

P. S. C. MO., ILL. C. C., IA. ST. C. C. SCHEDULE NO. 1 1st Revised SHEET NO. 7CANCELLING SCHEDULE NO. 1 Original SHEET NO. 7APPLYING TO MISSOURI SERVICE AREAA. ELECTRIC POWER PURCHASES FROM QUALIFYING FACILITIES - (CONTINUED)

## (1) Two-way Power Flow

This type of installation provides for the interchange of energy in either direction as a normal operating mode.

The revenue metering for Two-way Power Flow installations shall include two series connected watt-hour meters with detents. One meter shall be connected to measure energy supply to Customer from UE; the other meter shall measure Customer-generated energy supplied to UE. The meter detents prevent operation of either meter in the reverse direction.

Additional metering may or may not be required depending on the terms of the contract between UE and Customer.

## (2) One-way Power Flow

This type of installation does not allow the interchange of energy from Customer to the utility.

The intertie circuit breaker will be tripped by equipment capable of detecting the reverse power flow condition toward the UE system.

This type installation requires a single revenue meter installation with detent to prevent operation of the meter in the reverse direction.

Additional metering may or may not be required depending on the terms of a contract between UE and Customer.

## E. Other Requirements

- \* (1) All Customer installations shall adhere to any applicable requirements of the National Electrical Safety Code, the National Electric Code, Institute of Electrical and Electronics Engineers (IEEE), Underwriters Laboratories (UL), local electric codes, applicable NEMA codes, OSHA, and UE's Electric Service Rules as set forth in published tariffs.

- (2) Customer will bear all interconnection costs of parallel operation over and above the normal cost to serve his load.

\* Indicates change

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## UNION ELECTRIC COMPANY

## ELECTRIC SERVICE

P. S. C. MO., ILL. C. C., IA. ST. C. C. SCHEDULE NO. 1 1st Revised SHEET NO. 8CANCELLING SCHEDULE NO. 1 Original SHEET NO. 8APPLYING TO MISSOURI SERVICE AREAB. ELECTRIC POWER PURCHASES FROM QUALIFIED NET METERING UNITS

- \* I. Application. This tariff applies to Union Electric Company d/b/a AmerenUE (Company) purchases of electric energy from Qualified Net Metering Units (hereinafter referred to as "Customer-Generator") under the provisions of Section 386.890RSMo. the 'Net Metering and Easy Connection Act'. The Customer-Generator must meet the general technical requirements, testing requirements, and liability requirements listed under the provisions of Section 386.890RSMo. the 'Net Metering and Easy Connection Act', as well as the requirements specified in the Customer-Generators' applicable rate class under the Company's Schedule 5 - Schedule of Rates for Electric Service. Service under this rate shall be evidenced by a contract between Customer-Generator and the Company per the Interconnection Application/Agreement for Net Metering Systems With Capacity of 100 kW or less.

The availability of net metering is limited to those types of generation that have been certified by the Missouri Department of Natural Resources as renewable energy resources and which is intended primarily to offset part or all of the customer-generator's own electrical energy requirements. Net metering cannot be elected in conjunction with "Optional Time-of-Day Rate" service of any of Company's rate schedule.

Company will provide net metering service until the total rated generating capacity used by Customer-Generators is equal to or in excess of five percent (5.0%) of Company's single-hour peak load during the previous year. However in a given calendar year, no retail electric supplier shall be required to approve any application for interconnection if the total rated generating capacity of all application for interconnection already approved to date by said supplier in said calendar year equals or exceeds one percent (1.0%) of said supplier's single-hour peak load for the previous calendar year.

\* II. Billing.

- a) Energy Pricing and Billing. Each billing period, Company shall measure the net electrical energy produced or consumed and bill the Customer-Generator as follows:

- i. If the electricity supplied by Company exceeds the electricity supplied by the Customer-Generator to Company, Company's bill will reflect the net electricity supplied by Company and the Customer-Generator's current service classification.
- ii. If the electricity supplied by Company is less than the electricity supplied by the Customer-Generator to Company, Company's bill will include a credit for the net electricity received by Company in accordance with the Non-Time-Differentiated Energy Rates contained in Section A.II.1 herein.

b) Minimum Bill

Net metering does not modify or eliminate any customer obligation(s) or billing provision(s) of the Customer's current rate schedule for delivery of electric power and energy such as the Customer Charge or any minimum billing demand (if applicable).

