


# Distributed Generation Procedures

**Guideline Manual for Member Owned Generation  
Equal to 250 kW or Less**

**Approved by Board of Trustees: October 23, 2009**



TRI-COUNTY ELECTRIC

A Touchstone Energy™ Cooperative 

## TABLE OF CONTENTS

<b>General</b> .....	<b>3</b>
<b>Determination of Category</b> .....	<b>4</b>
Connection Level Category .....	4
Power Export Category .....	4
Qualifying or Non-Qualifying Category .....	4
Size Category .....	5
<b>Member's Initial Requirements</b> .....	<b>6</b>
Notification .....	6
Service Request.....	6
Submit a Distributed Generation Plan .....	6
<b>Cooperative Review Process</b> .....	<b>7</b>
Review Process .....	7
<b>Sales to a Distributed Generation Facility</b> .....	<b>8</b>
For all Distributed Generation, Desiring to Export Power .....	8
For QF equal to 250 kW or less Desiring to Export Power: .....	8
<b>Member's Responsibility prior to Operation</b> .....	<b>9</b>
Line Extension and Modifications to Cooperative Facilities .....	9
Applicable Regulations .....	9
Liability Insurance .....	9
Interconnection Contract.....	9
Initial Interconnection.....	9
<b>Refusal to Interconnect Service or Disconnection of Interconnection Service</b> .....	<b>11</b>
<b>Operation of Parallel Facility</b> .....	<b>12</b>
Ownership of Facilities.....	12
Self-Protection of Distributed Generation Facilities .....	12
Quality of Service.....	12
Safety Disconnect .....	13
Access .....	13
Liability for Injury and Damages.....	14
Metering/Monitoring for Facilities .....	14
Notice of Change to Installation.....	14
Testing and Record Keeping .....	15
Disconnection of Service .....	15
Compliance with Laws, Rules and Tariffs .....	15
<b>Agreement for Interconnection and Parallel Operation</b> .....	<b>16</b>
<b>Exhibit A</b> .....	<b>20</b>
Description of Facilities and Point of Interconnection .....	20
<b>Facilities Schedule</b> .....	<b>21</b>
<b>Application for Operation of Member-Owned Generation</b> .....	<b>22</b>
Applicant Information .....	22
Project Design/Engineering (as applicable).....	22
Electrical Contractor (as applicable).....	22
Type of Generator (as applicable).....	22
Estimated Load Information .....	22
Mode of Operation (check all that apply) .....	23
Description of Proposed Installation and Operation .....	23
Generation Data.....	23
<b>Sign Off Area</b> .....	<b>27</b>
For Contract for Application, Submission, and/or More Information: .....	27

## GENERAL

In order to receive service from Tri-County Electric Cooperative, Inc. ("Cooperative"), a customer must become a Member of Cooperative. Throughout these procedures, customers will be referred to as Members. For more information about Cooperative membership application process, including any applicable fees or security deposits, see Rules and Regulations of Service.

It is the intent of Cooperative to allow Members to install Distributed Generation, provided Member's Distributed Generation facility does not adversely affect other Cooperative operations or other Members. Member must conduct his/her/its own analysis to determine the economic benefit of Distributed Generation operation.

A Distributed Generation facility that is not connected to Cooperative's system in any way is known as "*stand-alone*" or "*isolated*" Distributed Generation. Member may operate a Distributed Generation facility in stand-alone or isolated fashion as long as such Distributed Generation facility does not adversely affect the Cooperative's system.

A Distributed Generation facility connected, in any way, to Cooperative's system shall be considered as operating in parallel. For purposes of these procedures, a Distributed Generation facility is considered operating in parallel anytime it is connected to Cooperative's system in anyway even if Member has no intent to export power. All provisions of these procedures shall apply to parallel operation of Distributed Generation facilities, as defined herein.

These procedures are not a complete description or listing of all laws, ordinances, and rules and regulations. These procedures are not intended to be an installation or safety manual.

In addition to all provisions of these procedures, a Member requesting to interconnect a Distributed Generation facility to Cooperative's system is responsible for knowledge of and compliance with the following:

- Rules and Regulations of Service;
- the Policies and Procedures of Cooperative's power supplier, where applicable;
- the Policies and Procedures of Cooperative's transmission service provider, where applicable;
- the current version of ANSI C84.1 Range A;
- the current version of IEEE 519;
- the current version of IEEE 1453;
- the current version of IEEE 1547;
- other applicable ANSI and IEEE standards; and
- any other applicable governmental and regulatory laws, rules, ordinances, or requirements.

