OSAGE MUNICIPAL UTILITIES

OSAGE, IOWA

Interconnection Standards for Parallel Installation and Operation of Customer-Owned Electric Generating Facilities

Effective April 27, 2023

TABLE OF CONTENTS

PROGRAM OVERVIEW

1. ELIGIBILITY:
   a. Interconnection to the electric system shall be granted only to new or existing customers, in good standing, under OMU's electric service schedules. The Interconnection Agreement shall be between the Customer and OMU and will not include third parties.
   b. The Interconnection Standards are intended for customer-owned generation with a rated output of 10,000 watts (10kW) or less, and which meet the definition of a Qualifying Facility under the Public Utilities Regulatory Policies Act ("PURPA"). Typical installations include but are not limited to solar panels and wind turbines. Systems rated for more than 10 kW will be handled under a different process and may involve the local control area and regional transmission organization.

2. REQUEST:
   The customer shall make a request by completing the attached document entitled "Application for Interconnection". OMU may require additional details or clarifications as need to properly evaluate the application.

3. SYSTEM EFFECTS:
   OMU will analyze the overall impact of the proposed generating facility on the distribution system. Such analysis will be based on Good Utility Practice to determine thermal effects, voltage ranges, power quality, system stability, etc. Any cost associated with such analysis shall be recoverable by OMU from the Customer as part of the Interconnection Costs.

4. SYSTEM UPGRADES:
   As a result of the above analysis, OMU will provide the Customer with a cost estimate and projected timeframe for any system upgrades or additional facilities that may be necessary to accommodate the Generating Facility.

5. AGREEMENT:
   Once the Customer and OMU have identified and mutually agreed in writing on the scope of the overall project, including the Generating Facility, system upgrades and estimated costs, the Customer and OMU shall execute the attached document entitled "Interconnection and Power Purchase Agreement".

6. CODES AND PERMITS:
   a. The Customer shall be responsible for procuring all building, operating, and environmental permits that are required by any Governmental Authority having jurisdiction for the type of generating facility and for the necessary ancillary structures to be installed.
   b. The equipment shall meet the standards listed in the attached document entitled "National Certification Codes and Standards".
   c. The construction and facilities shall meet all local building and electrical codes.
   d. The Customer shall comply with acceptable standards for interconnection, safety, and operating reliability as set forth in 199 IAC 15.10, as it may be amended from time to time.
   e. The Customer shall be responsible for furnishing OMU with sufficient data in order to

verify that the foregoing condition shave been met. OMU approval is required before interconnection is permitted.

7. NET METERING:
   OMU allows customers to install Customer Renewable Generation behind OMU's electric revenue meter where the electric energy generated directly offsets energy delivered by OMU. In the case where the monthly energy generated is more than the Customer's monthly usage, then energy flows into OMU's Electric System and the energy in kWh's will register as a credit. Any credits will be banked and carried forward to the next month and subtracted from future net energy use for that property where the Customer Renewable Generation is located. Annually, the customer's banked usage will reset to zero in January. The customer will receive a monthly bill using the appropriate OMU rate. If there is a net usage, the Customer will be billed on the net kWh usage. If a net credit is applicable, the kWh billed will be zero.

8. APPLICABLE RATES:
   OMU's current electric rates are published on our website at www.osage.net. The monthly bill will include a facility charge according to Customer's applicable rate.

9. CERTIFICATE OF COMPLETION:
   Upon completion of the generating facility and prior to normal operation, the Customer shall provide a signed copy of the attached document entitled "Certificate of Completion".

10. NORMAL OPERATION:
    The Customer may begin normal operation of the generating facility upon completion of all documentation and receipt of written approval from OMU.

11. DEFINITIONS:

    All capitalized terms and phrases throughout this set of standards shall be defined as indicated in the attached Glossary of Terms.

TECHNICAL REQUIREMENTS

1. CHARACTER OF SERVICE:
   The electrical service shall be designed to operate on a 60 cycle per second alternating current (AC) electrical system at supply voltages and number of phases that apply under OMU's rate schedule.

2. CODE REQUIREMENTS:
   The Generating Facility shall meet all applicable requirements established by the National Electrical Code (NAC), National Electrical Safety Code (NESC), Institute of Electrical and Electronics Engineers (IEEE), and Underwriters Laboratories (UL). Specific codes are listed on the attached document entitled "National Certification codes and Standards".

