

# RURAL ELECTRIC CONVENIENCE COOPERATIVE CO.

## Policy 100.51

### Interconnection and Parallel Operation of Distributed Generation

#### OBJECTIVE:

To establish safety, reliability and economic standards for interconnection and parallel operation of distributed generation that encourage the development of member-owned on-site electric generation facilities using renewable fuel sources designed primarily to offset the member's electrical requirements while honoring the cooperative's obligation to provide electricity to all members on a cooperative basis.

#### I. DEFINITIONS

**Distributed generation** is defined as any generation built within close proximity to the generating member's load regardless of generation capacity or energy source of such generation and includes but is not limited to:

- A. small scale environmentally friendly generators such as photovoltaics (PV), fuel cells, small wind turbines;
- B. microturbines or reciprocating engines fueled by renewable fuels such as landfill gas or methane gas from digesters;
- C. any qualifying facility (QF) under the Public Utility Regulatory Policies Act of 1978 (PURPA);
- D. any on-site generation interconnected with distribution facilities;
- E. commercial emergency and standby diesel generators installed, for example, in hospitals, hotels and farms;
- F. residential standby generators;
- G. generators installed by a utility at a substation for voltage support or other reliability purposes.

**IEEE STANDARD 1547** – The Institute of Electrical and Electronic Engineers, Inc. (IEEE) Standard 1547 (2003) "Standard for Interconnecting Distributed Resources with Electric Power Systems", as amended and supplemented, at the time the interconnection request is submitted.

**IEEE STANDARD 1547.1** – The IEEE Standard 1547.1 (2005) “Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems”, as amended and supplemented, at the time the interconnection request is submitted.

**NAMEPLATE CAPACITY** – The maximum rated output of a generator, prime mover, or other electric power production equipment under specific conditions designated by the manufacturer and is usually indicated on a nameplate physically attached to the power production equipment.

**SMALL GENERATOR FACILITY** – The equipment used by an interconnection member to generate, or store electricity that operates in parallel with the electric distribution system with a nameplate capacity of 10 kW (solar dc) or less. A small generator facility typically includes an electric generator, prime mover, and the interconnection equipment required to safely interconnect with the electric distribution system or local electric power system. These facilities have been approved by a nationally recognized testing laboratory or must have been approved by the cooperative under a study process and qualify for expedited review.

**UL STANDARD 1741** – Underwriters Laboratories’ standard titled “Inverters Converters, and Controllers for Use in Independent Power Systems”, November 7, 2005 edition, as amended and supplemented.

**WITNESS TEST** – For lab certified or field approved equipment, verification (either by an on-site observation or review of documents) by the cooperative that the interconnection installation evaluation required by IEEE Standard 1547 Section 5.3 and the commissioning test required by IEEE Standard 1547 Section 5.4 have been adequately performed. For interconnection equipment that has not been lab certified or field approved, the witness test shall also include the verification by the cooperative of the on-site design tests as required by IEEE Standard 1547 Section 5.1 and verification by the cooperative of production tests required by IEEE Standard 1547 Section 5.2. All tests verified by the cooperative are to be performed in accordance with the test procedures specified by IEEE Standard 1547.1.

## **II. APPLICABILITY**

This interconnection policy applies to cooperative members proposing to install and interconnect small generator facilities that:

- A. Are not subject to the interconnection requirements of MISO/PJM; and
- B. Are designed to operate in parallel with the electric distribution system.

## **INTERCONNECTION REQUESTS**

- A. Members seeking to interconnect a generator facility shall submit an interconnection request *application and a signed Agreement for Interconnection and Parallel Operation for Distributed Generation*. For systems larger than 10 kW, a *Description of Facilities Schedule and Point of Interconnection form must also be included*. The request may be eligible for expedited interconnection review if the request is for a small generator facility using lab certified or field approved interconnection equipment.
- B. Interconnection equipment shall be deemed to be lab certified if it is evaluated by a nationally recognized testing laboratory (NRTL) and found to be in compliance with 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 and NFPA 70 National Electrical Code.
- C. Interconnection equipment shall be deemed to be field approved if within the previous 36 months of the date of the interconnection request, it has been previously approved for use with the proposed small generator facility in a materially identical system application, and the prior approval process included a successful witness test.
- D. The member must submit to the cooperative plans of the proposed installation and must obtain approval for the installation. This approval process will include a review by the cooperative of the effect of the proposed generation on the cooperative's distribution system, including its protective scheme. The member requesting interconnection shall pay the cost of this review. No installation will be permitted that reduces reliability to other members or causes voltage conditions on the system to be outside of the limits of ANSI C84.1 Range A. No installation will be permitted that is expected to produce objectionable harmonics on the system. Any mitigation required to resolve harmonic problems created by a member-owned generator will be completed and paid for by the member.

### **III. EXPEDITED REVIEW**

- A. The cooperative shall review the application and evaluate the potential for adverse system impacts. Any costs of construction of facilities on the cooperative's system to accommodate the small generator facility shall be paid by the member.
- B. The cooperative shall, within 10 business days after receipt of the interconnection request, inform the applicant that the interconnection request is complete or incomplete and if so, what materials are missing.