All legal, technical, financial, and other requirements set out herein must be met prior to interconnection of the Distributed Generation facility to Cooperative's system.

Member may serve all loads behind the meter at the location serving the Distributed Generation facility but will not be allowed to serve multiple meters, multiple consuming facilities, or multiple Members with a single Distributed Generation facility or under a single Distributed Generation application.

**Distributed Generation facilities larger than 250 kW are not covered by these procedures and will be considered by Cooperative on a case-by-case basis.**

## DETERMINATION OF CATEGORY

### Connection Level Category

#### Connected to the Cooperative's system

If Member requests and/or Member's Distributed Generation facility requires connection to Cooperative's system, all provisions of this manual are applicable.

#### Connected to Other Utilities system

If Member requests and/or Member's Distributed Generation facility requires connection to the system of other utilities, the provisions of this manual are **NOT** applicable.

### Power Export Category

#### Parallel – no power export

Member operates a Distributed Generation facility that is connected in any way to Cooperative system but with no intention to export power.

#### Parallel – power generated to be both consumed and exported

Member operates a Distributed Generation facility designed primarily to serve Member's own load that is connected in any way to Cooperative's system but with the intention to export excess power.

#### Parallel – power generated to be exported only

Member operates a Distributed Generation facility designed primarily with the intention to export power that is connected in any way to Cooperative's system.

### Qualifying or Non-Qualifying Category

- 1) 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.
- 2) The distinction between QF and Non-Qualifying Facilities ("NQF") primarily deals with fuel use.
  - a) In general, a QF must have as its primary energy source biomass, waste, renewable resources, geothermal resources or any combination thereof (see PURPA for a full description).
  - b) Distributed Generation facilities not designated as QF under the provisions of PURPA will be considered NQF by the Cooperative.
- 3) Cooperative will provide interconnection for a Distributed Generation facility to Members subject to the provisions of these procedures and all other applicable rules and regulations.

## Size Category

Facilities equal to 250 kW or less

Facilities equal to 250 kW or less of connected generation will be placed in this size category.

Facilities greater than 250 kW

Not considered under these procedures.

## MEMBER'S INITIAL REQUIREMENTS

### Notification

Member must meet all of Cooperative's membership and service requirements in addition to the requirements in these procedures.

Anyone owning or operating a Distributed Generation facility in parallel with Cooperative's system must notify Cooperative of the existence, location, and category of the Distributed Generation facility.

### Service Request

In advance of a request for an interconnection, Member must contact Cooperative and complete an ***"Agreement for Interconnection and Parallel Operation"***.

A separate form must be submitted for each facility.

### Submit a Distributed Generation Plan

As a part of the application, Member shall submit a plan detailing the electrical design, interconnection requirements, size, and operational plans for the Distributed Generation facility (the "Distributed Generation plan"). Either at the time of submission or at any time during the review process, Cooperative may require additional information, or may require the Distributed Generation plan to be prepared by a Professional Engineer registered in the state of Colorado, Kansas, New Mexico, Oklahoma, or Texas, as appropriate, based on location of the facility. Cost of the Distributed Generation plan and/or the Professional Engineer will be borne by the Member.

## COOPERATIVE REVIEW PROCESS

### Review Process

Cooperative will review the application and accompanying documents, plans, specifications, and other information submitted. Cooperative will return an interconnection analysis to Member within 60 days of receipt of final plans and specifications.

Technical review will be consistent with guidelines established by the most recent IEEE Standard 1547 Guide for Distributed Generation Interconnection. Member may be required by Cooperative to provide proof that their Distributed Generation Facilities have been tested and certified by applicable IEEE guidelines.

If corrections or changes to the plans, specifications, and other information are to be made by Member, the 60 day period may be reinitialized when such changes or corrections are provided to Cooperative. In addition, any changes to the site or project requiring new analysis by Cooperative may require additional cost and a new Distributed Generation plan. The cost will be determined by Cooperative and shall be paid by Member.

Member acknowledges and agrees that any review or acceptance of such plans, specifications, and other information by Cooperative shall not impose any liability on Cooperative and does not guarantee the adequacy of Member's equipment or Distributed Generation facility to perform its intended function. Cooperative disclaims any expertise or special knowledge relating to the design or performance of generating installations. Cooperative does not warrant the efficiency, cost-effectiveness, safety, durability, or reliability of such Distributed Generation installations.