3. GENERATING FACILITY PARAMETERS:
   The control system of the Generating Facility shall comply with the IEEE specifications and standards for parallel operation with OMU, and in particular as follows:

a. Power output control system shall automatically disconnect from OMU source upon loss of OMU voltage and not reconnect until OMU voltage has been restored.
b. Power output control system shall automatically disconnect from OMU source if OMU voltage fluctuates beyond plus or minus 5% (five percent).
c. Power output control system shall automatically disconnect from OMU if frequency fluctuates plus or minus 2 cycles (Hertz).
d. Inverter output distortion shall meet IEEE requirements.
e. The Generating Facility shall meet the applicable IEEE standards concerning impacts to the Distribution System with regard to harmonic distortion, voltage flicker, power factor, direct current injection and electromagnetic interference.

4. FAULT CURRENT CONTRIBUTION:
The Generating Facility shall be equipped with protective equipment designed to automatically disconnect during fault current conditions and remain disconnected until the voltage and frequency have stabilized.

5. RECLOSING COORDINATION:
The Generating Facility shall be coordinated with the Distribution System reclosing devices by disconnecting from the system during the initial de-energized operation and shall remain disconnected until the voltage and frequency have stabilized.

6. DISCONNECT DEVICE:
A safety disconnect switch shall be installed that is easily visible, mounted separately from the metering equipment and readily accessible by OMU personnel. OMU will coordinate and approve the location of the disconnect switch. The switch shall be capable of being locked in the open position with an OMU lock and shall prevent the generator from supplying power to the distribution system. OMU may open the disconnect switch thereby isolating the customer-owned generating equipment from OMU's electric system for reason including, but not limited to: maintenance or emergency work, causing adverse effect to other customers or to nearby communication systems or circuits, failure to comply with standards and codes/regulations, and creating hazardous or unsafe conditions.

APPLICATION FOR INTERCONNECTION

This Application is considered complete when it provides all applicable and correct information required below. Additional information or clarification to evaluate the Application may be requested by OMU.

Processing Fee

A non-refundable processing fee of $75.00 must accompany this Application.

Customer

Name: _____

Contact Person: _____ Account Number: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone (Day): _____ (Evening): _____

Fax: _____ Email Address: _____

Contact (if different from Customer)

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone (Day): _____ (Evening): _____

Fax: _____ Email Address: _____

Generating Facility Information

Location (if different from above): _____

Account Number (if different than Customer Account Number): _____

Inverter Manufacturer: _____

Model: _____

Nameplate Rating: (kW) _____ (kVA) _____

(AC Volts) Single Phase _____ Three Phase _____

Rated Output: _____ A Rated VARS: _____ VARS

Rated Frequency _____ Hertz Power Factor: _____

Efficiency: _____ % Rated Voltage: _____ Volts

Rated Current: _____ Amps Max Fault Current: _____ Amps

System Design Capacity: _____(kW) _____(kVA)

Prime Mover: Photovoltaic ☐ Reciprocating Engine ☐ Fuel Cell ☐

Turbine ☐ Other _____

Energy Source: Solar ☐ Wind ☐ Hydro ☐ Diesel ☐ Natural Gas ☐

Fuel Oil ☐ Other (describe) _____

Meets all applicable Standards and Codes (IEEE, NEC, UL, etc.) Yes _____No_____

If Yes, attach manufacturer's cut-sheet showing UL1741 listing.

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

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

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

Customer Signature

I hereby certify that, to the best of my knowledge, the information provided in this Application is true. I agree to abide by the terms and conditions of OMU's Interconnection Standard and will return the Certificate of Completion when the Generating Facility has been installed.

Signed: _____

Title: _____Date: _____

Contingent Approval to Interconnect the Generating Facility

Interconnection of the Generating Facility is approved contingent upon the terms and conditions of OMU's Interconnection Standard and upon return of the Certificate of Completion.

OMU Signature: _____

Title: _____Date: _____

Application ID number: _____

OMU waives inspection/witness test Yes _____No _____

INTERCONNECTION AND POWER PURCHASE AGREEMENT

This Agreement, ("**Agreement**") is entered into by and between **Osage Municipal Utilities** ("**OMU**"), and _____, ("**Customer**"). Customer and OMU are referenced in this Agreement collectively as "**Parties**' and individually as "**Party**".

Recitals

WHEREAS, OMU is a publicly-owned electric utility engaged in the retail sale of electricity in the state of Iowa;

WHEREAS, Customer owns or desires to install, own and operate an electric Generating Facility and to interconnect said Generating Facility to the electric Distribution System of OMU and sell any excess output from said Generating Facility to OMU under the terms and conditions set forth herein.

