MCPHERSON BOARD OF PUBLIC UTILITIES

BOARD POLICY

INTERCONNECTION STANDARDS FOR INSTALLATION AND OPERATION OF CUSTOMER-OWNED DISTRIBUTED ENERGY SYSTEM

Effective July 1, 2025

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PART I. OVERVIEW

1. PURPOSE:

The purpose of this document is to establish standards for eligible customers ("Customer") to interconnect and operate Customer-owned Distributed Generation Facilities within the Board of Public Utilities, City of McPherson, KS ("Utility") Electric Distribution System. The Utility retains the full right to amend, supplement or otherwise change these standards from time to time in its sole reasonable discretion.

2. DEFINITIONS:

a. **AC**—Alternating Current

b. **Applicable Laws and Regulations** – All duly promulgated applicable federal, state, and local laws. Regulations, rules, ordinances, codes, decrees, judgments, directives, judicial or administrative orders, permits and other duly authorized actions of any Governmental Authority, including the Board of Public Utilities' Electric Service Schedule(s) and Terms and Conditions as amended from time to time.

c. **City** – The City of McPherson, KS

d. **Customer** – An electric customer interconnected to the Electric Distribution System for the purpose of receiving retail electric service that also owns and operates an approved Generation Facility.

e. **DC** – Direct Current

f. **Electric Distribution System** – The Utility facilities and equipment used to provide electric service to customers, including the Customer.

g. **Distributed Energy System**– For purposes of these interconnection Standards, means the device or assembly of devices and supporting facilities that are capable of feeding excess electric power generated by a customer's energy producing system into the utility's system, such that all energy output and all other services will be fully consumed by the customer or the utility, and as identified in the Interconnection Application, that:

(1) Is an inverter-based energy facility;

(2) Is owned by the Customer;

(3) Is located on the Customer's premises;

(4) Serves only the Customer's premises (serves no other customers);

(5) Is interconnected with and operates in parallel phase and synchronization with the Electric Distribution System and is in compliance with these Interconnection Standards;

(6) Contains a Utility-approved mechanism(s) that automatically disconnects the Distributed Energy System and interrupts the flow of power to the Electric Distribution System in the event that electric service to the Customer is interrupted; and

(7) Is appropriately sized for such Customer's anticipated electric load;

(8) Meets all the following export capacity limitations for appropriately sized:

A. Divide the Customer's historic consumption in kilowatt hours for the previous 12-month period by 8,760 and divide such quotient by a capacity factor of 0.288, rounded up to the nearest one kilowatt alternating current power increment.

B. If the Customer does not have historic consumption data that adequately reflects the Customer's consumption at such premises, the Customer's historic consumption for the previous 12-month period shall be 7.15 kilowatt-hours per square foot of conditioned space, rounded up to the nearest one kilowatt alternating current power increment.

C. The Utility may limit the export capacity of additional Distributed Energy Systems to be connected to the Utility's system due to the capacity of the distribution line to which such Distributed Energy System will be connected.

(9) Electrical service at a voltage less than 34 kilovolts.

h. **Governmental Authority** – Any federal, state, local or other governmental regulatory or administrative agency, court, commission, department, board, or other governmental subdivision, legislature, rulemaking board, tribunal, or other governmental authority having jurisdiction over the Parties, their respective facilities, or the respective services they provide, and exercising or entitled to exercise any administrative, executive, police, or taxing authority or power; provided, however, that such term does not include the Customer or any Affiliate thereof. To the extent the Utility is exercising authority granted by Charter Ordinances of the City of McPherson, Kansas, such action shall constitute Governmental Authority.

i. **Harmonic Distortion** – Distortion of the normal AC sine wave typically caused by non-linear loads or inverters.

j. **Initial Operation Date** – The date on which the Distributed Energy System is operating and is in compliance with the requirements of these Interconnection Standards for Installation and Operation of Customer-Owned Distributed Generation Facilities as determined by the Utility.

k. **Interconnection** – The point of common coupling (PCC) of a Distributed Energy System to the Utility Electric Distribution System.

l. **Interconnection Application** – The Customer request to interconnect a new Distributed Energy System, or to increase the capacity of, or make a material modification to the operating characteristics of an existing Distributed Energy System that is interconnected with the Electric Distribution System.

m. **Interconnection Standards** – Interconnection Standards shall mean all provisions, forms and related documents described in the collective parts of these Interconnection Standards for Installation and Operation of Customer-Owned Distributed Generation Systems, or successor document.

n. **Metering Point** – The Utility electric meter as shown on the one-line diagram accompanying the Customer's Interconnection Application.

o. **Party** – Individually the Utility and the Customer; collectively the "Parties."

p. **Prudent Utility Practice** – Any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Prudent 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 by the electric utility industry.

q. **Reasonable Efforts** – With respect to an action required to be attempted or taken by a Party under the Interconnection Agreement, efforts that are timely and consistent with Prudent Utility Practice and are otherwise substantially equivalent to those a Party would use to protect its own interests.

r. **Electric Rate Schedule** – Any applicable Electric Rate Schedule based on the customers service type.

s. **System Upgrades** – Additions, modifications, improvements, and upgrades to the Electric Distribution System or Customer Service connections at or beyond the point of interconnection to make ready the Distributed Energy System.

t. **Utility** – Board of Public Utilities, City of McPherson, KS.

u. **Voltage Flicker** – A variation of voltage sufficient in duration to allow visual observation of a change in electric light source intensity, per IEEE 1455.

3. ELIGIBILITY:

a. Must be an electric customer with a Customer-owned inverter-based Distributed Energy System as defined herein that is interconnected behind the meter (connected to the customer side of the electric meter or meters) and single-phase standard voltage or three phase standard voltage as provided by the utility furnished through a single bidirectional electric meter capable of recording the flow of electricity in each direction. Specific metering shall be at Utility discretion.

b. Customer's utility account must be in good standing and in compliance with Utility Electric Rate Schedules and Terms and Conditions.

c. A Distributed Energy System that does not meet all requirements is not eligible to interconnect with the Electric Distribution System under this Interconnection Agreement.

(1) The General Manager may grant approval based upon the other criteria herein. This approval will be contingent of the results from the Feasibility Analysis and System Impact Study as described herein.