If, at any time, it is necessary for Cooperative to modify electric delivery systems in order to serve Member's Distributed Generation facilities and/or purchase the output of Member's Distributed Generation facilities, or because the quality of the power provided by Member's Distributed Generation adversely affects Cooperative's delivery system, Member will be responsible to pay Cooperative, in advance, all costs for modifications to the interconnection of Member's Distributed Generation facilities.

## SALES TO A DISTRIBUTED GENERATION FACILITY

For all Distributed Generation, Desiring to Export Power

All Distributed Generation facilities shall be billed under one of Cooperative's existing rate tariffs.

All sales of electric power and energy by Cooperative to Member shall be consistent with the applicable retail rate schedule established by Cooperative in the same manner as if there were no Distributed Generation installation at Member's premises.

Cooperative is **NOT** under any obligation to purchase power from a NQF.

For QF equal to 250 kW or less Desiring to Export Power:

For power produced in excess of on-site requirements, Member will be compensated by netting Member's kWh generation against Member's kWh consumption, referred to as "***net metering***". Cooperative shall bill the Member for the excess energy supplied over and above the energy supplied by Member during each billing period according to Cooperative's applicable retail rate schedule.

When the energy supplied by Member exceeds the energy supplied by Cooperative during a billing period, Member will be billed for the minimum monthly charge set out on the retail rate schedule. Cooperative shall **NOT** provide compensation to Member for the excess energy supplied to Cooperative.

Member shall sign an approved contract for interconnection service with Cooperative.

In addition to all other charges, Cooperative may bill Member for costs determined by Cooperative that are associated with implementing, supporting, and maintaining the interconnection of a Distributed Generation facility which are appended to the Interconnection Agreement.

## MEMBER'S RESPONSIBILITY PRIOR TO OPERATION

### Line Extension and Modifications to Cooperative Facilities

As a part of the interconnection analysis performed by Cooperative, Member will be provided with an estimate of any facility extension or other costs necessary to provide electric delivery service to Member's Distributed Generation facility.

Notwithstanding Cooperative's facility extension policy, Member shall pay, in advance, the total cost of the construction of any distribution, transformation, metering, protective, or other facilities or equipment which, at the sole discretion of Cooperative is required to serve Member's Distributed Generation facility.

Member will reimburse Cooperative for all costs of modifications required to allow service to Member's Distributed Generation facility.

In all cases, Member shall pay the full cost of the installation of a visible load break disconnect switch approved by Cooperative. The switch will be readily accessible to Cooperative's personnel. The switch shall be of a type that can be secured in an open position by a Cooperative lock.

### Applicable Regulations

The Distributed Generation facility shall be installed and operated: (A) subject to and in accordance with the terms and conditions set forth in Cooperative's Rules and Regulations of Service, Bylaws, rates, and tariffs, as amended from time to time, which are incorporated herein by reference; (B) in compliance with all applicable federal, state and local laws, regulations, zoning codes, building codes, safety rules, environmental restrictions, ordinances and regulations, including, without limitation; 1) the most recent IEEE Standard 1547 Guide for Distributed Generation Interconnection; 2) applicable ANSI standards, including ANSI C84.1 Range A; and 3) Southwest Power Pool directives and guidelines; and (C) in accordance with industry standard prudent engineering practices.

### Liability Insurance

Facilities equal to 250 kW or less shall not be required to provide additional liability insurance coverage.

### Interconnection Contract

Member shall sign and deliver an Agreement for Interconnection to Cooperative substantially in the form as shown in the ***"Agreement for Interconnection and Parallel Operation"*** included in these procedures.

### Initial Interconnection

Upon satisfactory completion of the review process and execution of required agreements as outlined in these procedures, Cooperative will begin installation of the interconnection of Distributed Generation facilities. The interconnection will be completed as soon as practical. After completion of interconnection requirements and prior to initiation of service, Cooperative will conduct a final inspection of the facilities and interconnection to Cooperative's system. Upon satisfactory final inspection, Cooperative will initiate service to Member.

Cooperative's review process and final inspection is intended to safeguard Cooperative's facilities and personnel. Member acknowledges and agrees that any review or acceptance of such plans, specifications, and other information by Cooperative and/or its Power Supplier shall not impose any

liability on Cooperative and does not guarantee the adequacy of Member's equipment or Distributed Generation facility to perform its intended function. Cooperative disclaims any expertise or special knowledge relating to the design or performance of generating installations and do not warrant the efficiency, cost-effectiveness, safety, durability, or reliability of such Distributed Generation installations.