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 Customer's Generating Facility will interconnect with, and operate in parallel with, OMU's electrical system, and OMU shall purchase any excess output from said Generating Facility.

2. PARALLEL OPERATION
   Customer shall not commence parallel operation of the Generating Facility until written approval of the interconnection facilities has been given by OMU. Such approval shall not be unreasonable withheld. OMU shall have the right to have representative present at the initial testing of Customer's protective apparatus.

3. INTERCONNECTION COSTS
   OMU has estimated the costs, including overheads, for the purchase and construction of necessary System Upgrades to it Distribution System and has provided a detailed itemization of such costs on the attached document entitled "System Upgrade Estimated Costs". The Customer agrees to pay the costs reflected in the System Upgrade Estimated Costs upon receipt of OMU's invoice within the timeframe indicated on the invoice.

4. GENERATING FACILTY COSTS, PERMITS, MAINTENANCE
   Customer shall be solely responsible for the costs, design, purchase, construction, permitting, operation, and maintenance of the Generating Facility. This includes but is not limited to the responsibility to obtain and maintain any and all governmental authorizations and permits required for the construction and operation of the Generating Facility.

   Customer shall maintain all Generating Facilities in a safe and prudent manner and in conformance with all laws and regulations. In addition, the Generating Facilities shall at all

times meet the standards, listed in the attached document entitled "National Certification Codes and Standards" which may be supplemented or modified in OMU's sole discretion from time to time.

5. NET METERING

   OMU allows customers to install Customer Renewable Generation behind OMU's electric revenue meter where the electric energy generated directly offsets energy delivered by OMU. In the case where the monthly energy generated is more than the Customer's monthly usage, then energy flows into OMU's Electric System and the energy in kWh's will register as a credit. Any credits will be banked and carried forward to the next month and subtracted from future net energy use for that property where the Customer Renewable Generation is located. Annually, the customer's banked usage will reset to zero in January. The customer will receive a monthly bill using the appropriate OMU rate. If there is a net usage, the Customer will be billed on the net kWh usage. If a net credit is applicable, the kWh billed will be zero.

6. METERING

   Metering will be installed at the point of service to the Customer's Generating Facility of one of the following types:

   a. Metering capable of measuring and recording energy flows, on a kWh basis, from OMU to the Customer and from the Customer's Generating Facility to OMU, with each directional energy flow recorded independently.
   b. Metering capable of measuring power flows in each direction on an hourly or other real time basis.

   OMU shall have the right to collect all reasonable cost of metering necessary to allow for sales to OMU from the Customer.

7. INTERRUPTION OR REDUCTION OF DELIVERIES

   OMU may require Customer to interrupt or reduce deliveries when OMU determines, in its sole discretion, that curtailment, interruption or reduction is necessary because of personnel safety, emergencies, Force Majeure or compliance with Good Utility Practices.

8. ADVERSE OPERATING EFFECTS

   The interconnection of the Generating facility shall not reduce the reliability and quality of the Distribution System. This includes, but is not limited to high levels of harmonics, abnormal voltage fluctuations and excessive frequency deviations. OMU shall notify the Customer as soon as practicable if, based on Good Utility Practice, operation of the Generating Facility may cause disruption or deterioration of service to other customers served from the same electric system, or if operating the Generating Facility could cause damage to OMU's distribution system. OMU may disconnect the Customer's Generating Facility upon any of the following conditions, and shall reconnect the Generating Facility once the condition has been cured:

   a. For scheduled outages, provided the Customer is treated in the same manner as OMU's other Customers;
   b. For unscheduled outages or emergency conditions;
   c. If the Generating Facility does not operate in the manner consistent with this Agreement or the applicable Codes and Standards;
   d. Improper installation or failure to pass the initial testing;
   e. If the Generating Facility is creating a safety, reliability, or power quality problem;

f. The interconnection equipment utilized by the Customer that was lab certified at the time of interconnection is de-listed by the Nationally Recognized Testing Laboratory that provided the listing at the time the interconnection was approved;
g. Unauthorized modification of the interconnection facilities or the Generating Facility;
h. Unauthorized correction to OMU's Distribution System.

Notice of Disconnection shall be provided in advance when possible and as soon after disconnection as possible in those instances when advance notice is not reasonable possible. Such notice shall specify the reason for disconnection and the Customer shall have an opportunity to cure any breach of the terms of this Agreement. OMU shall have the right to terminate this Agreement upon Customer's failure to cure any breach within thirty (30) days of notice of the breach.