4. INTERCONNECTION REQUEST:

The Customer shall request interconnection of a Distributed Energy System by completing and submitting to the Utility the attached document entitled "Interconnection Application." The utility shall acknowledge receipt of such application within 30 days following receipt. The Utility may require additional information or clarification to evaluate the Customer Interconnection Request. Interconnection Applications will be reviewed by the Utility in the order in which they are received. Within 90 calendar days following receipt of such request or application, if an Interconnection Application is viewed as deficient, incomplete or otherwise not otherwise ready for review, the Utility will provide notice to the Customer that the Application is incomplete or inconsistent and the application does not meet the interconnection standard, provide a description of the information needed to perfect the Application, and include a statement that processing of the Application cannot begin until the Application is sufficient. If one or more additional studies are required, a Utility shall not be subject to such 90-day deadline but shall provide the applicant with an estimated time frame for action on such application and act on such application as soon as practicable after any such studies are completed.

5. ELECTRIC DISTRIBUTION SYSTEM IMPACT ANALYSIS:

The purpose of the Distribution System Impact Analysis is to determine if the Distributed Energy System will have an adverse impact on the Electric Distribution System equipment. If the proposed Distributed Energy System meets all the requirements in a. through k. below, it will not be necessary to prepare a Feasibility Analysis, and the proposed Distributed Energy System may be installed without further analysis. After receiving a properly completed Interconnection Application, the Utility will analyze the potential impact of the proposed Distributed Energy System on the Electric Distribution System and on other Utility customers. Such analyses will be based on Prudent Utility Practice to determine thermal effects, voltage ranges, power quality, system stability, etc., and will include the following:

a. The Customer Distributed Energy System's proposed interconnection point is on a distribution circuit and not a transmission line.

b. The proposed Distributed Energy System complies with IEEE 1547 and UL 1741 or successor standards.

c. The proposed Distributed Energy System's capacity in aggregation with other generation on the distribution circuit shall not exceed 10 percent (10%) of the total circuit peak demand (kW) as most recently measured at the substation during the previous 12-month period; nor shall it exceed 10 percent (10%) of a distribution circuit line section annual peak demand (kW).

d. The proposed Distributed Energy System, in aggregation with other generation on the distribution circuit, shall not contribute more than 10 percent (10%) to the distribution circuit's maximum fault current at the point on the primary voltage distribution line nearest the proposed interconnection point.

e. The proposed Distributed Energy System, in aggregation with other generation located on the distribution circuit, may not cause any distribution protective devices and equipment (including substation breakers, fuse cutouts, and line reclosers, or other customer equipment) on the electric distribution system to be exposed to fault currents exceeding 85 percent (85%) of the short circuit interrupting capability.

f. No additional Distributed Energy Systems shall be interconnected on a circuit that equals or exceeds 85 percent (85%) of its short circuit interrupting capability.

g. No new Distributed Energy System shall be interconnected that would cause the total interconnected Customer-owned Generating capacity to exceed the Utility's historical peak demand, as follows:

(1) Commencing on July 1, 2025, 6% of the utility's historic peak demand;
(2) commencing on July 1, 2026, 7% of the utility's historic peak demand; and

(3) commencing on July 1, 2027, and each year thereafter, 8% of the utility's historic peak demand.

h. When a proposed Distributed Energy System is single-phase and is to be interconnected on a center tap neutral on a 240-volt service, its addition shall not create an imbalance between the two sides of the 240-volt service of more than 20 percent of the nameplate rating of the service transformer. No 120-volt system is allowed.

i. The proposed Distributed Energy System installation must be certified to pass an applicable non-islanding test or use reverse power relays or other means to meet IEEE 1547 unintentional islanding requirements.

j. A review of the type of electrical service provided to the Customer, including line configuration, and the transformer connection, will be conducted to limit the potential for creating over voltages on the Electric Distribution System due to a loss of ground during the operation time of any anti-islanding function.

k. When the proposed Distributed Energy System is to be interconnected on a single-phase shared secondary line, the aggregate generation capacity on the shared secondary line, including the proposed Distributed Energy System, shall not exceed ten kilowatts (10 kWAC).

Feasibility Analysis

If the proposed Distributed Energy System fails to meet one or more of the above requirements, the Customer may request that the Utility complete an analysis to determine the feasibility of interconnecting the proposed Distributed Energy System to the Electric Distribution System. The Feasibility Analysis shall include:

a. Initial identification of any upstream protection device short-circuits capability limits exceeded as a result of the interconnection.

b. Initial identification of any thermal overload or voltage limit violations resulting from the interconnection.

c. Initial review of grounding requirements and system protection.

d. A description and nonbinding estimated cost of facilities required to interconnect the Distributed Energy System to the Electric Distribution System in a safe and reliable manner.

The actual cost of the Feasibility Analysis shall be paid by the Customer but directly contracted between the Utility and the third party acceptable to the Utility. The Utility will provide an estimated cost of the Feasibility Analysis to the Customer and the Customer

shall advance 100% of such estimate to Utility. When Feasibility Analysis cost exceeds the estimated cost, Utility shall bill Customer as such fees are incurred.

System Impact Study

If the Feasibility Analysis concludes that interconnection of the proposed Distributed Energy System would create an adverse system impact, a System Impact Study is required.

A System Impact Study shall evaluate the impact of the proposed Distributed Energy System interconnection on the safety and reliability of the Electric Distribution system. The study shall:

a. Identify and detail the system impacts that result if the proposed Distributed Energy System is interconnected without project or system modifications.

b. Consider the adverse system impacts or potential impacts identified in the Feasibility Analysis.

c. Consider all Distributed Energy Systems that, on the date the System Impact Study commenced, are directly interconnected with the Electric Distribution System.

d. Consider pending Interconnection Applications of Distributed Energy Systems requesting interconnection to the Electric Distribution System.

The System Impact Study shall consider the following criteria:

(1) A load flow study.
(2) A short circuit analysis.
(3) A stability analysis.
(4) Voltage drop and flicker studies.
(5) Protection and set point coordination studies.
(6) Grounding reviews.

The Utility shall state the underlying assumptions of the Study and share the results of the analyses with the Customer, including the following:

(1) Any potential impediments to providing the requested interconnection service.

(2) Any required Electric Distribution System Make Ready and the estimated cost and time to engineer and construct said System Make Ready.

The actual cost of the System Impact Study shall be paid by the Customer but directly contracted between the Utility and the third party acceptable to the Utility. The Utility will provide an estimated cost of the System Impact Study to the Customer and the Customer shall advance 100% of such estimate to the Utility. When System Impact Study cost exceeds the estimated cost, the Utility shall bill Customer as such fees are incurred.

6. **SYSTEM MAKE READY:** The Utility shall not be obligated to make upgrades or improvements to its Electric Distribution System to accommodate the Customer's Distributed Energy System. Where System Upgrades are required prior to interconnection of the Distributed Energy System as identified in the System Impact Study, the Utility will provide the Customer with an estimated schedule and the Customer's cost for said System Upgrades.