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P. S. C. MO., ILL. C. C., IA. ST. C. C. SCHEDULE NO. 1 1st Revised SHEET NO. 11CANCELLING SCHEDULE NO. 1 Original SHEET NO. 11APPLYING TO MISSOURI SERVICE AREAB. ELECTRIC POWER PURCHASES FROM QUALIFIED NET METERING UNITS (CONTINUED)

- (2) Customer-Generator shall be solely responsible for properly synchronizing his generating equipment with the UE frequency and voltage. This includes resynchronizing his generator(s) after system outages or disturbances.

## C. Quality of Service

- (1) The interconnection of Customer-Generator's generating equipment with the UE system shall not cause any reduction in the quality of service being provided to other customers or cause any undesirable effect on any UE facilities. Such interconnection shall be pursuant to the latest revision of IEEE 519 and IEEE 1547.
- (2) The power factor of Customer-Generator's load with his generating equipment connected shall not be less than that specified by retail tariff for his applicable customer class.

## \* D. Metering and/or Additional Distribution Equipment

The revenue metering for Net Metering shall be sufficient to measure the net amount of electrical energy produced or consumed by the Customer-Generator. If the Customer-Generator's existing meter equipment does not meet these requirements or if it is necessary for Company to install additional distribution equipment to accommodate the Customer-Generator's facility, the Customer-Generator shall reimburse the Company for the costs to purchase and install the necessary additional equipment.

At the request of the Customer-Generator, such costs may be initially paid for by Company, and any amount up to the total costs and a reasonable interest charge may be recovered from the Customer-Generator over the course of up to twelve (12) billing periods. Net Metering cannot occur until the installation of such meter(s) and/or additional distribution equipment has been completed.

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## UNION ELECTRIC COMPANY

## ELECTRIC SERVICE

P. S. C. MO., ILL. C. C., IA. ST. C. C. SCHEDULE NO. 1 1st Revised SHEET NO. 12CANCELLING SCHEDULE NO. 1 Original SHEET NO. 12APPLYING TO MISSOURI SERVICE AREAB. ELECTRIC POWER PURCHASES FROM QUALIFIED NET METERING UNITS-(CONTINUED)

## E. Other Requirements

- \* (1) All Customer-Generator installations shall adhere to any applicable requirements of the National Electrical Safety Code, the National Electric Code, Institute of Electrical and Electronics Engineers (IEEE), Underwriters Laboratories (UL), local electric codes, applicable NEMA codes, OSHA, and UE's Electric Service Rules as set forth in published tariffs.

\*Indicates Change

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P. S. C. MO., ILL. C. C., IA. ST. C. C. SCHEDULE NO. 1 1st Revised SHEET NO. 13CANCELLING SCHEDULE NO. 1 Original SHEET NO. 13APPLYING TO MISSOURI SERVICE AREA**INTERCONNECTION APPLICATION/AGREEMENT FOR NET METERING SYSTEMS WITH  
CAPACITY OF 100 kW OR LESS****\* For Customers Applying for Interconnection:**

If you are interested in applying for interconnection to the electrical system of Union Electric Company d/b/a AmerenUE (Company), you should first contact Company and ask for information related to interconnection of parallel generation equipment to Company's system and you should understand this information before proceeding with this Application. If you wish to apply for interconnection to Company's electrical system, please complete sections A, B, C, and D, and attach complete plans, specifications, schematics and wiring diagrams describing the net metering, parallel generation, and interconnection facilities (hereinafter collectively referred to as the "Customer-Generator's System") and submit them to Company at:

One Ameren Plaza  
1901 Chouteau Avenue  
St. Louis MO 63103  
Att: Manager Regulatory

You will be provided with an approval or denial of this Application. Company will provide notice of approval or denial within thirty (30) days of receipt by Company for Customer-Generators of 10 kW or less and within ninety (90) days of receipt by Company for Customer-Generators greater than 10 kW. If this Application is denied, you will be provided with the reason(s) for the denial. If this Application is approved and signed by both you and Company, it shall become a binding contract and shall govern your relationship with Company.

**\* For Customers Who Have Received Approval of  
Customer-Generator System Plans and Specifications:**

After receiving approval of your Application, it will be necessary to construct the Customer-Generator System in compliance with the plans and specifications described in the Application, complete sections E and F of this Application, and forward this Application to Company for review and completion of section G at:

One Ameren Plaza  
1901 Chouteau Avenue  
St. Louis MO 63103  
Att: Manager Regulatory

Company will complete the utility portion of section G and, upon receipt of a completed Application/Agreement form and payment of any applicable fees, permit interconnection of the Customer-Generator System to Company's electrical system. Customer-Generator will have one (1) year from the time of Company's approval to complete the interconnection after which time, the approval shall expire and the Customer-Generator shall be responsible for filing a new application.