## REFUSAL TO INTERCONNECT SERVICE OR DISCONNECTION OF INTERCONNECTION SERVICE

Cooperative may, at its sole discretion, prevent the interconnection or disconnect the interconnection of Distributed Generation facilities upon a reasonable concern to include but not be limited to safety issues, reliability issues, power quality issues, and breach of the interconnection contract. Any disconnection may be without prior notice.

## OPERATION OF PARALLEL FACILITY

The purpose of this section is to outline Cooperative's operational requirements for Distributed Generation facilities operated in parallel with Cooperative's system. This section is not intended to be a complete listing of all operational, regulatory, safety and other requirements.

### Ownership of Facilities

Member shall own and be solely responsible for all expense, installation, maintenance, and operation of all facilities, including all power generating facilities, at and beyond the point of delivery as defined in Cooperative's tariffs.

At its sole discretion, Cooperative may locate Cooperative owned metering equipment and transformers past the point of delivery.

### Self-Protection of Distributed Generation Facilities

Member shall furnish, install, operate and maintain in good order and repair all equipment necessary for the safe operation of Distributed Generation facilities operated in parallel with Cooperative system.

It is required that Member's equipment have capability to both establish and maintain synchronism with Cooperative system and to automatically disconnect and isolate the Distributed Generation facility from Cooperative system.

Member's Distributed Generation facility shall be designed, installed, and maintained to be self-protected from normal and abnormal conditions on Cooperative system including, but not limited to, overvoltage, undervoltage, overcurrent, frequency deviation, and faults. Self-protection shall be compatible with all applicable protection arrangements and operating policies of Cooperative.

Additional protective devices and/or functions may be required by Cooperative when, in the sole judgment of Cooperative, the particular Distributed Generation facility installation and/or Cooperative system characteristics so warrant.

### Quality of Service

Member's Distributed Generation facility will generate power at the nominal voltage of Cooperative's system at Member's delivery point as defined by ANSI C84.1 Range A.

Member's Distributed Generation installation will generate power at a frequency within the tolerances as defined by IEEE 1547.

Member's Distributed Generation facility 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.

Member's Distributed Generation facility shall be in accordance with the power quality limits specified in IEEE 519.

Member's Distributed Generation facility shall be in accordance with the power quality limits specified in IEEE 1453.

The overall quality of the power provided by Member's Distributed Generation facility including, but not limited to, the effects of harmonic distortion, voltage regulation, voltage flicker, switching surges and power factor, will be such that Cooperative system is not adversely affected in any manner.

In the event that adverse effects are caused in whole or in part by Member's Distributed Generation facility, Member will correct the cause of such effects within 30 days, reimburse Cooperative for required correction, or be disconnected from Cooperative system.

### Safety Disconnect

Member shall install a visible load break disconnect switch at Member's sole expense. The disconnect device and the installation thereof shall meet or exceed Cooperative's specifications.

The switch will be located so that it is readily accessible to Cooperative's personnel in a location acceptable to both Member and Cooperative.

The switch shall be of a type that can be secured in an open position by a lock owned by Cooperative. If Cooperative has locked the disconnect switch open, Member shall not operate or close the disconnect switch.

Cooperative shall have the right to lock the switch open when, in the judgment of Cooperative:

- It is necessary to maintain safe electrical operating and/or maintenance conditions;
- Member's Distributed Generation adversely affects Cooperative system; or
- There is a system emergency or other abnormal operating condition warranting disconnection;

Cooperative reserves the right to operate the disconnect switch for the protection of Cooperative's system even if it affects Member's Distributed Generation facility. In the event Cooperative opens and/or closes the disconnect switch:

- Cooperative shall not be responsible for energization or restoration of parallel operation of the Distributed Generation facility; and
- Cooperative will make reasonable efforts to notify Member prior to opening or closing the switch.

Member shall not bypass the disconnect switch at any time for any reason.

Cooperative, at Member's expense, shall locate signage indicating the purpose of the switch along with contact names and numbers of both Member and Cooperative at the disconnect device.

Members with Distributed Generation facilities which are solely for the purpose of emergency backup or peak shaving without intent to export power shall not operate their Distributed Generation facilities at any time unless visibly disconnected from Cooperative's system. Cooperative shall require Member to install, at his/her own expense, an interlocking switch to insure that Member's facilities do not operate in parallel with Cooperative's facilities.

