

Lake Region Electric Cooperative

**Distributed Generation Interconnection
Agreement & Guidelines
Manual for Members**

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GENERAL

This interconnection agreement covers distributed generation (DG) operation that is connected or may be connected to the Lake Region Electric Cooperative (LREC) distribution system in any way. The Member may operate a DG installation in stand-alone or isolated fashion. Members that have DG must follow the provisions of this manual for any DG operation connected in any way to the LREC distribution system.

This manual is not a complete description or listing of all the laws, ordinances, rules and regulations that the Member must or should follow, nor is it an installation or safety manual. The Member requesting DG service must follow, in addition to all provisions of this Manual, LREC's *Rules and Regulations and Tariffs for Electric Service*, LREC's *Line Extension Policy*, the *Policies and Procedures* of the LREC's power supplier where applicable, the current *IEEE 1547 Standard Guide for Distributed Generation Interconnection*, and any other applicable governmental and regulatory laws, rules, ordinances and/or requirements. All legal, technical, financial, and other requirements in the following sections of this manual must be met prior to interconnection.

This interconnection agreement covers Member's own use only. A Member may serve all loads behind the meter at the location serving the DG installation but will not be allowed to serve multiple meters, multiple consuming facilities or multiple Members with a single DG installation or under a single DG application without prior approval by LREC. The Member must conduct his/her own analysis to determine the economic benefit of DG operation for the member.

DG facilities larger than 100 kW are not covered by this manual and will be considered by LREC on a case-by-case basis.

I. DETERMINE THE CATEGORY OF DISTRIBUTED GENERATION FACILITY**1) Connection Level Category****a) Connected to LREC's system:**

The Member requests and/or the Member's DG facility require connection to LREC's electrical system. All provisions of this manual cover this category.

b) Not connected to LREC's system:

This manual does **NOT** cover the Member's DG facility that do not require connection to LREC's electrical system.

c) Connected to transmission system:

This manual does **NOT** cover the Member requests and/or the Member's DG facility require connection to bulk electrical system (transmission system).

2) Size Category

Facilities capable of supporting a demand of 100 kW or less of connected generation, shall be eligible for service under this manual. Facilities capable of supporting greater than 100 kW of demand are not covered by this manual and will be considered by LREC on a case-by-case basis.

3) Qualifying or Non-Qualifying Category (PURPA)

- a) Qualifying Facilities (QF) are defined by the Public Utility Regulatory Policies Act of 1978 (PURPA). Refer to CFR Title 26, Volume 4, Section 292.204.
- b) The distinction between QF and Non-Qualifying Facilities (NQF) mainly deals with fuel use.
 - (1) In general, a QF must have as its primary energy source biomass, waste, renewable resources, geothermal resources or any combination.
 - (2) Other DG will be considered NQF by LREC.
- c) LREC will provide interconnection to DG members with Qualifying Facilities, subject to the provisions of this policy and other applicable rules and regulations.
- d) LREC will compensate DG Members with Qualifying Facilities for excess energy produced in accordance with the provisions of this policy and other applicable rules and regulations.
- e) LREC may negotiate a power purchase agreement with Non-QF DG members.

II. MEMBER'S INITIAL REQUIREMENTS**1) Notification**

- a) The Member must meet all of LREC's membership and service requirements in addition to all requirements in this manual.
- b) Anyone owning and/or operating a Distributed Generation (DG) facility on facilities served by LREC must notify LREC of the existence, location and category of the facility.

2) Service Request

- a) In advance of requested interconnection, the Member must contact LREC and complete the "Preliminary DER Information Form" which is available at www.lrecok.coop/connecting-solar-or-wind.
- b) QF will always be considered for connection by LREC. NQF may be considered for connection at the sole discretion of LREC.
- c) A separate form must be submitted for each facility and each location.
- d) Once LREC receives Preliminary DER Information Form and approves the project, the Member must submit the full "Application for DG Interconnection and Operation" which will be provided by LREC.

3) Submit a DG Plan

- a) Along with the application, the Member shall submit a plan detailing the electrical design, interconnection requirements, size, and operational plans. Either at the time of submission or at any time during the review process, LREC may require additional information and/or may require the plans to be prepared by a registered Professional Engineer in the state.
- b) In the case of DG facilities with no intention to export power to LREC that are of standard design and intended entirely as emergency or back-up power supply for the facility, LREC may, at its sole discretion, waive the application fee.
- c) Prior to review of the application and plan by LREC, the Member shall pay an application fee as indicated below. A separate fee must be submitted for each facility and location.