**\* For Customers Who Are Assuming Ownership or Operational  
Control of an Existing Customer-Generator System:**

If no changes are being made to the existing Customer-Generator System, complete sections A, D and F of this Application/Agreement and forward to Company at:

One Ameren Plaza  
1901 Chouteau Avenue  
St. Louis MO 63103  
Att: Manager Regulatory

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P. S. C. MO., ILL. C. C., IA. ST. C. C. SCHEDULE NO. 1 1st Revised SHEET NO. 14CANCELLING SCHEDULE NO. 1 Original SHEET NO. 14APPLYING TO MISSOURI SERVICE AREA**INTERCONNECTION APPLICATION/AGREEMENT FOR NET METERING SYSTEMS WITH  
CAPACITY OF 100 kW OR LESS – (CONTINUED)**

- \* Company will review the new Application/Agreement and shall approve such if the new Customer-Generator has satisfactorily completed Application/Agreement, and no changes are being proposed to the existing Customer-Generator System. There are no fees or charges for the Customer-Generator who is assuming ownership or operational control of an existing Customer-Generator System if no modifications are being proposed to that System.

**A. Customer-Generator's Information**

Name: \_\_\_\_\_  
Mailing Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_  
Service/Street Address (if different from above): \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_  
Daytime Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ E-Mail: \_\_\_\_\_  
Emergency Contact Phone: \_\_\_\_\_  
Company Account No. (from Utility Bill): \_\_\_\_\_

**B. Customer-Generator's System Information**

Manufacturer Name Plate (if applicable) AC Power Rating: \_\_\_\_\_ kW Voltage: \_\_\_\_\_ Volts  
System Type: Solar \_\_\_\_\_ Wind \_\_\_\_\_ Biomass \_\_\_\_\_ Fuel Cell \_\_\_\_\_ Other (describe) \_\_\_\_\_  
Service/Street Address: \_\_\_\_\_  
Inverter/Interconnection Equipment Manufacturer: \_\_\_\_\_  
Inverter/Interconnection Equipment Model No.: \_\_\_\_\_  
Are Required System Plans & Specifications Attached? Yes \_\_\_\_\_ No \_\_\_\_\_  
Inverter/Interconnection Equipment Location (describe): \_\_\_\_\_

Outdoor \_\_\_\_\_ Manual/Utility \_\_\_\_\_ Accessible \_\_\_\_\_ & \_\_\_\_\_ Lockable \_\_\_\_\_ Disconnect \_\_\_\_\_ Switch \_\_\_\_\_ Location (describe): \_\_\_\_\_

Existing Electrical Service Capacity: \_\_\_\_\_ Amperes Voltage: \_\_\_\_\_ Volts  
Service Character: Single Phase \_\_\_\_\_ Three Phase \_\_\_\_\_

**C. Installation Information/Hardware and Installation Compliance**

Person or Company Installing: \_\_\_\_\_  
Contractor's License No. (if applicable): \_\_\_\_\_  
Approximate Installation Date: \_\_\_\_\_  
Mailing Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_  
Daytime Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ E-Mail: \_\_\_\_\_  
Person or Agency Who Will Inspect/Certify Installation: \_\_\_\_\_

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P. S. C. MO., ILL. C. C., IA. ST. C. C. SCHEDULE NO. 1 2nd Revised SHEET NO. 15CANCELLING SCHEDULE NO. 1 1st Revised SHEET NO. 15APPLYING TO MISSOURI SERVICE AREA**INTERCONNECTION APPLICATION/AGREEMENT FOR NET METERING SYSTEMS WITH  
CAPACITY OF 100 kW OR LESS – (CONTINUED)**

- \* The Customer-Generator's proposed System hardware complies with all applicable National Electrical Safety Code (NESC), National Electric Code (NEC), Institute of Electrical and Electronics Engineers (IEEE) and Underwriters Laboratories (UL) requirements for electrical equipment and their installation. As applicable to System type, these requirements include, but are not limited to, UL 1741, IEEE 929-2000 or IEEE 1547. The proposed installation also complies with all applicable local electrical codes. The proposed System has a lockable, visible disconnect device, accessible at all times to Company personnel located within the vicinity of the Customer-Generator's meter. The System is only required to include one lockable, visible disconnect device, accessible to Company. If the interconnection equipment is equipped with a visible, lockable, and accessible disconnect, no redundant device is needed to meet this requirement.

