

POLICY BULLETIN NO. 113B

SUBJECT:

Interconnection Policy for member-owned generation facilities with a nameplate capacity of 10 kW up to 50 kW.

OBJECTIVE:

Lower Yellowstone Rural Electric Cooperative (LYREC) recognizes that its members may want to take advantage of alternative on-site generation sources. This policy outlines the means and requirements for interconnection of this generation with LYREC's distribution system under terms and conditions that do not adversely affect other members economically and qualitatively. While this policy primarily assesses interconnection options, it is recognized that a member may generate without interconnecting to the cooperative lines.

GENERAL POLICY:

A. Safety and Reliability Standards

1. Safety of Cooperative personnel and protecting existing members from undesirable system operation is paramount. Interconnection between the Member's generation equipment and the Cooperative's electric system and/or power supplier's electric system mandates the establishment by this Cooperative of reasonable standards to ensure the safety and reliability of the Cooperative's electric system and/or power supplier's electric system, and to protect the Member and its generating system, the general public, and the Cooperative's and/or electric power supplier's personnel.
2. To ensure safe interconnection, the Member/Generator will be required to observe and follow IEEE 1547: Standard for Interconnecting Distributed Resources with Electric Power Systems, UL 1741: Standard for Inverters, Converters, Controllers, and Interconnection System Equipment for Use with Distributed Energy Resources, and other protection measures deemed necessary by the Cooperative's Engineering department.
3. The Cooperative will permit the Member/Generator to operate its generation equipment in parallel with the Cooperative's electrical system whenever this can be done without adverse effects on the general public, other utility consumers, the power supplier or to the Cooperative's equipment or personnel. Certain protective devices (relays, circuit breakers, etc.), within reasonable Electrical Industry Standards specified by the Cooperative and/or the Power supplier must be installed at any location where a Member/Generator desires to operate generation in

parallel with the Cooperative and/or Power Supplier. The purpose of these devices is to promptly remove the infeed from the Member's generation whenever a fault occurs, so as to protect the general public and the Cooperative's facilities and/or the Power Supplier's facilities and personnel from damage due to fault currents produced by the Member's generator(s).

4. The Member's generation facility and associated equipment shall meet all requirements of applicable state and federal regulations, local, state and national codes and all standards of Prudent Utility Practice.

5. Interconnection shall be made in such manner that, if the voltage from the Cooperative and/or Power Supplier is absent, the electrical interconnection is immediately broken.

6. The Cooperative and/or the Power Supplier will not assume any responsibility for protection of the generator (s), or of any portion of the Member's electrical equipment. The Member is fully responsible for protecting its equipment in such a manner that faults or other disturbances on the Cooperative's system and/or the Power Supplier's system do not cause damage to the Member's equipment, the general public, the Cooperative's and/or electric Power Supplier equipment and personnel.

7. The Cooperative and the generator owner must comply with all applicable provisions of the State Electrical Code, the National Electrical Safety Code and the National Electrical Code. Evidence of a valid State Electrical Permit must be provided prior to interconnection.

8. To protect appliances and equipment on the premises of the Member and other Members, the power generated by the Member shall not induce excessive distortion to the system's voltage or current sine waves. The maximum allowable distortion must not exceed 5% measured at the Member's service box.

9. If the generating system interferes with the operation of the Cooperative's equipment or interferes with other Member's services, the Cooperative reserves the right to disconnect.

10. The Member/Generators load, in conjunction with the generating system, shall not have a power factor of less than .95 leading or lagging.

11. To protect the generating system, and to protect all parties from electric shock, the Member shall supply and install automatic devices to positively disconnect their generating equipment from the system in the event of a disturbance or supply outage on the cooperative's system. The Cooperative shall be allowed access to this device at all times to permit periodic safety tests.