- C. The cooperative shall, within 15 business days after the end of the 10 business days noted in B, verify that the small generator facility equipment can be interconnected safely and reliably.
- D. Unless the cooperative determines and demonstrates that a small generator facility cannot be interconnected safely or reliably to its system and provides a letter to the applicant explaining its reasons for denying an interconnection request, the cooperative shall approve the interconnection request subject to the following conditions:
  - 1. The small generator facility has been approved by local or municipal electric code officials with jurisdiction over the interconnections; and
  - 2. A certificate of completion has been returned to the cooperative. Completion of local inspections may be designated on inspection forms used by local inspecting authorities; and
  - 3. The witness test has been successfully completed or waived; and
  - 4. The applicant has signed a standard small generator interconnection agreement and provided proof of insurance or otherwise complied with the terms of the agreement. When an applicant does not sign the agreement within 30 business days after receipt from the cooperative, the interconnection request may be deemed withdrawn unless the applicant requests to have the deadline extended. The request for extension shall not be unreasonably denied by the cooperative.
- E. When a small generator facility is not approved under this expedited review, the applicant may submit a new interconnection request for consideration under the procedures for review of larger capacity generator facilities with a nameplate capacity greater than 10 kW (solar dc).

#### **IV. INSURANCE REQUIREMENTS AND INDEMNIFICATION**

- A. Throughout the term of this agreement, the Member shall carry a liability insurance policy issued by a licensed insurance carrier with an A. M. Best rating of B+ or better that provides protection against claims for damages resulting from (i) bodily injury, including wrongful death; and (ii) property damage arising out of the member's ownership and/or operation of the distributed generation facility under this agreement. The limits of such policy shall be at least \$1,000,000.00 per occurrence for those members with small generation facilities. The member shall provide a certificate of insurance containing a minimum 30-day notice of cancellation to the cooperative prior to connection of the member's facility to the cooperative's system.
- B. In the event the member chooses to self-insure, the member shall provide proof of financial responsibility satisfactory to the cooperative and shall indemnify the cooperative, its officers, agents, and employees against all loss,

damage, expense and liability to any persons, including members, for injury to or death of persons or injury to property, including but not limited to consequential damages, interest, punitive damages, member's fees and court costs, proximately caused by the indemnifying party's construction, ownership, interconnection, operation, or maintenance of, or by failure of, any of such party's works or facilities used in connection with the operation of the generating facility.

## **V. MISCELLANEOUS REQUIREMENTS**

- A. The cooperative shall be reimbursed for all costs of interconnection, including all carrying costs, incurred by the cooperative in connecting the member generation facility to the distribution system. Those costs for small generating facilities shall not exceed \$500.00 unless the facility fails initial testing and additional review is necessary.
- B. The cooperative shall have free access to the member's small generation facility and interconnection equipment at all times to monitor operation of the member's equipment, cooperative-supplied service equipment connected to such system, or to disconnect if the facility is not in compliance with the requirements of IEEE 1547 and the non-compliance adversely affects the safety or reliability of the electric system. The cooperative shall provide reasonable notice to the member prior to disconnection of the facility if possible.
- C. The cooperative shall have the right to inspect and approve all plans for parallel generation systems and the interconnection systems prior to initial operation or subsequent operation following modifications.
- D. The member shall make any necessary changes or adjustments to the additional facilities being operated in parallel to eliminate interference on the cooperative's distribution system.
- E. Member installed EREGF components (e.g., inverter, disconnect, etc.) shall not be installed within a distance of 3' or less from a cooperative pole, transformer, meter, or any other component that may interfere with servicing our equipment or performing maintenance.
- F. The member shall provide adequate above-ground clearance of cooperative poles. When connecting EREGF equipment to the master meter or meter loop, all wiring located within 3' of meter pole shall be buried, except for the exposed conduit feeding into the bottom of the meter loop's disconnect.
- G. EREGF installations must be properly labeled by placing an approved placard on the cooperative's meter base, indicating that an alternate source of energy is interconnected to the meter. An additional placard is required to identify the disconnect of the alternative energy source.

- H. The member shall not energize the cooperative's system during any period of utility service interruption. The member's equipment must contain a disconnect device to which the cooperative has access and which the cooperative can lock in a visibly open position to disconnect, for safety reasons, the member's electric generating facility for the cooperative's electric delivery system.
- I. Electric generation facilities may be disconnected by the cooperative from its system whenever, in the sole opinion of the cooperative, such action is required by an emergency, for reasons of safety or due to interference with service to other members. The facility shall also be subject to the cooperative's requirements for maintaining voltage standards of output and the production of reactive power.
- J. Phase, frequency and voltage of the member's interconnected generation shall be compatible with that provided by the cooperative.
- K. The members shall pay the cost of interconnection including initial and future transmission, distribution, metering, service and other facilities costs necessary to permit interconnected operations with the cooperative.
- L. Any auxiliary or reserve power service required by the member must be arranged in accordance with the terms of the cooperative's applicable policies/rates as modified from time to time.
- M. In the event of a dispute, either party shall provide the other Party with a written Notice of Dispute describing in detail the nature of the dispute. If the dispute has not been resolved within two Business Days after receipt of the Notice, either Party may request assistance from a reputable dispute resolution service for assistance in resolving the dispute. The service will select an appropriate dispute resolution venue, (e.g., mediation, settlement judge, early neutral evaluation, or technical expert) to assist the Parties in resolving their dispute. Each party agrees to conduct all negotiations in good faith and will be responsible for one-half of any costs paid to neutral third parties utilized in the attempt to resolve the dispute. If neither party elects to seek assistance from a dispute resolution service, or if the attempted dispute resolution fails, then either Party may exercise whatever rights and remedies it may have in equity or law consistent with the terms of this policy.

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