The Customer-Generator's proposed System has functioning controls to prevent voltage flicker, DC injection, overvoltage, undervoltage, overfrequency, underfrequency, and overcurrent, and to provide for System synchronization to Company's electrical system. The proposed System does have an anti-islanding function that prevents the generator from continuing to supply power when Company's electric system is not energized or operating normally. If the proposed System is designed to provide uninterruptible power to critical loads, either through energy storage or back-up generation, the proposed System includes a parallel blocking scheme for this backup source that prevents any backflow of power to Company's electrical system when the electrical system is not energized or not operating normally.

Signed (Installer): \_\_\_\_\_ Date: \_\_\_\_\_

Name (Print): \_\_\_\_\_

**D. Additional Terms and Conditions**

In addition to abiding by Company's other applicable rules and regulations, the Customer-Generator understands and agrees to the following specific terms and conditions:

**1) Operation/Disconnection**

If it appears to Company, at any time, in the reasonable exercise of its judgment, that operation of the Customer-Generator's System is adversely affecting safety, power quality or reliability of Company's electrical system, Company may immediately disconnect and lock-out the Customer-Generator's System from Company's electrical system. The Customer-Generator shall permit Company's employees and inspectors reasonable access to inspect, test, and examine the Customer-Generator's System.

**2) Liability**

Liability insurance is not required for Customer-Generators when the generator is 10 kW or less. For generators greater than 10 kW, the Customer-Generator agrees to carry no less than \$100,000 of liability insurance that provides for coverage of all risk of liability for personal injuries (including death) and damage to property arising out of or caused by the operation of the Customer-Generator's System. Insurance may be in the form of an existing policy or an endorsement on an existing policy.

**3) Interconnection Costs**

The Customer-Generator shall, at the Customer-Generator's cost and expense, install, operate, maintain, repair, and inspect, and shall be fully responsible for the Customer-Generator's System. The Customer-Generator further agrees to pay or reimburse to Company all of Company's Interconnection Costs. Interconnection Costs

\* Indicates Change

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**INTERCONNECTION APPLICATION/AGREEMENT FOR NET METERING SYSTEMS WITH  
CAPACITY OF 100 kW OR LESS – (CONTINUED)**

are the reasonable costs incurred by Company for: (1) additional tests or analyses of the effects of the operation of the Customer-Generator's System on Company's local distribution system, (2) additional metering, and (3) any necessary controls. These Interconnection Costs must be related to the installation of the physical facilities necessary to permit interconnected operation of the Customer-Generator's System with Company's system and shall only include those costs, or corresponding costs, which would not have been incurred by Company in providing service to the Customer-Generator solely as a consumer of electric energy from Company pursuant to Company's standard cost of service policies in effect at the time the Customer-Generator's System is first interconnected with Company's system. Upon request, Company shall provide the Customer-Generator with a not-to-exceed costs statement for interconnection with Company based upon the plans and specifications provided by the Customer-Generator to Company.

\* **4) Energy Pricing and Billing**

Each billing period, Company shall measure the net electrical energy produced or consumed and bill the Customer-Generator as follows:

- a) If the electricity supplied by Company exceeds the electricity supplied by the Customer-Generator to Company, Company's bill will reflect the net electricity supplied by Company and the Customer-Generator's current service classification.
- b) If the electricity supplied by Company is less than the electricity supplied by the Customer-Generator to Company, Company's bill will include a credit for the net electricity received by Company in accordance with the Non-Time-Differentiated Energy Rates contained in Company's Schedule 1 – Electric Power Purchases, Section A.II.1.

**5) Terms and Termination Rights**

This Agreement becomes effective when signed by both the Customer-Generator and Company, and shall continue in effect until terminated. After fulfillment of any applicable initial tariff or rate schedule term, the Customer-Generator may terminate this Agreement at any time by giving Company at least thirty (30) days prior written notice. In such event, the Customer-Generator shall, no later than the date of termination of Agreement, completely disconnect the Customer-Generator's System from parallel operation with Company's system. Either party may terminate this Agreement by giving the other party at least thirty (30) days prior written notice that the other party is in default of any of the terms and conditions of this Agreement, so long as the notice specifies the basis for termination, and there is an opportunity to cure the default. This Agreement may also be terminated at any time by mutual agreement of the Customer-Generator and Company. This agreement may also be terminated, by approval of the Commission, if there is a change in statute that is determined to be applicable to this contract and necessitates its termination.