Should Cooperative lose power serving Member's Distributed Generation facilities for any reason, Members with Distributed Generation facilities shall not operate their Distributed Generation facilities unless visibly disconnected from Cooperative system.

### Access

Persons authorized by Cooperative shall have the right to enter Member's property without notice for Cooperative purposes.

If Member erects or maintains locked gates or other barriers, Member shall furnish Cooperative with convenient means to circumvent the barrier for full access for the above-mentioned reasons.

## Liability for Injury and Damages

Member assumes full responsibility for electric energy furnished at and past the point of interconnection. Member shall indemnify Cooperative and/or its Power Supplier against and hold Cooperative and/or its Power Supplier harmless from all claims for both injuries to persons, including death, and damages to property occurring upon the premises owned or operated by Member, arising from electric power and energy delivered by Cooperative or in any way arising directly or indirectly from Member's Distributed Generation facility.

Cooperative and/or its Power Supplier 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 Cooperative and/or its Power Supplier 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. All provisions notwithstanding, in no event shall Cooperative be liable to Member for any interest, loss of anticipated revenue, earnings, profits, or increased expense of operations, loss by reason of shutdown, or non-operation of Member's premises or facilities for any indirect, incidental, or consequential, punitive or exemplary damages arising out of or related, in whole or in part, to this agreement. Cooperative shall not be liable in any event for consequential damages.

Member is solely responsible for insuring his/her/its facility complies with all applicable regulations including, but not limited to, laws, regulations, ordinances, Cooperative rules, policies and directives, and Southwest Power Pool rules, policies and directives.

## Metering/Monitoring for Facilities

Cooperative shall specify, install, and own all metering equipment.

The facility will be net metered by a two channel meter that measures the energy in, the energy out and nets the usage. Display shall be programmed to display the net usage.

The meters shall be read at a time or times of month determined at Cooperative's sole discretion for acquiring metering data. If requested, Member shall provide Cooperative an approved communications link at Member's cost. Cooperative shall specify the type of communications link, metering equipment, and the location at which the equipment used at Member's facility is installed.

Cooperative may, at its sole discretion, require the Member to pay Cooperative in advance for metering and monitoring equipment and installation expense.

Meter testing shall follow Cooperative's standard policy on metering testing and accuracy.

At its sole discretion, Cooperative may meter the facility at primary or secondary level.

## Notice of Change to Installation

Member shall give Cooperative notice in writing thirty (30) days prior to making any change affecting the characteristics, performance, or protection of the Distributed Generation facility.

If a modification undertaken by Member will create or has created conditions which may be unsafe or adversely affect Cooperative system, Member shall immediately correct such conditions or be subject to immediate disconnection from Cooperative's system.

A change in the operating characteristics of the Distributed Generation facility may require a new application process to include but not be limited to the submission of an application form, application fee, Distributed Generation plan, and Distributed Generation plan for review by Cooperative.

#### Testing and Record Keeping

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. Cooperative may witness the testing.

Member will maintain records of all maintenance activities which may be reviewed by Cooperative at all reasonable times.

#### Disconnection of Service

Cooperative may, at its sole discretion, discontinue the interconnection of Distributed Generation installations for reasons such as safety concerns, reliability issues, power quality issues, breach of interconnection contract, or any other reasonable issue.

#### Compliance with Laws, Rules and Tariffs

The Distributed Generation installation owned and installed by Member shall be installed and operated subject to and in accordance with the terms and conditions set forth in Cooperative's Rules and Regulations of Service, bylaws, rates and tariffs, as amended from time to time, which are incorporated herein by reference, and in compliance with all applicable federal, state and local laws, regulations, zoning codes, building codes, safety rules, environmental restrictions, ordinances and regulations, including without limitation, Southwest Power Pool directives and guidelines, and in accordance with industry standard prudent engineering practices.

## AGREEMENT FOR INTERCONNECTION AND PARALLEL OPERATION (Equal to 250 kW or less)

This Interconnection Agreement (“Agreement”) is made and entered into this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, by **Tri-County Electric Cooperative, Inc.**, (“Cooperative”), a corporation organized under the laws of Oklahoma, and **<insert name of distributed generation owner/operator>** (“Distributed Generation Owner/Operator”), 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:

The provisions of the Distributed Generation Procedures shall be considered to be a part of this contract.