12. The Member shall furnish and install a disconnecting switch to be connected between the Cooperative's electric system and the generating system. This switch must provide a visual opening in the line and shall be located and equipped so that Cooperative personnel can have access to operate and lock the switch in case of an outage or for work on the Cooperative's and/or Power Supplier's system.
13. The Member shall furnish and install all additional wiring and equipment needed to connect the generating system metering at existing service location. The meter socket shall be installed as close as possible to the existing service meter.
14. The Member shall advise the Cooperative prior to making any revisions to the Member's generation facility, the control system, or the interface between the two power systems after the installation. Any such revision must be acceptable to the Cooperative.
15. Should the parallel operation of the Member's generation facility cause interference or adversely affect voltage, frequency, harmonic content or power factor in the Cooperative's system or other Member's services, the Cooperative may require disconnection of parallel operation until the condition has been corrected.
16. The Cooperative reserves the right to inspect on demand all protective equipment including relays and circuit breakers owned and installed by the Member at the point of interconnection.

B. Definitions

1. **Alternating Current (ac)** - an electric current that reverses direction at regular intervals, having a magnitude that varies continuously in a sinusoidal manner.
2. **Avoided Cost** - the incremental cost to the Cooperative of electric energy or capacity which, but for the purchase from the QF, the Cooperative would generate itself or purchase from another source meeting the PURPA requirements of 18 CFR 292 and approved by the Board.
3. **Distribution System** - the Cooperative'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 that transport bulk power over longer distances. The Cooperative's Distribution System generally operates at voltages of 25 kV or less.
4. **Interconnection** - the physical system of electrical transmission between the distribution system and the generator.
5. **Member/Generator** - any entity that proposes to interconnect its generation facility with the Cooperative's Distribution System.



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6. **Nameplate Capacity** - the total nameplate capacity rating of all the generation included in the member's generation system. For this definition, the "standby" and/or maximum rated kW (ac) capacity on the nameplate shall be used.
7. **Point of Interconnection** - the point where the interconnection facilities connect with the Cooperative's Distribution System. The Point of Interconnection is usually the point of metering, unless otherwise specified.

C. Applicability

1. All Cooperative members seeking interconnection of an on-site generation source or sources with a Nameplate Capacity between 10 kW and 50 kW.

D. Emergency or Standby Generators

1. Members may wish to install emergency or standby generators for those times there is a prolonged outage on the Cooperative system. The output from these installations is not considered for the purposes of member-owned generation.
2. Permanent or portable generators shall not be connected through wiring internal to the member's home, business or any other structure that the Cooperative provides electrical service to unless the connection is made through a permanently installed transfer switch. The transfer switch shall be designed and installed so that the generator cannot be connected to the Cooperative's system in any mode of operation. When the switch is in the position that disconnects the Cooperative's service, it must have a visible opening and be lockable in that position or be a UL listed transfer switch approved by the Cooperative. Compliance with these provisions is necessary to prevent serious or possibly fatal accidents to Cooperative personnel as well as the public.
3. All transfer switches and/or transfer operating schemes must meet applicable building and electrical codes and be inspected by the appropriate state electrical inspector.
4. The Cooperative will require that an inspection be made by Cooperative personnel prior to operation of the member's generator.

GENERAL TERMS AND CONDITIONS:

Interconnections between 10 kW and 50 kW nameplate capacity will be subject to the following guidelines:

1. Upper Missouri Power Cooperative (UMPC) and LYREC will purchase energy produced by the Member/Generator at its Avoided Costs.



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2. The total Nameplate Capacity of all generation interconnected at the site shall be between 10 kW and 50 kW.
3. Generation source must use renewable resources as its fuel; defined to be solar, wind, hydropower, biomass, geothermal, fuel cells or another alternative generation system pre-approved by the Cooperative.
4. Generation is located on the member's premises, connected at a single service location and intended primarily to offset part or all of the Member/Generator's requirements for electricity at this location only.
5. Member/Generators will be subject to all other terms of the applicable rate schedules including payment of monthly basic charges even if no energy is billed. Charges for energy delivered by the Cooperative net of the energy produced by the member's generator shall be billed monthly at the appropriate retail rate.
6. Member generation in excess of monthly usage will be purchased by UMPC and LYREC at its Avoided Costs from qualifying facilities in accordance with Sections 201 and 210 of PURPA.
7. Generator must operate in parallel with the Cooperative distribution system.
8. A standard non-detent meter may be allowed to measure power flows. Two detent meters may be required if needed for automated meter reading systems. All costs above standard metering for the applicable member rate class will be borne by the member including, but not limited to, modifications to an existing meter base and wires, including a second meter and meter base if required.
9. PURPA provides that the Cooperative members shall not subsidize the qualifying facility. Thus, electrical service will be provided to the qualifying facility according to the Cooperative's current policies for any similar electrical service. All costs of the Interconnection are to be paid by the Member/Generator.
10. The PURPA regulations also mandate that service to other Cooperative members shall not be degraded because of the presence or connection of the qualifying facility. The owner of the qualifying facility shall construct, operate and maintain its facilities or cause them to be constructed, operated and maintained, in a manner conforming to all existing State and Federal safety codes, regulations and best operating practices. Failure to comply shall be cause for disconnection of the qualifying facility.
11. The Cooperative and the other Cooperative members are to be held harmless from all acts or omissions on the part of the qualifying facility. The qualifying facility will be required to carry adequate insurance and will be required to reimburse the Cooperative for any additional insurance premiums which may be caused by the connection of the qualifying facility.
12. Member must complete the Lower Yellowstone Rural Electric Cooperative Interconnection Application (Appendix A).
13. A processing fee of \$250 is required by the Cooperative to process the application.
14. Members seeking non-standard power purchase agreements must submit a written proposal with the Small Generation Interconnection application.