\* **6) Transfer of Ownership**

If operational control of the Customer-Generator's System transfers to any other party than the Customer-Generator, a new Application/Agreement must be completed by the person or persons taking over operational control of the existing Customer-Generator System. Company shall be notified no less than thirty (30) days before the Customer-Generator anticipates transfer of operational control of the Customer-Generator's System. The person or persons taking over operational control of Customer-Generator's System must file a new Application/Agreement, and must receive authorization from Company, before the existing Customer-Generator System can remain interconnected with Company's electrical system. The new Application/Agreement will only

\* Indicates Change



P. S. C. MO., ILL. C. C., IA. ST. C. C. SCHEDULE NO. 1 1st Revised SHEET NO. 17CANCELLING SCHEDULE NO. 1 Original SHEET NO. 17APPLYING TO MISSOURI SERVICE AREA**INTERCONNECTION APPLICATION/AGREEMENT FOR NET METERING SYSTEMS WITH  
CAPACITY OF 100 kW OR LESS – (CONTINUED)**

\* need to be completed to the extent necessary to affirm that the new person or persons having operational control of the existing Customer-Generator System completely understand the provisions of this Application/Agreement and agrees to them. If no changes are being made to the Customer-Generator's System, completing sections A, D and F of this Application/Agreement will satisfy this requirement. If no changes are being proposed to the Customer-Generator System, Company will assess no charges or fees for this transfer. Company will review the new Application/Agreement and shall approve such if the new Customer-Generator has satisfactorily completed the Application/Agreement, and no changes are being proposed to the existing Customer-Generator System. Company will then complete section G and forward a copy of the completed Application/Agreement back to the new Customer-Generator, thereby notifying the new Customer-Generator that the new Customer-Generator is authorized to operate the existing Customer-Generator System in parallel with Company's electrical system. If any changes are planned to be made to the existing Customer-Generator System that in any way may degrade or significantly alter that System's output characteristics, then the Customer-Generator shall submit to Company a new Application/Agreement for the entire Customer-Generator System and all portions of the Application/Agreement must be completed.

**7) Dispute Resolution**

If any disagreements between the Customer-Generator and Company arise that cannot be resolved through normal negotiations between them, the disagreements may be brought to the Missouri Public Service Commission by either party, through an informal or formal complaint. Procedures for filing and processing these complaints are described in 4 CSR 240-2.070. The complaint procedures described in 4 CSR 240-2.070 apply only to retail electric power suppliers to the extent that they are regulated by the Missouri Public Service Commission.

**\* 8) Testing Requirement**

IEEE 1547 requires periodic testing of all interconnection related protective functions. The Customer-Generator must, at least once every year, conduct a test to confirm that the Customer-Generator's net metering unit automatically ceases to energize the output (interconnection equipment output voltage goes to zero) within two (2) seconds of being disconnected from Company's electrical system. Disconnecting the net metering unit from Company's electrical system at the visible disconnect switch and measuring the time required for the unit to cease to energize the output shall satisfy this test. The Customer-Generator shall maintain a record of the results of these tests and, upon request by Company, shall provide a copy of the test results to Company. If the Customer-Generator is unable to provide a copy of the test results upon request, Company shall notify the Customer-Generator by mail that Customer-Generator has thirty (30) days from the date the Customer-Generator receives the request to provide to Company, the results of a test. If the Customer-Generator's equipment ever fails this test, the Customer-Generator shall immediately disconnect the Customer-Generator's System from Company's system. If the Customer-Generator does not provide results of a test to Company within thirty (30) days of receiving a request from Company or the results of the test provided to Company show that the Customer-Generator's net metering unit is not functioning correctly, Company may immediately disconnect the Customer-Generator's System from Company's system. The Customer-Generator's System shall not be reconnected to Company's electrical system by the Customer-Generator until the Customer-Generator's System is repaired and operating in a normal and safe manner.

I have read, understand, and accept the provisions of Section D, subsections 1 through 8 of this Application/Agreement.

Signed (Customer-Generator): \_\_\_\_\_ Date: \_\_\_\_\_

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