DG Size (Connected Load)	Application Fee	Additional Engineering Fee
< 25 kW	\$25	As Required
> 25 kW	\$50	As Required

III. LREC’S REVIEW PROCESS

1) Plan Review Process

- a) LREC will review the application and accompanying documents, plans, specifications, and other information provided and will return an interconnection analysis to the Member within 60 days of receipt of final plans and specifications.
- b) Technical review will be consistent with guidelines established by the most recent *IEEE Standard 1547 Guide for Distributed Generation Interconnection*.
- c) If corrections or changes to the plans, specifications and other information are to be made by the Member, the sixty (60) day period may be reinitialized when such changes or corrections are provided to LREC. In addition, any changes to the site or project requiring new analysis by LREC may require additional cost and a new plan. The cost will be determined by LREC.
- d) Any review or acceptance of such plans, specifications and other information by LREC shall not impose any liability on LREC and does not guarantee the adequacy of the Member’s equipment to perform its intended function. LREC disclaims any expertise or special knowledge relating to the design or performance of generating installations and does not warrant the efficiency, cost-effectiveness, safety, durability, or reliability of such DG installations.
- e) In the event it is necessary at the time of initial interconnection or at some future time for LREC to modify electric delivery systems in order to serve the Member’s DG facilities and/or receive or continue to receive the Member’s output, or because the quality of the power provided by the Member’s DG adversely affects LREC’s delivery system, the Member will reimburse LREC for all costs of modifications required for the interconnection of the Member’s DG facilities.

IV. SALES TO AND PURCHASES FROM A DG INSTALLATION

- a) All sales of electric power and energy by the Cooperative to a Member shall be consistent with the applicable retail rate schedule as if there were no DG installation at the Member’s premises.
- b) All energy sent from the Member to the Cooperative’s system shall be purchased at the Cooperative’s Power Supplier’s avoided cost rate as determined by the Cooperative’s Power Supplier. The avoided cost rate shall be calculated periodically, as provided by the Cooperative’s Power Supplier.
- c) Where purchases from the Member exist in a billing period, the Cooperative’s Power Supplier shall compensate the Member either by direct payment from the Cooperative’s Power Supplier to the Customer within 20 days of

receipt of the meter registration information, or by an equal amount provided as a credit to the Cooperative, in which case the Cooperative shall show such credit on the Customer's monthly electric service bill. The method used for compensation shall be determined by Cooperative's Power Supplier.

V. MEMBER'S RESPONSIBILITIES PRIOR TO OPERATION

1) Line Extension and Modifications to LREC Facilities

- a) As a part of the interconnection analysis performed by LREC, the Member will be provided with an estimate of any line extension or other cost to be incurred in providing service to the Member's DG facility.
- b) Without regard to LREC's line extension policy, the Member shall pay in advance the full cost of the construction of any transmission, substation, distribution, transformation, metering, protective, or other facilities or equipment which, at the sole discretion of LREC, is required to be installed to serve the Member's DG facility.
- c) In the event it is necessary at the time of initial interconnection or at some future time for LREC to modify electric delivery systems in order to serve the Member's DG facilities and/or purchase or continue to purchase the Member's output, or because the quality of the power provided by the Member's DG adversely affects LREC's delivery system, the Member will reimburse LREC for all costs of modifications required for the interconnection of the Member's DG facilities.
- d) In the event LREC at any time in the future changes primary voltage of distribution facilities serving the DG installation such that metering equipment, transformers and/or any Member owned equipment must be changed, the full cost of the change will be borne by the Member.
- e) In all cases, the Member shall pay the full cost of the installation of a visible load break disconnect switch by and to the sole specification of LREC. The switch will be readily accessible to LREC personnel and of a type that can be secured in an open position by a LREC lock.

2) Applicable Regulations

- a) The Member shall comply with all applicable tariffs, policies and procedures of LREC. (DG tariffs, policies and procedures included.)
- b) The Member shall comply with all applicable laws, ordinances, rules and regulations of any federal, county, state, and/or local authority, including, but not limited to: the most recent National Electric Code, National Electric Safety Code, *IEEE Standard 1547 Guide for Distributed Generation Interconnection*, applicable ANSI standards, including ANSI C84.1 Range A relating to installation, safety, easements, code restrictions, operation and other matters.
- c) The Member shall be solely responsible for compliance with all applicable environmental laws, requirements and regulations, including but not limited to reporting and permits.

3) Liability Insurance

- (1) LREC will determine if the type of generation warrants the Member to carry liability insurance.
- (2) If insurance is required by LREC, the Member agrees to provide proof of such insurance to LREC at least annually
- (3) For systems 25 kW and under, prior to the interconnection being completed, the Member must provide the Cooperative a letter from the Member's insurance agency on their official letterhead containing the following:
 - i. The name of the Member that is insured
 - ii. The physical address of the insured property. The address must match that of the address on the Agreement for Interconnection
 - iii. The policy number and the amount of general or personal liability coverage. If desired, the agent may attach to the letter the declaration page of the policy showing the information in i, ii, and iii.