9. ACCESS TO PREMISES

OMU shall have access to the Customer's premises or property as permitted in the Service Policies: (i) to inspect Customer's system, (ii) to read and to replace meters, (iii) to open the load-break disconnect switch, and (iv) to disconnect the interconnection facilities at OMU's meter or transformer.

10. INDEMNITY AND LIABILITY

The Parties shall at all times indemnify, defend, and hold the other Party and the directors, officers, employees and agents for said Party, harmless from, any and all damages, losses, claims, 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, and all other obligations by or to third parties, arising out of or resulting from the other Party's action or failure to meet its obligations under this Agreement on behalf of the indemnifying Party, except in cases of gross negligence or intentional wrongdoing by the indemnified Party.

11. CONSEQUENTIAL DAMAGES

Other than as expressly provided for in this Agreement, neither Party shall be liable under any provision of this Agreement for any losses, damages, costs or expenses for any special, indirect, incidental, consequential, or punitive damages, including but not limited to loss of profit or revenue, loss of the use of equipment, cost of capital, cost of temporary equipment or services, whether based in whole or in part in contract, in tort, including negligence, strict liability, or any other theory of liability; provided, however, that damages for which a Party may be liable to the other Party under another agreement will not be considered to be special, indirect, incidental, or consequential damages, hereunder.

12. INSURANCE

The Customer shall provide OMU with proof that it has, currently in force, all risk property insurance and comprehensive personal liability insurance, and Customer agrees that it will maintain such insurance in force for the duration of this Agreement in no less amounts than those currently in effect. OMU shall have the right to inspect or obtain a copy of the original policy or policies of insurance prior to commencing operation. Such insurance shall, by endorsement to the policy or policies, provide for thirty (30) calendar days written notice to OMU prior to cancellation, termination, alteration, or material change of such insurance.

13. ASSIGNMENT

    Customer shall not voluntarily assign its rights nor delegate its duties under this Agreement without the express written consent of OMU. Any assignment or delegation Customer makes without OMU's express written consent shall not be valid. OMU shall not unreasonably withhold its consent to Customer's assignment of this Agreement.

14. NON-WAIVER

    Failure by either Party to this Agreement to insist upon strict compliance with any of the terms, covenants or conditions herein shall not be deemed to be a waiver of such terms, covenants, or conditions, nor shall any waiver or relinquishment of any right or power hereunder at any time be deemed a waiver or relinquishment of any further such rights or powers. No waiver shall be valid unless in writing and signed by a duly authorized officer of the respective party.

15. SEVERABILITY

    Should any term or provision of this Agreement, or the application thereof to any person or circumstance, to any extent, be invalid or unenforceable, the remainder of this Agreement or the application of such term or provision to persons or circumstances other than those to which it is held invalid or unenforceable, shall not be affected thereby, and each remaining term and provision of this Agreement shall be valid and enforceable to the fullest extent permitted by Law.

16. GOVERNING LAW

    This Agreement shall be interpreted and governed under the laws of the State of Iowa. Venue of any action arising hereunder or related to this Agreement shall lie in Mitchell County, Iowa.

17. DOCUMENTS

    The Agreement includes the following documents, which are attached and incorporated by reference:

    a. Application For Interconnection;
    b. Certificate of Completion

18. GLOSSARY OF TERMS

    Capitalized terms used herein shall have the meanings specified in the attached document entitled "Glossary of Terms".

19. NOTICES

    All written notices shall be directed as follows:

    OMU: **Osage Municipal Utilities**
    PO Box 207
    Osage, Iowa 50461

    CUSTOMER: Name _____
    Address _____
    City _____

20. TERM OF ASSIGNMENT

This Agreement shall be in effect when signed by the Customer and OMU and shall remain in effect thereafter month to month unless terminated by either Party on thirty (30) days prior written notice and in accordance with the Service Policies.

21. ENTIRE AGREEMENT

This Agreement, together with its attached exhibits, contains the entire agreement between the Parties with respect to the subject matter hereof, and any prior or contemporaneous agreements, discussions, or understandings, written or oral, are superseded by this Agreement and shall be of no force or effect. No addition or modification of any term or provision of this Agreement shall be effective unless set forth in writing and signed by each of the Parties.