RESPONSIBILITY:



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The General Manager/CEO shall be responsible for carrying out the provisions of this policy and may delegate certain responsibilities to staff members or consultants of the cooperative.

**Appendix A –Interconnection Request (10 kW to 50 kW Nameplate Capacity)
(Application Form)**

This application and agreement shall be completed and returned to Lower Yellowstone Rural Electric Cooperative along with a processing fee of \$250 in order to begin processing a request to interconnect member-owned generation with Nameplate Capacity of 10 kW to 50 kW.

LYREC
Attn:
3200 West Holly
PO Box 1047
Sidney, MT 59270
Office number: 406-488-1602

Member/Generator Information

Individual requesting interconnection or company

Member/Generator Name: _____

Contact Person: _____

Mailing Address: _____

City: _____ State: _____ Zip: _____

Facility Location (if different from above): _____

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

E-Mail Address: _____

Project Design/Engineering (Architect) (as applicable)

Company: _____

Representative: _____

Address: _____

City: _____ State: _____ Zip: _____



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

E-Mail Address: _____

Electrical Contractor (as applicable)

Company: _____

Representative: _____

Address: _____

City: _____ State: _____ Zip: _____

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

E-Mail Address: _____

Application is for: _____ new small generating facility

_____ capacity addition to existing small generating facility

If capacity addition to existing facility, please describe: _____

Will the small generation facility be used to supply power to the interconnection customer?

Yes ___ No ___

Requested point of interconnection: _____

Interconnection customer's requested in-service date: _____

Small Generation Facility Information

Data applies only to the small generation facility, not the interconnection facilities.

Energy Source: ___ Solar ___ Wind ___ Hydro ___ Other (state type) _____

Prime mover: ___ Fuel Cell ___ Recip Engine ___ Gas Turbine ___ Steam Turbine

___ Microturbine ___ PV ___ Other

Type of generator: ___ Synchronous ___ Induction ___ Inverter

Generator nameplate rating: _____ kW (Typical)

Interconnection customer or customer-site load: _____ kW (if none, so state)

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

Generator (or solar collector)



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Manufacturer, model name & number: _____

Version number: _____

Interconnection Facilities Information

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

Will the transformer be provided by the interconnection customer? Yes No

Transformer data (If applicable, for interconnection customer-owned transformer):

Size: _____ kVA

Transformer impedance: _____ % on _____ kVA Base

General Information

Enclose a copy of site electrical one-line diagram showing the configuration of all small generation facility equipment, current and potential circuits, and protection and control schemes. This one-line diagram must be signed and stamped by a licensed professional engineer. Is one-line diagram enclosed? Yes No

Enclose copy of any site documentation that indicates the precise physical location of the proposed small generation facility (e.g. USGS topographic map or other diagram or documentation).

Proposed location of protective interface equipment on property (include address if different from the interconnection customer's address) _____

Enclose a copy of any site documentation that describes and details the operation of the protection and control schemes. Is available documentation enclosed? Yes No

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

Are schematic drawings enclosed? Yes No

ADDITIONAL INFORMATION AND REQUIREMENTS:

Note: 1) Inverter must have UL 1741 listing.

