspection	_____	_____
3. Circuit Breakers			
a. _____ kV Circuit Breaker <i>Device Number</i> _____			
1. Gas Filled	Visual Inspection	_____	_____
2. Timing Test	Review Test Results	_____	_____
3. Digital Low R Ohmmeter	Review Test Results	_____	_____
4. Doble Test	Review Test Results	_____	_____
5. CT Ration & Polarity	Review Test Results	_____	_____
6. Breaker Alarms	Detailed Inspection	_____	_____
4. Circuit Switcher			
a. _____ kV Circuit Switcher <i>Device Number</i> _____			
1. Hipot Test	Review Test Results	_____	_____
2. Timing Test	Review Test Results	_____	_____
3. Digital Low R Ohmmeter	Review Test Results	_____	_____
5. Fuses			
a. _____ kV Fuses <i>Device number</i> _____			
1. Rating/Type	Visual Inspection	_____	_____
2. Air Flow Test	Review Test Results	_____	_____
6. Power Transformer			
a. _____ kV Transformer <i>Device Number</i> _____			
1. CT Ratio & Polarity	Review Test Results	_____	_____

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- 2. Doble Tests Review Test Results _____
- 3. TTR Tests (all Taps) Review Test Results _____
- 4. Megger Tests Review Test Results _____
- 5. Oil and DGA Tests Review Test Results _____

7. CCVT/VT

a. ___ kV *Circuit/Line Name* _____ *Device Number* _____

- 1. Doble Test Review Test Results _____
- 2. Potential Polarizing Test Review Test Results _____
- 3. Ration & Polarity Test Review Test Results _____

b. ___ kV CCVT/VT *Device Number* _____

- 1. Doble Test Review Test Results _____
- 2. Potential Polarizing Test Review Test Results _____
- 3. Ratio & Polarizing Test Review Test Results _____

8. Phasing

a. _____ kV BUS *Number* _____

9. Batteries and Charger

a. _____ V DC Battery and Charger

- 1. Battery Acceptable Review Test Results _____
- 2. Intercall Resistance Test Review Test Results _____
- 3. Charger Settings Review Test Results _____
- 4. Ground Detector Review Test Results _____

10. SCADA

a. Function Test with Dispatch/Control Center

- 1. Control Detailed Inspection _____
- 2. Indication Detailed Inspection _____
- 3. Alarms Detailed Inspection _____


b. Metering Detailed Inspection _____

c. Telemetry

- 1. Signal Levels Review Test Results _____
- 2. Calibrations Review Test Results _____

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11. Relay and control Schematics

- a. _____ kV Circuit Breaker *Device Number* _____
 - 1. Correct Settings Applied Review Test Results _____ _____
 - 2. Calibration Test Review Test Results _____ _____
 - 3. Trip Test Detailed Inspection _____ _____
 - 4. In-Service Load Angles Detailed Inspection _____ _____
 - 5. Remote Relay Communication Detailed Inspection _____ _____

- b. Annunciators and Alarms
 - 1. Set Undervoltage & Time
 Delay Relays Review Test Results _____ _____
 - 2. Function Tested Review Test Results _____ _____

12. Miscellaneous

- a. Arresters
 - 1. Sized Correctly Visual Inspection _____ _____
 - 2. Located Properly Visual Inspection _____ _____

- b. Clearance
 - 1. Bus to Ground Visual Inspection _____ _____
 - 2. Bus to Bus Visual Inspection _____ _____
 - 3. Bus to Steel Visual Inspection _____ _____

- c. Conductors
 - 1. Sized Adequately Visual Inspection _____ _____
 - 2. Connected Properly Visual Inspection _____ _____

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Schedule C – Power Purchase Rates

I. Initial Rates

- A. Capacity will equal EKPC’s non-dispatchable rate as set forth in its Cogeneration and Small Power Production Power Purchase Rate Schedule Over 100 kW from Non-Dispatchable Generation Sources. For the current year, said rate is \$0 per kW.
- B. QF will be paid monthly for the electric power produced by non-dispatchable generation facilities and purchased by EKPC at the value of the real-time locational marginal price for energy set by PJM at the EKPC zonal node during each hour of the day at the time of delivery. The payment will be offset by a market administration fee of \$0.00016 per kWh to cover EKPC's market participation costs.

II. Subsequent Rate Changes

Upon the one year anniversary date of the Authorization Date of the Agreement, and on each anniversary date thereafter, the rates for Capacity and Energy set forth above shall be reset based upon the rates set forth in EKPC’s Cogeneration and Small Power Production Power Purchase Rate Schedule Over 100 kW as it is then in effect on each such anniversary date that the Agreement remains in effect.



Schedule D – Monthly Backup Service and Reactive Support Charges

Not applicable.



Schedule E – Interconnection Service Charges

I. Monthly Interconnection Service Charge

NOT APPLICABLE

II. Distribution Cooperative Transmission Service Charges

Owen charges for providing transmission service shall be recovered in accordance with Section 6.06 of the Interconnection Manual and Attachment 6 thereto.

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Joseph Zaino

Sep 8, 2023 | 13:10 EDT

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Heiko Schneider

Sep 8, 2023 | 15:32 EDT

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Linda C. Bridwell

Sep 15, 2023 | 11:00 EDT

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**KENTUCKY
PUBLIC SERVICE COMMISSION**

Linda C. Bridwell
Executive Director



EFFECTIVE

11/1/2023

PURSUANT TO 807 KAR 5:011 SECTION 9 (1)