7. **INTERCONNECTION AGREEMENT:** After the Customer and the Utility have identified and mutually agreed on the project scope including the Distributed Energy System, System Upgrades, and estimated costs (if any), the Customer and the Utility shall execute the attached document entitled "Interconnection Agreement." The Interconnection Agreement shall be between the Utility and the Customer and shall not include third parties. Prior to commencement of System Upgrades required to allow interconnection of the Customer-owned Distributed Energy System, Customer shall deposit with the Utility an amount equal to the estimated cost of said System Upgrades. See "Section 4. Interconnection Costs" of the Interconnection Agreement (Part 4) for additional information.

   In the event the System Upgrades are sold, transferred, experiences a change in control or otherwise is assigned to a new party or entity, the Interconnection Agreement will automatically terminate, and the System Upgrades will be disconnected from the System unless the new owner agrees in writing to the terms of the Interconnection Agreement and agrees to perform all duties thereunder.

8. **CODES AND PERMITS:**

   a. The Customer shall be responsible for procuring and complying with all building, operating, environmental or other permits for the Distributed Energy System and for the necessary ancillary structures to be installed that are required by any Governmental Authority having jurisdiction.

   b. The Distributed Energy System and interconnecting equipment shall meet all requirements in "Part 2. Technical Requirements" of these Interconnection Standards.

   c. The construction and facilities shall meet all applicable building and electrical codes.

9. **CERTIFICATE OF COMPLETION:** Upon completion of the Distributed Energy System and prior to the Initial Operation Date of said Facility, the Customer shall complete and submit a signed copy of the attached document entitled "Certificate of Completion."

10. **NORMAL OPERATION:** The Customer may begin initial operation of the Distributed Energy System upon receipt of written approval from the Utility.

PART II. TECHNICAL REQUIREMENTS

1. **CHARACTER OF SERVICE:**
   The electric service as defined by the applicable Electrical Service Schedule that would apply if the Customer did not have an interconnected Distributed Energy System.

2. **CODE REQUIREMENTS:**
   The Distributed Energy System shall meet all requirements established by the National Electrical Code (NEC), National Electrical Safety Code (NESC), Institute of Electrical and Electronics Engineers (IEEE), Underwriters Laboratories (UL), and the Occupational Safety and Health Administration. Specific applicable codes are shown in Section 9 of this Part 2 below as "Standards for Interconnection, Safety and Operating Reliability."

3. **DISTRIBUTED ENERGY SYSTEM CONTROL:**
   The control system of the Distributed Energy System shall comply with IEEE and UL specifications and standards for operation with the Electric Distribution System and in particular as follows:

   a. Power output control system shall automatically disconnect from the Electric Distribution System upon loss of System voltage and shall not reconnect until System voltage has been restored.

   b. Power output control system shall automatically disconnect from the Electric Distribution System if System voltage fluctuates beyond plus or minus ten percent (10%).

   c. Power output control system shall automatically disconnect from the Electric Distribution System if the generator fails to operate within the operating frequency range of 59.3 – 60.5 Hz.

   d. Inverter output Harmonic Distortion shall meet IEEE and UL standards.

   e. The Distributed Energy System shall meet applicable IEEE and UL standards concerning impacts to the Electric Distribution System with regard to Harmonic Distortion, Voltage Flicker, power factor, direct current injection and electromagnetic interference.

4. **LIMITS SPECIFIC TO <u>SINGLE-PHASE</u> DISTRIBUTED ENERGY SYSTEM:**
   When connected to a single-phase transformer, the Distributed Energy System must be installed such that the aggregated gross output is balanced between the two phases of the single-phase voltage and the maximum aggregated Gross Ratings for all the Distributed Energy Systems shall not exceed the transformer rating.

LIMITS SPECIFIC TO <u>THREE-PHASE</u> DISTRIBUTED ENERGY SYSTEM:
The applicant must balance the demand load and the Distributed Energy System as nearly as practical between all phases of a three-phase service. The difference in amperes between any two phases at the customer's peak load should not be greater than 10 percent or 50 amperes (at the service delivery voltage), whichever is greater; except that the difference between the load on the lighting phase of a four-wire delta service and the load on the power phase may be more than these limits. It will be the responsibility of the customer to keep the demand load balanced within these limits.

5. SYSTEM PROTECTION:
The owner of the Customer-owned Distributed Energy System is responsible for providing adequate protection to electric Utility facilities for conditions arising from the operation of generation under all Utility distribution system operating conditions. The owner is also responsible for providing adequate protection to its facility under any Utility distribution system operating condition whether or not its Distributed Energy System is in operation. Conditions may include but are not limited to:

a. Loss of a single phase of supply,

b. Distribution system faults,

c. Equipment failures,

d. Abnormal voltage or frequency,

e. Lightning and switching surges,

f. Excessive harmonic voltages,

g. Excessive negative sequence voltages,

h. Separation from supply,

i. Synchronizing generation,

j. Re-synchronizing the Owner's generation after electric restoration of the supply.

6. FAULT CURRENT DISCONNECTION:
The Distributed Energy System shall be equipped with protective equipment designed to automatically disconnect from the Electric Distribution System during fault current conditions and remain disconnected until System voltage and frequency have stabilized.

7. RECLOSING COORDINATION:

The Distributed Energy System shall be coordinated with Electric Distribution System reclosing devices by disconnecting from the Electric Distribution System during de-energized Electric Distribution System operation. The Distributed Energy System shall remain disconnected until System voltage and frequency have stabilized, as determined by the Utility.

8. EXTERNAL GENERATOR AC DISCONNECT SWITCH:

The Customer shall install an external alternating current (AC) disconnect switch within six (6) feet of the Utility electric meter(s) that is visible and readily accessible to Utility representatives at all times. This switch shall be clearly labeled as "Generator AC Disconnect Switch." The switch shall be capable of being locked in an open position and shall prevent the Distributed Energy System from supplying power to the Electric Distribution System while in the open position.