- iv . A statement from the agent acknowledging that they are aware that the Member is installing a distributed energy resource (DER) on or at the property that is insured by the above policy.
 - v . A statement from the agent that the installation of the DER will not encumber or void the policy, particularly for rooftop solar DER installations.
 - vi . A statement from the agent that any additional insurance requirements or riders that the underwriting agency would require in order to fully cover the Member's home or facility after the DER installation has been completed has been added and funded and that the policy is active and in good standing. If no such additional requirements or riders are necessary, a statement from the agent indicating such.
- (4) For Systems over 25 kW, , prior to interconnection, the Member must provide a certificate of insurance showing satisfactory liability insurance including contractual liability insurance covering indemnity agreements which insures the Member against all claims for property damage and for personal injury or death arising out of, resulting from or in any manner connected with the installation, operation and maintenance of the Member's generating equipment.
 - (5) The certificate shall provide that the insurance policy will not be changed or canceled during its term without thirty days written notice to LREC. The term of the insurance shall be coincident with the term of the interconnection contract or shall be specified to renew throughout the length of the interconnection contract.
 - (6) LREC shall be listed as an "Additional Insured" on the policy.

4) Contracts

- a) For each generation system connected to the LREC distribution system, the member will sign and deliver an interconnection contract to LREC. The required contract form is provided with these guidelines.

5) Initial Interconnection

- a) Upon satisfactory completion of the review process and execution of required agreements as outlined in this manual, LREC will begin interconnection of DG facilities. Interconnection will be completed as soon as practical after completion of the review process and execution of the necessary contracts. After completion of interconnection requirements and prior to initiation of service, LREC will conduct a final inspection of the facilities and interconnection to LREC's system. Upon satisfactory final inspection, LREC will initiate service to the DG member.
- b) LREC's review process and final inspection is intended as a means to safeguard LREC's facilities and personnel. Any review by LREC shall not impose any liability on LREC and does not guarantee the adequacy of the Member's equipment to perform its intended function. LREC disclaims any expertise or special knowledge relating to the design or performance of generating installations and does not warrant the efficiency, cost-effectiveness, safety, durability, or reliability of such DG installations.

VI. REFUSAL TO INTERCONNECT SERVICE OR DISCONNECTION OF INTERCONNECTED SERVICE

- a) LREC may, at its sole discretion, prevent the interconnection of or disconnect an interconnected DG installation, for reasons such as safety concerns, reliability issues, power quality issues, breach of interconnection contract or any other reasonable issue. Such disconnection may be without prior notice.

VII. OPERATION OF DG FACILITY

The purpose of this section is to outline LREC's DG operational requirements and is not intended to be a complete listing of all operational, regulatory, safety and other requirements.

1) Ownership of facilities

- a) The Member shall own and be solely responsible for all procurement, installation, maintenance, and operation of all facilities, including all power generating facilities, at and beyond the point of common coupling as defined by IEEE, except as indicated in item 1) b).
- b) At its sole discretion, LREC may install and maintain LREC-owned metering equipment and transformers past the point of common coupling.
- c) The Member shall provide access to facility production and status if relevant to LREC.

2) Self-Protection of DG Facilities

- a) The Member will furnish, install, operate and maintain in good order and repair all equipment necessary for the safe operation of the power generating installation in parallel with LREC electric distribution system.
- b) Equipment will have capability to both establish and maintain synchronism with LREC system and to automatically disconnect and isolate the DG installation from LREC system.
- c) The Member's DG installation will be designed, installed and maintained to be self-protected from normal and abnormal conditions on LREC system including, but not limited to, overvoltage, undervoltage, overcurrent, frequency deviation, and faults. Self-protection will be compatible with all applicable LREC protection arrangements and operating policies.
- d) Additional protective devices and/or functions may be required by LREC when, in the sole judgment of LREC, the particular DG installation and/or LREC system characteristics so warrant.

3) Quality of service

- a) Member's DG installation will generate power at the nominal voltage of the LREC electrical distribution system at the Member's delivery point as defined by ANSI C84.1 Range A.
- b) Member's DG installation will generate power at a frequency within the tolerances as defined by IEEE 1547.
- c) Member's DG installation shall produce power at a minimum power factor of at least 95% or shall use power factor correction capacitors to ensure at least a 95% power factor.
- d) The overall quality of the power provided by the Member's DG installation including, but not limited to, the effects of harmonic distortion, voltage regulation, voltage flicker, switching surges and power factor, will be such that LREC's system is not adversely affected in any manner.
- e) In the event that the adverse effects are caused in whole or in part by the Member's DG installation, the Member will correct the cause of such effects, reimburse LREC for required correction, or be disconnected from LREC's system.