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)	**Osage Municipal Utilities**
_____	_____
Signature	Signature
_____	_____
Print Name	Print Name
_____	_____
Title	Title
_____	_____
Date	Date

CERTIFICATE OF COMPLETION

Is the Generating Facility installed, tested, and ready for operation? Yes _____ No _____

Customer: _____

Contact Person: _____

Address: _____

Location of the Generating Facility (if different from above):

_____

City: _____ State: _____ Zip Code: _____

Telephone (Day): _____ (Evening): _____

Fax: _____ E-Mail Address: _____

License Number: _____

Date Approval to Install Facility granted by OMU: _____

Application ID number: _____

Inspection:

The Generating Facility has been installed and inspected in compliance with the local building and electrical codes of _____

Signed (Local electrical wiring inspector, or attached signed electrical inspection):

_____

Print Name: _____

Date: _____

As a condition of interconnection, you are required to send/fax a copy of this form along with a copy of the signed electrical permit to:

Name: _____

Company: _____

Address: _____

_____

City, State, Zip: _____

Fax: _____

Approval to Energize the Generating Facility

Energizing the Generating Facility is approved:

OMU Signature: _____

Title: _____Date: _____

GLOSSARY OF TERMS

Applicable Laws and Regulations – All duly promulgated 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.

Avoided Cost – Avoided Cost shall mean the incremental cost to OMU of electric energy or capacity or both which, but for the purchase from the Customer's Generating Facility, OMU would generate itself or purchase from another source. OMU purchases all of its wholesale power from Dairyland Power Cooperative. OMU's avoided cost shall equal those of Dairyland Power Cooperative and Dairyland Power Cooperative shall therefore be responsible for calculating OMU's avoided cost. The Avoided Cost shall be made available upon request.

Distribution System – OMU's facilities and equipment used to transmit electricity to ultimate usage points such as homes and industries directly from nearby generators or from interchanges with higher voltage transmission networks which transport bulk power over longer distances.

Force Majeure – A Force Majeure event shall mean "any act of God, labor disturbance, act of the public enemy, war, insurrection, riot, fire, storm or flood, explosion, breakage or accident to machinery or equipment, any other regulation or restriction imposed by governmental, military or lawfully established civilian authorities, or any other cause beyond a Party's control". A Force Majeure event does not include an act of negligence or intentional wrongdoing.

Generating Facility – The Customer's device for the production of electricity identified in the Interconnection Application.

Good Utility Practice – Any of the practices, methods and acts engaged in or approved by a significant portion of the electric 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. 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 act generally accepted in the region.

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.

Interconnection Application – The Customer's request to interconnect a new Generating Facility, or to increase the capacity of, or make a material modification to the operating characteristics of, an existing Generating Facility that is interconnected with OMU's electrical system.

Inverter – Equipment that converts Customer's system's operating voltage to OMU's operating voltage. Basically, any static power converter with control, protection and filtering functions used to interface an electric energy source with an electric utility system. (IEEE 929-2000, IEEE 1549, UL 1741)

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 Good Utility Practice and are otherwise substantially equivalent to those a Party would use to protect its own interests.

System Upgrades – The additions, modifications, and upgrades to OMU's Distribution System at or beyond the point of interconnection to facilitate interconnection of the Generating Facility and render the transmission service necessary to effect the Interconnection Customer's wholesale sale of electricity in interstate commerce. Distribution Upgrades do not include Interconnection Facilities.

NATIONAL CERTIFICATION CODES AND STANDARDS

IEEE 1547 Standard for Interconnecting Distributed Resources with Electric Power Systems (including use of IEEE 1547.1 testing protocols to establish conformity)

UL 1741 Inverters, Converters, and Controllers for Use in Independent Power Systems

IEEE Std 929-2000 IEEE Recommended Practice for City Interface of Photovoltaic (PV) Systems

NFPA 70 (2002), National Electrical Code

IEEE Std C37.90.1-1989 (R1994), IEEE Standard Surge Withstand Capability (SWC) Tests for Protective Relays and Relay Systems

IEEE Std C37.90.2-(1995), IEEE Standard Withstand Capability of Relay Systems to Radiated Electromagnetic Interference from Transceivers

IEEE Std C37.108-1989 (R202), IEEE Guide for the Protection of Network Transformers

IEEE Std C57.12.44-2000, IEEE Standard Requirements for Secondary Network Protectors

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

IEEE Std C62.45-1992 (R2002), IEEE Recommended Practice on Surge Testing for Equipment Connected to Low-Voltage (1000V and Less) AC Power Circuits

ANSI C84.1-1995 Electric Power Systems and Equipment – Voltage Rating (60 Hertz)

IEEE Std 100-2000, IEEE Standard Dictionary of Electrical and Electronic Terms
NEMA MG 1-1998, Motors and Small Resources, Revision 3

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

NEMA MG 1-2003 (Rev 2004), Motors and Generators, Revision