9. STANDARDS FOR INTERCONNECTION, SAFETY AND OPERATING RELIABILITY:

The interconnection of a Distributed Energy System and associated equipment to the Electric Distribution System shall meet the applicable provisions of the following publications, all amendments or successor standards: **[This list is intended for the customer and its solar installer.]**

a. ANSI/IEEE1547-2018 Standard for Interconnecting Distributed Resources with Electric Power Systems (including use of IEEE 1547.1 testing protocols to establish conformity). The following standards shall be used as guidance in applying IEEE 1547:

(1) IEEE Standard 519-2022, IEEE Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems

(2) IEC/TR3 61000-3-7 Assessment of emission limits for fluctuating loads in MV and HV power systems

(3) UL 1741 Standard for Inverters, Converters and Controllers for Use in Independent Power Systems

(4) ANSI/NFPA 70 (2023), National Electrical Code

(5) OSHA (29 CFR § 1910.269)

(6) IEEE Standard 929-2000, *IEEE Recommended Practice for Utility Interface of Photovoltaic (PV) Systems*

(7) IEEE Standard C37.90.1-2012, IEEE *Standard Surge Withstand Capability (SWC) Tests for Protective Relays and Relay Systems*

(8) IEEE Standard C37.90.2 (2004), *IEEE Standard Withstand Capability of Relay Systems to Radiated Electromagnetic Interference from Transceivers*

(9) IEEE Standard C37.108-2021, IEEE Guide for the Protection of Network Transformers

(10) IEEE Standard C57.12.44-2014, IEEE Standard Requirements for Secondary Network Protectors

(11) IEEE Standard C62.41.2-2002, *IEEE Recommended Practice on Characterization of Surges in Low Voltage (1000V and Less) AC Power Circuits*

(12) IEEE Standard C62.45-2002, *IEEE Recommended Practice on Surge Testing for Equipment Connected to Low-Voltage (1000V and Less) AC Power Circuits*

(13) IEEE Standard 100-2000, IEEE Standard Dictionary of Electrical and Electronic Terms

(14) ANSI C84.1-2020 *Electric Power Systems and Equipment – Voltage Ratings (60 Hertz)*

(15) NEMA MG 1-1998, Motors and Generators, Revision 3 (2002)

(16) IEEE Standard 2030.2-2015, Guide for the Interoperability of Energy Storage Systems Integrated with the Electric Power Infrastructure (Including use of IEEE 2030.3 testing protocols to establish conformity).

In the event any standard needs to be interpreted in the context of the Utilities' System or the System Upgrades, the reasonable interpretation of the Utility shall be binding.

10. ACCESS AND INSPECTION BY UTILITY:

Customer will provide the Utility a time to inspect the Distributed Energy System prior to its interconnection before approval for Initial Operation. Utility will witness initial testing and commissioning of the Generation Facility. The Utility will witness any commissioning tests required by IEEE 1547/UL 1741.

Following initial testing and inspection of the Distributed Energy System and upon reasonable advance notice to Customer, the Utility shall have access at all reasonable times to the Distributed Energy System to perform on-site inspections to verify that the installation, maintenance, and operation of the Distributed Energy System complies with the requirements of these Interconnection Standards. The Utility cost of such inspection(s) shall be at Utility expense; however, the Utility shall not be responsible for

any cost Customer may incur as a result of such inspection(s). Upon written request, Customer shall inform the Utility of the next scheduled maintenance and allow the Utility to witness the maintenance program and any associated testing. The Utility shall at all times have immediate access to the external Generator AC Disconnect Switch to isolate the Distributed Energy System from the Electric Distribution System.

11. DISTRIBUTED ENERGY SYSTEM OPERATION:

a. Customer shall install, operate, and maintain, at Customer's sole cost and expense, the Distributed Energy Systemin accordance with the manufacturer's suggested practices for safe, efficient and reliable operation of the Distributed Energy Systemin parallel with the Electric Distribution System. Customer shall bear full responsibility for the installation, maintenance and safe operation of the Distributed Energy System. Upon request from the Utility, Customer shall supply copies of periodic test reports or inspection logs, which may be requested annually.

b. Customer shall be responsible for protecting, at Customer's sole cost and expense, the Distributed Energy System from any condition or disturbance on the Electric Distribution System, including, but not limited to, voltage sags or swells, system faults, outages, loss of a single phase of supply, equipment failures, and lightning or switching surges.

c. Customer agrees that, without prior written permission from the Utility, no changes shall be made to the configuration of the Distributed Energy System as approved by the Utility, and no relay or other control or protection settings shall be set, reset, adjusted or tampered with, except to the extent necessary to verify that the Distributed Energy System complies with Utility-approved settings.

d. Customer shall operate the Distributed Energy System in such a manner as not to cause undue voltage fluctuations, power quality issues, intermittent load fluctuation characteristics or to otherwise interfere with the operation of the Electric Distribution System. At all times when the Distributed Energy System is operated in parallel with the Electric Distribution System, Customer shall operate said Distributed Energy System in such a manner that no disturbance will be produced thereby to the service rendered by the Utility to any of its other customers or to any electric system interconnected with the Electric Distribution System. Customer understands and agrees that the interconnection and operation of the Distributed Energy System pursuant to these Interconnection Standards is secondary to, and shall not reduce the safety, quality, or reliability of electric service provided by the Utility.

e. Customer's control equipment for the Distributed Energy System shall immediately, completely, and automatically disconnect and isolate the Distributed Energy System from the Electric Distribution System in the event of a fault on the Electric Distribution

System, a fault on Customer's electric system, or loss of a source or sources on the Electric Distribution System. The automatic disconnecting device included in such control equipment shall not be capable of reclosing until after service is restored on the Electric Distribution System. Additionally, if the fault is on Customer's electric system, such automatic disconnecting device shall not be reclosed until after the fault is isolated from the Customer's electric system.

12. RIGHT TO DISCONNECT DISTRIBUTED ENERGY SYSTEM:

The Utility shall have the right and authority to disconnect and isolate the Distributed Energy System without notice at Utility's sole discretion if the Utility believes that any of the following has occurred or is occurring:

a. Electric service to Customer's premises is discontinued for any reason.

b. Adverse electrical effects (such as power quality problems) on the Electric Distribution System and/or the electrical equipment of other Utility customers attributed to the Distributed Energy System as determined by the Utility.

c. Electric Distribution System emergencies or maintenance requirements

d. Hazardous conditions existing on the Electric Distribution System as a result of the operation of the Distributed Energy System or protective equipment

e. (Intentionally left blank.)

f. Utility identification of uninspected or unapproved equipment or modifications to the Distributed Energy System after initial approval.

g. Recurring abnormal operation, substandard operation, or inadequate maintenance of the Distributed Energy System which the Utility reasonably concludes is detrimental to its System, other customers, or safety.

h. Noncompliance with the obligations under the Interconnection Agreement. In non-emergency situations, the Utility shall give Customer notice of noncompliance including a description of the specific noncompliance condition and allow Customer ninety (90) days to cure the noncompliance prior to disconnecting and isolating the Distributed Energy System.

i. Failure to remit payment to the Utility for any amounts owed, including but not limited to, amounts invoiced pursuant to Paragraph 15 of this Agreement.

j. In the event that the Utility disconnects the Distributed Energy System for routine maintenance, the Utility shall make reasonable efforts to reconnect the Distributed Energy System as soon as practicable.

k. The Customer retains the option to temporarily disconnect its Distributed Energy System from the Electric Distribution System at any time. Customer shall immediately notify the Utility of such disconnection. Such temporary disconnection shall not constitute termination of the Interconnection Agreement unless the Customer exercises its termination rights under Section 16 of Part II. Customer shall notify the Utility when the Distributed Energy System will be reconnected and the Utility shall be afforded a reasonable opportunity to witness test the reconnection.