2) Separate disconnect required.

3) All applicable code requirements met.

4) Evidence of a valid State Electrical Permit must be provided.

SMALL GENERATION INTERCONNECTION AGREEMENT

This Interconnection Agreement ("Agreement") is made and entered into this ____ day of _____, 20__, by Lower Yellowstone Rural Electric Cooperative, Inc. ("Cooperative"), a Montana corporation, and _____ ("Member/Generator"), each hereinafter sometimes referred to individually as "Party" or both referred to collectively as the "Parties". In consideration of the mutual covenants set forth herein, the Parties agree as follows:

This agreement provides for the safe and orderly operation of the electrical facilities interconnecting the electrical distribution facility owned by the Cooperative and the Member/Generator's facility located at

This Agreement does not supersede any requirements of any by-laws, applicable tariffs, rates, rules and regulations in place between the Member/Generator and the Cooperative.

1. Intent of Parties

- It is the intent of the Member/Generator to interconnect an electric power generator to the Cooperative's electrical distribution system.
- It is the intent of both parties to operate their facilities in a way that ensures the safety of the Cooperative's system, the Cooperative's employees, and the public.
- It is the intent of the Cooperative to operate the distribution system to maintain a high level of service to their Member/Generators and to maintain a high level of power quality.
- The Member/Generator is responsible for establishing operating procedures and standards within their organization and shall be competent in the operation of the electrical generation system.
- The Member/Generator is responsible for notifying the Cooperative in writing if the electrical generation system is modified or expanded increasing the nameplate rating of the system.

2. **Suspension of Interconnection:** The interconnection should not compromise the Cooperative's protection or operational requirements. The operation of the Member/Generator's System and the quality of electric energy supplied by the Member/Generator shall meet the standards as specified by the Cooperative. If the operation of the Member/Generator's system or quality of electric energy supplied (in the case of power export) does not meet the standards as specified, then the Cooperative will notify the Member/Generator to take reasonable and appropriate corrective action. The Cooperative shall have the right to disconnect the Member/Generator's System, until compliance is reasonably demonstrated. Notwithstanding, the Cooperative may in its sole discretion disconnect the Member/Generator's generating plant from the Distribution Facility without notice if the operation of the Generating Plant poses a threat, in the Cooperative's sole judgement, to life or property.

3. **Maintenance Outages:** Maintenance outages will occasionally be required on the Cooperative's system, and the Cooperative will provide as much notice and planning as practical to minimize downtime.



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- 4. Access: Access is required at all times by the Cooperative to the Member/Generator's site for maintenance, operating and meter reading. The Cooperative reserves the right, but not the obligation, to inspect the Member/Generator's facilities.
5. Liability and Indemnification: Member/Generator shall assume all liability for and shall indemnify the Cooperative for any claims, losses, costs, and expenses of any kind or character to the extent that they result from Member/Generator's negligence or other wrongful conduct in connection with the design, construction or operation of Member/Generator's facility. Proof of insurance that names the Cooperative as an additional insured is required.
6. Term: This Agreement becomes effective when executed by both Parties and shall continue in effect until terminated. This Agreement may be terminated as follows: (a) Member/Generator may terminate this Agreement at any time by giving the Cooperative at least sixty (60) days' written notice; (b) Cooperative may terminate upon failure by the Member/Generator to generate energy from the Facilities within six (6) months after completion of the interconnection; (c) either Party may terminate 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 the Agreement or the Rules or any rate schedule, tariff, regulation, contract, or policy of the Cooperative, so long as the notice specifies the basis for termination and there is opportunity to cure the default; (d) Cooperative may terminate by giving Member/Generator at least sixty (60) days' notice in the event that there is a material change in an applicable law, or any requirement of the Cooperative's wholesale electric suppliers or of any transmission utility, independent system operator or regional transmission organization having responsibility for the operation of any part of the System.
7. Billing: Member generation in excess of monthly usage will be purchased by UMPC and LYREC at its Avoided Costs. If the Member/Generator uses more electricity than they generate, charges for energy delivered by the Cooperative net of the energy produced by the member's generator shall be billed monthly at the appropriate retail rate.

8. AGREED TO BY:

Member/Generator – Name _____ Title _____ Date _____

LYREC – Name _____ Title _____ Date _____