4) Safety disconnect switch

- a) The Member shall install a visible load break disconnect switch at the Member's expense and to LREC's specifications.
- b) The switch will be located so as to be readily accessible to LREC personnel in a location acceptable to both the Member and LREC.
- c) The switch shall be a type that can be secured in an open position by a LREC lock. If LREC has locked the disconnect switch open, the Member shall not operate and/or close the disconnect switch
- d) LREC shall have the right to lock the switch open when, in the judgment of LREC:
 - (1) It is necessary to maintain safe electrical operating and/or maintenance conditions,
 - (2) The Member's DG adversely affects LREC system, or
 - (3) There is a system emergency or other abnormal operating condition warranting disconnection.
- e) LREC reserves the right to operate the disconnect switch for the protection of LREC's system even if it affects the Member's DG installation. In the event LREC opens and/or closes the disconnect switch:
 - (1) LREC shall not be responsible for energization or restoration of parallel operation of the DG installation.
 - (2) LREC will make reasonable efforts to notify the Member.
- f) The Member will not bypass the disconnect switch at any time for any reason.

- g) Signage shall be placed by LREC at the location of the disconnect indicating the purpose of the switch along with contact names and numbers of both the Member and LREC.
- h) Members with DG facilities, as defined in this manual, which are solely for the purpose of emergency backup or peak shaving without intent to export power shall not operate their DG facilities unless visibly disconnected from LREC's system.
- i) Should LREC lose power from its system serving the Member's DG facilities for any reason, Members with DG facilities which are intended to export power shall not operate their DG facilities unless disconnected from LREC's system.

5) Access

- a) Persons authorized by LREC will have the right to enter the Member's property for purposes of testing, operating the disconnect switch, reading or testing the metering equipment or other DG and/or service requirement. Such entry onto the Member's property may be without notice.
- b) If the Member erects or maintains locked gates or other barriers, the Member will furnish LREC with convenient means to circumvent the barrier for full access for the above-mentioned reasons.

6) Liability for Injury and Damages

- a) The Member assumes full responsibility for electric energy furnished at and past the point of interconnection and shall indemnify LREC against and hold LREC harmless from all claims for both injuries to persons, including death resulting there from, and damages to property occurring upon the premises owned or operated by Member arising from electric power and energy delivered by LREC or in any way arising directly or indirectly from the Member's DG installation.
- b) LREC shall not be liable for either direct or consequential damages resulting from failures, interruptions, or voltage and waveform fluctuations occasioned by causes reasonably beyond the control of LREC including, but not limited to, acts of God or public enemy, sabotage and/or vandalism, accidents, fire, explosion, labor troubles, strikes, order of any court or judge granted in any bona fide adverse legal proceeding or action, or any order of any commission, tribunal or governmental authority having jurisdiction.

7) Metering/Monitoring

- a) LREC shall specify, install and own all metering equipment.
 - (1) The facility will have the opportunity to be metered by installing a meter which measures the flow of energy in each direction.
 - (2) Power transfer at the point of interconnection will be measured by metering equipment as installed and specified at the sole discretion of LREC.
 - (3) The meter shall be read at a time or times of month determined at the sole discretion of LREC for remotely acquiring metering data. The Member shall provide an approved communications link at the Member's cost for this purpose if so requested by LREC.
 - (4) The type of communications link and metering equipment measuring purchase of power by LREC shall be installed and specified at the sole discretion of LREC.
- b) LREC may, at its sole discretion, require the Member to reimburse LREC for metering and monitoring equipment and installation expense.
- c) Meter testing shall follow LREC's standard policy on metering testing and accuracy.
- d) At its sole discretion, LREC may meter the facility at primary or secondary level.

8) Notice of Change in Installation

- a) The Member will notify LREC in writing thirty (30) days in advance of making any change affecting the characteristics, performance, or protection of the DG installation.
- b) If any modification undertaken by the Member will create or has created conditions which may be unsafe or adversely affect LREC system, the Member shall immediately correct such conditions or be subject to immediate disconnection from LREC's system.
- c) Any change in the operating characteristics of the DG installation including, but not limited to, size of generator, total facility capacity, nature of facility, fuel source, site change, hours of operation, or type of generator used, will require a new application process, including, but not limited to, application form, application fee, DG plan and DG plan review by LREC.

9) Testing and Record Keeping

- a) The Member will test all aspects of the protection systems up to and including tripping of the generator and interconnection point at start-up and thereafter as required. Testing will verify all protective set points and relay/breaker trip timing and shall include procedures to functionally test all protective elements of the system. LREC may witness the testing.
- b) The Member will maintain records of all maintenance activities, which LREC may review at reasonable times.

10) Disconnection of Service

- a) LREC may, at its sole discretion, discontinue the interconnection of DG installations due to reasons such as safety concerns, reliability issues, power quality issues, breach of interconnection contract or any other reasonable issue.