13. RATES AND OTHER CHARGES:

a. Customer must participate in the appropriate rate schedule as a condition of interconnecting with a Customer-owned Distributed Energy System.

b. Customer must have a Service Agreement with the Utility or complete and submit to the Utility a Service Agreement. The Utility shall not approve a Customer-owned Distributed Energy System Interconnection Application that does not have an existing Service Agreement or has submitted for a Service Agreement.

c. Terms and Conditions of service are contained in the Interconnection Standards for Interconnection Standards for Installation and Operation of Customer- Owned Distributed Energy Facilities.

d. Customer must participate in the electric Utility's appropriate rate schedule if the customer wishes to receive credit for any excess energy generated by the customer and delivered to the Utility.

14. LIMITATION OF LIABILITY AND INDEMNIFICATION:

a. **Limitation of Liability**
Each Party's liability to the other Party for any loss, cost, claim, injury, liability, or expense relating to or arising from any act or omission in its performance of the Interconnection Agreement, shall be limited to the amount of direct damage actually incurred. In no event shall the Utility or the City of McPherson, KS be liable for any indirect, special, consequential, or punitive damages.

b. **Indemnity**
Customer assumes all liability for, and shall indemnify, defend and hold the Utility and the City of McPherson, KS harmless from, any and all claims, losses, costs, and expenses of any kind or character, direct or indirect, including claims and actions relating to injury to or death of any person or damage to property, demand, suits, recoveries, costs and expenses, court costs, attorney fees, labor costs, and all other obligations by or to third parties arising out of or resulting from the design, construction, operation or maintenance of the Distributed Energy System, or the

Customer's actions or omissions in breach of its obligations under the Interconnection Agreement. Such indemnity shall include, but is not limited to, financial responsibility for: (a) Utility monetary losses; (b) reasonable costs and expenses of defending an action or claim made by a third party; (c) damages related to the death or injury of a third party; (d) damages to Utility property; (e) damages to the property of a third party; (f) damages for the disruption of the business of a third party. The limitations of liability provided in this paragraph do not apply in cases of gross negligence or intentional wrongdoing. If the Utility or the City of incurs any costs as to which the indemnity provided in this section applies, the Utility or City of McPherson, KS shall invoice the Customer for such costs in writing. Customer shall remit payment to the Utility or the City of McPherson, KS, as appropriate, within 45 calendar days of the date of such invoice.

15. EFFECTIVE TERM AND TERMINATION RIGHTS:

The Interconnection Agreement shall become effective when executed by both Parties and shall continue in effect until terminated in accordance with the provisions of this Section. The Interconnection Agreement may be terminated for the following reasons:

a. Electric service to Customer's premises is discontinued for any reason. If electric service is disconnected for any reason or a change occurs in the account holder, a new Interconnection Application must be submitted to the electric Utility for consideration;

b. A Customer who has received approval from the Utility to construct or operate a Distributed Energy System shall notify the Utility within thirty (30) calendar days following the date that the construction has been canceled or the Customer-owned Distributed Energy System is permanently shut down. Upon receipt of such notice, the Utility shall cancel the Interconnection Agreement with the Customer;

c. The Utility may terminate the Interconnection Agreement at any time following Customer's failure to generate energy from the Customer-owned Distributed Energy System by the later of one (1) year from the date of execution of the Interconnection Agreement or during any six (6) month period following completion of the interconnection provided for by the Agreement;

d. Either Party may terminate the Interconnection Agreement at any time by giving the other Party at least ninety (90) days' prior written notice that the other Party is in default of any of the material terms and conditions of the Interconnection Agreement or these Interconnection Standards for Installation and Operation of Customer-Owned Distributed Energy Facilities, so long as the notice specifies the basis for termination and there is reasonable opportunity for the Party in default to cure the default; or,

e. The Utility may terminate the Interconnection Agreement at any time by giving the

Customer at least sixty (60) days' prior written notice in the event that there is a change in an applicable rule or statute affecting the Agreement.

Upon termination of the Interconnection Agreement, Customer's Distributed Energy System shall be permanently disconnected from the Electric Distribution System.
Termination of the Interconnection Agreement shall not relieve either party of its liabilities and obligations, owed or continuing at the time of said termination.

16. TERMINATION OF ANY APPLICABLE PRIOR AGREEMENT:

From and after the date when service commences under the Interconnection Agreement, the Agreement shall supersede any oral and/or written agreement or understanding between the Utility and Customer concerning the interconnection service covered by the Agreement. Any such prior agreement or understanding shall be deemed to be terminated as of the date interconnection service commences under the Interconnection Agreement.

17. FORCE MAJEURE:

For purposes of the Interconnection Agreement, the term "Force Majeure" means any cause or event not reasonably within the control of the Party claiming Force Majeure, including, but not limited to, the following: acts of God, strikes, lockouts, or other industrial disturbances; acts of public enemies; orders or permits or the absence of the necessary orders or permits of any kind which have been properly applied for from the government of the United States, the State of Kansas, any political subdivision or municipal subdivision or any of their departments, agencies or officials, or any civil or military authority; unavailability of a fuel or resource used in connection with the generation of electricity; extraordinary delay in transportation; unforeseen soil conditions; equipment, material, supplies, labor or machinery shortages; epidemics; landslides; lightning; earthquakes; fires; hurricanes; tornadoes; storms; floods; washouts; drought; arrest; war; civil disturbances; explosions; breakage or accident to machinery, transmission lines, pipes or canals; partial or entire failure of utilities; breach of contract by any supplier, contractor, subcontractor, laborer or materialman; sabotage; injunction; blight; famine; blockade; or quarantine. A Force Majeure event does not include an act of negligence or intentional wrongdoing.

If either Party is rendered wholly or partially unable to perform its obligations under the Interconnection Agreement because of Force Majeure, both Parties shall be excused from whatever obligations under the Agreement are affected by the Force Majeure (other than the obligation to pay money) and shall not be liable or responsible for any delay in the performance of, or the inability to perform, any such obligations for so long as the Force Majeure continues. The Party suffering an occurrence of Force Majeure shall, as soon as is reasonably possible after such occurrence, give the other Party written notice describing the particulars of the occurrence and shall use reasonable efforts to remedy its inability to perform; provided, however, that the settlement of any strike, walkout, lockout or other labor dispute shall be entirely within the discretion of the Party involved in such labor dispute.

PART III. INTERCONNECTION APPLICATION

Application No. _____

Board of Public Utilities, City of McPherson, KS

Customer-Owned Distributed Energy System

This Application for Interconnection of a Customer-Owned Distributed Energy System is considered complete when it provides all applicable and correct information required below. The Utility may require additional information or clarification to evaluate the Interconnection Application. Processing of this Application cannot begin until all information is complete.

Processing Fee:

☐ A non-refundable processing fee of $250 must accompany this Application.

Customer:

Name: _____ Utility Account Number: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone (Day): _____ (Evening): _____

Fax: _____ E-Mail Address: _____

Is the Distributed Energy System owned by the Customer listed above? ☐Yes ☐No

Contact (if different from Customer):

Name: _____ Utility Account Number: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone (Day): _____ (Evening): _____

Fax: _____ E-Mail Address: _____

Distributed Energy System Information:

Location (if different from above): _____

Inverter Manufacturer: _____

Model: _____

Nameplate Rating: (kWAC)_____ (kVAAC)_____

System Design Capacity: (kWAC)_____ (kVAAC)_____

Energy Source: Solar ☐ Wind ☐ Battery/Storage ☐

Is the Distributed Energy System equipment IEEE 1547/UL 1741 Certified? ☐ Yes ☐No
[Note: Requires a Yes for an application to be considered complete.]

If Yes, attach manufacturer's documentation and technical specification sheet showing IEEE 1547/UL 1741 certification.

Have all necessary government permits and approvals been obtained for the project prior to this application? ☐ Yes ☐No *[Note: Requires a Yes for an application to be considered complete.]*

Is Utility Accessible External Generator AC Disconnect Switch Provided? *(Required)*

☐ Yes ☐ No Location of Accessible External Generator AC Disconnect Switch (e.g., two feet west of utility electric meter):

Estimated Distributed Energy System Installation Date: _____

Estimated Distributed Energy System Initial Operation Date: _____

List components of the Distributed Energy System equipment package that are currently certified:

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

Equipment Installation Contractor: - Indicate installation by owner, if applicable ☐

Name: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Contact Person (if other than above): _____

Telephone (Daytime): _____ (Evening): _____

Fax Number: _____

E-Mail Address: _____

Electrical Contractor (If Applicable): **- Indicate if not applicable ☐**

Name: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Contact Person (if other than above): _____

Telephone (Daytime): _____ (Evening): _____

Fax Number: _____

E-Mail Address: _____

Consulting Engineer (If Applicable): **- Indicate if not applicable ☐**

Name: _____

Mailing Address: _____

City: _____ State: _____ Zip Code:_____

Contact Person (if other than above): _____

Telephone (Daytime): _____ (Evening): _____

Fax Number: _____

E-Mail Address: _____

Provide a one-line diagram of the Distributed Energy System. The one-line diagram is a basic drawing of an electric circuit in which one or more conductors are represented by a single line and each electrical device and major component of the installation, from the generator to the point of interconnection, are noted by symbols. See attached example.

Provide a site layout of the Distributed Energy System and nearby features. The site layout is a basic drawing showing the location of the Generation Facility, Utility electric meter, AC and DC disconnect switches, existing electrical panels, disconnects, and utility transformers, conduit/conductor runs and lockout locations.

Copies of manufacturer's specification sheets for all Distributed Energy System equipment, inverters, and other proposed Distributed Energy System equipment must be submitted with this Application.

Customer Signature:

I hereby certify that, to the best of my knowledge, the information provided in this Interconnection Application is true. I agree to abide by the Terms and Conditions of the Utility Interconnection Standards for Installation and Operation of Customer-Owned Distributed Energy System and will return the Certificate of Completion to the Utility when the Distributed Energy System has been installed and prior to commencing operation of said Generation Facility.

Signature: _____ Date: _____

Printed Name: _____

------ Board of Public Utilities, City of McPherson, KS Use ------

Contingent Approval to Interconnect the Distributed Energy System

Interconnection of the Distributed Energy System is approved contingent upon Customer compliance with all Terms and Conditions of the Utility's Interconnection Standards and upon return of the Certificate of Completion prior to commencement of commercial operation of said Distributed Energy System.

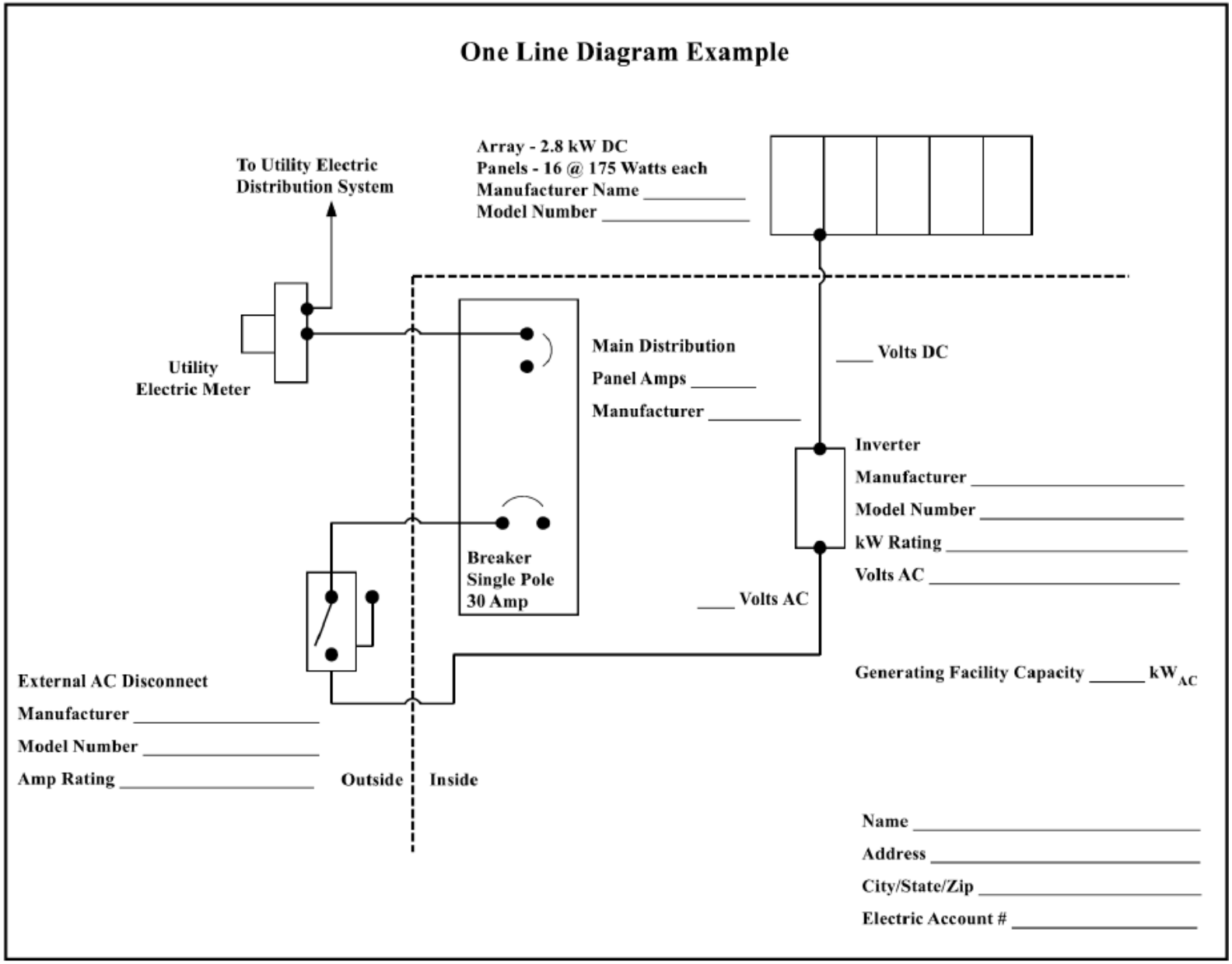
Signature: _____ Date: _____

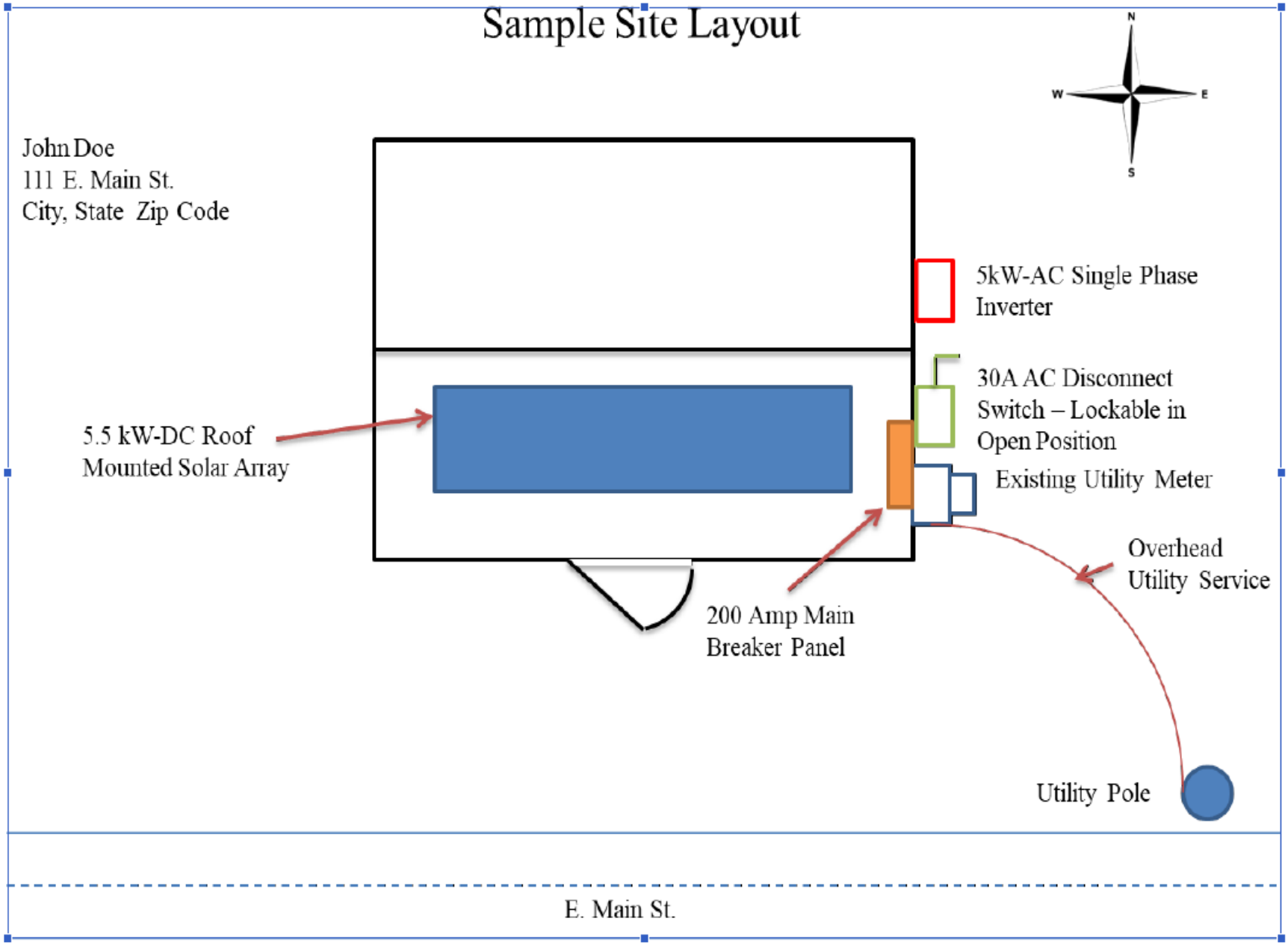
Printed Name and Title: _____

Application Number: _____

Electric Utility waives inspection/witness test? ☐ Yes ☐ No Initials: _____

One Line Diagram Example




Sample Site Layout
N
W
E
S
John Doe
111 E. Main St.
City, State Zip Code
5kW-AC Single Phase Inverter
30A AC Disconnect Switch – Lockable in Open Position
5.5 kW-DC Roof Mounted Solar Array
Existing Utility Meter
Overhead Utility Service
200 Amp Main Breaker Panel
Utility Pole
E. Main St.

PART IV. INTERCONNECTION AGREEMENT

Application No: _____

Board of Public Utilities, City of McPherson, KS
Customer-Owned Distributed Energy System

This Agreement, ("**Agreement**") is entered into by and between the Board of Public Utilities, City of McPherson, Kansas **("Utility")** and _____ _____, ("**Customer**"). The Customer electric account subject to this Agreement is Account Number _____. Customer and Utility are referenced in this Agreement collectively as "**Parties**" and individually as "**Party**."

Recitals

WHEREAS, the Utility owns and operates an Electric Distribution System serving the City of McPherson, Kansas, and surrounding area;

WHEREAS, Customer owns or desires to install, own and operate a Utility-approved Distributed Energy System, interconnected with and operating within the Utility's Electric Distribution System;

Agreement

NOW, THEREFORE, in consideration of the covenants and promises herein, the Parties mutually agree as follows:

1. SCOPE OF AGREEMENT:
This Agreement governs the Terms and Conditions under which the Distributed Energy System will interconnect with and operate within the Electric Distribution System.

2. DEFINITIONS:
The definitions used in this Interconnection Agreement are those found in Part 1, Section 2 of the Utility Interconnection Standards for Installation and Operation of Customer-Owned Distributed Energy Systems.

3. OPERATION:
Customer shall not interconnect or commence operation of the Distributed Energy System until written Approval to Energize the Distributed Energy System under Part 6 of these Interconnection Standards has been provided by the Utility. The Utility shall have the right to

have representatives present during initial testing of the Distributed Energy System and its protective apparatus.

4. INTERCONNECTION COSTS:

The Utility has estimated the costs, including overheads, for necessary System Upgrades to its Electric Distribution System and Customer service connection, if any, and has provided a detailed itemization of such costs in the attached description of estimated System Upgrade costs. Prior to commencement of System Upgrades that are required to allow interconnection of the Customer-owned Distributed Energy System, Customer shall deposit with the Utility an amount equal to the estimated cost of said System Upgrades. If the actual costs of said System Upgrades exceed the amount deposited by the Customer, the Utility shall bill the Customer for the difference. The Customer agrees to pay the invoiced amount within thirty (30) days of the invoice date. The Utility will supply, own, and maintain all necessary meters and associated equipment utilized for billing. In addition, and for the purposes of monitoring customer generation and load, the Utility may install at its expense, load research metering. The Customer shall supply, at no expense to the Utility, a suitable location for meters and associated equipment used for billing and for load research. All costs related to the installation of said meter or meters shall be borne by the Customer.

5. INTERRUPTION OR REDUCTION OF DELIVERIES:

The Utility may require the Customer to interrupt or reduce energy deliveries when the Utility determines, in its sole discretion, that curtailment, interruption or reduction is necessary because of maintenance, safety, emergency, Force Majeure or compliance with Prudent Utility Practice. No compensation or credit will be provided to the Customer by the Utility for such interruptions or reductions in energy deliveries.

6. ADVERSE OPERATING EFFECTS:

The interconnection of the Distributed Energy System shall not reduce the reliability and quality of Utility Electric Distribution System service. This includes but is not limited to power quality issues such as Harmonic Distortion, Voltage Flicker, and frequency deviations. The Utility shall notify the Customer as soon as practicable if, based on Prudent Utility Practice, operation of the Distributed Energy System causes disruption in or deterioration of service to other Utility electric customers or if operating the Distributed Energy System could damage the Electric Distribution System. If, after notice, the Customer fails to timely remedy the adverse operating effect, the Utility may disconnect the Distributed Energy System with no further notice.

7. COMPLIANCE WITH INTERCONNECTION STANDARDS REQUIREMENTS

Customer has read the Utility Interconnection Standards for Installation and Operation of Customer-Owned Distributed Energy Systems, as adopted by the Utility, and agrees to comply with all requirements included therein, including, but not limited to, all indemnity provisions identified in Paragraphs 14 and 15 therein. In the event of a conflict between this Agreement and Utility Policy, Utility Policy shall control.

8. ACCESS TO PREMISES:

The Utility shall have access to the Customer premises or property and to the External AC Generator Disconnect Switch as permitted in its policies, Rules and Regulations and Interconnection Standards.

9. GOVERNING LAW:

This Agreement shall be interpreted and governed under the laws of the State of Kansas, the Ordinances of the City of McPherson, and Policies of the Board of Public Utilities, City of McPherson, KS.

10. DOCUMENTS:

This Agreement incorporates all other provisions and related documents of these Interconnection Standards for Installation and Operation of Customer-Owned Distributed Energy Systems as the same may be amended from time to time.

11. NOTICES:

All written notices shall be directed as follows:

Customer:

Name: _____

Address: _____

City/State/Zip: _____

Board of Public Utilities, City of McPherson, KS

Name: _____

Printed Name & Title: _____

City/State/Zip: _____

12. TERM OF AGREEMENT:

This Agreement shall be in effect when executed by the Customer and the Board of Public Utilities, City of McPherson, KS and shall remain in effect thereafter month to month unless terminated in accordance with the provisions of Section 16 of "Part 2 Technical Requirements".

IN WITNESS WHEREOF, the Parties hereto have caused two originals of this Agreement to be executed by their duly authorized representatives. This Agreement is effective as of the last date set forth below.

Customer:

_____ Date: _____

Signature

_____

Print Name

Board of Public Utilities, City of McPherson, KS

By: _____ Date: _____

_____

Print Name and Title

PART V. CERTIFICATE OF COMPLETION

Application No. _____

Board of Public Utilities, City of McPherson, KS
Customer-Owned Distributed Energy System

Is the Distributed Energy System installed, tested and ready foroperation? ☐ Yes ☐No

Customer: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Telephone (Daytime): _____ (Evening): _____

Fax Number: _____

E-Mail Address: _____

Location of the Distributed Energy System(if different from above):

_____

_____

Has the Distributed Energy System been installed in accordance with all applicable building codes, permits and ordinances (if applicable)? ☐ Yes ☐No

Electrician/Service Company:

Name: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Telephone (Daytime): _____ (Evening): _____

Fax Number: _____

E-Mail Address: _____

License Number: _____

Date electric Utility approved InterconnectionApplication: _____, 20___

Application Number: _____

Inspection:

The Distributed Energy System has been installed and inspected in compliance with all applicable electrical codes.

A copy of the signed electrical inspection form is attached. ☐ Yes ☐ No *(If inspection form is not attached.)*

_____ Date: _____

Signature of Inspector

_____

Printed Name of Inspector

PART VI. PERMISSION TO OPERATE

Application No. _____

Board of Public Utilities, City of McPherson, KS
Customer-Owned Distributed Energy System

The Board of Public Utilities, City of McPherson, KS, having entered into an Interconnection Agreement for the Distributed Energy System described in the Application noted by number above and having received a Certificate of Completion with proper documentation of the electrical inspection hereby authorizes the Distributed Energy System to be energized:

Board of Public Utilities, City of McPherson, KS

By: _____ Date: _____

_____

Print Name and Title