This agreement provides for the safe and orderly operation of the electrical facilities interconnecting Distributed Generation Owner/Operator’s facility at <insert the location of the distributed generation facility> and the electrical distribution facility owned by Cooperative.

This Agreement does not supersede any requirements of any applicable tariffs in place between the Distributed Generation Owner/Operator and Cooperative.

1. **Intent of Parties:** It is the intent of Distributed Generation Owner/Operator to interconnect an electric power generator to Cooperative’s electrical distribution system.

It is the intent of Cooperative to operate the distribution system to maintain a high level of service to its Members and to maintain a high level of power quality.

It is the intent of both parties to operate the facilities in a way that ensures the safety of the public and their employees.

3. **Operating authority:** Distributed Generation Owner/Operator is responsible for establishing operating procedures and standards within their organization. The operating authority for the Distributed Generation Owner/Operator shall ensure that the Operator in Charge of the generator is competent in the operation of the electrical generation system and is aware of the provisions of any operating agreements and regulations relating to the safe operation of electrical power systems.

The operating authority for Distributed Generation Owner/Operator is:

Name or title of operating authority \_\_\_\_\_

Address \_\_\_\_\_

Phone number \_\_\_\_\_

4. **Operator in Charge:** The operator in charge is the person identified by name or job title responsible for the real time operation of all electrical facilities related to the interconnection and owned by their organization.

The operator in charge for Distributed Generation Owner/Operator is:

Name or title of operating authority \_\_\_\_\_

Address \_\_\_\_\_

Phone number \_\_\_\_\_

5. **Limitation of Liability and Indemnification:**

- a. Notwithstanding any other provision in this Agreement, Cooperative's liability to Distributed Generation Owner/Operator shall be limited as set forth in Rules and Regulations of Service, and tariffs which are incorporated herein by reference.
- b. Neither Cooperative nor Distributed Generation Owner/Operator shall be liable to the other for damages for any act or omission that is beyond such party's control, including, but not limited to, any event that is a result of an act of God, labor disturbance, act of the public enemy, war, insurrection, riot, fire, storm, flood, explosion, breakage or accident to any part of the System or to any other machinery or equipment, a curtailment, law, order, or regulation or restriction by governmental, military, or lawfully established civilian authorities.
- c. Notwithstanding Paragraph 5.b of this Agreement, Distributed Generation Owner/Operator shall assume all liability for, and shall indemnify Cooperative for, any claims, losses, costs, and expenses of any kind or character to the extent that they result from Distributed Generation Owner/Operator's negligence or other wrongful conduct in connection with the design, construction or operation of the Facilities or Interconnection Facilities. Such indemnity shall include, but is not limited to, financial responsibility for (a) monetary losses; (b) reasonable costs and expenses of defending an action or claim; (c) damages related to death or injury; (d) damages to property; and (e) damages for the disruption of business. This paragraph does not create a liability on the part of Distributed Generation Owner/Operator to the Cooperative or a third person, but requires indemnification where such liability exists.
- d. Cooperative and Distributed Generation Owner/Operator shall each be responsible for the safe installation, maintenance, repair, and condition of their respective lines, wires, switches, or other equipment or property on their respective sides of the Point of Interconnection. The Cooperative, while retaining the right to inspect, does not assume any duty of inspecting the Distributed Generation Owner/Operator's lines, wires, switches, or other equipment or property, and will not be responsible therefore. Distributed Generation Owner/Operator assumes all responsibility for the electric service supplied hereunder and the facilities used in connection therewith at or beyond the Point of Interconnection.
- e. For the mutual protection of Distributed Generation Owner/Operator and Cooperative, only with Cooperative prior written authorization are the connections between Cooperative's service wires and Distributed Generation Owner/Operator's service entrance conductors to be energized.

6. **Metering:** Metering shall be accomplished as described in Cooperative's Distributed Generation Procedures.

7. **Insurance:** Insurance shall be required as described in Cooperative's Distributed Generation Procedures.

8. **Suspension of Interconnection:** It is intended that the interconnection should not compromise Cooperative's protection or operational requirements. The operation of Distributed Generation Owner/Operator's System and the quality of electric energy supplied by Distributed Generation Owner/Operator shall meet the standards as specified by Cooperative. If the operation of Distributed Generation Owner/Operator's system or quality of electric energy supplied (in the case of power export) does not meet the standards as specified, then Cooperative will notify Distributed Generation Owner/Operator to take reasonable and expedient corrective action. Cooperative shall have the right to disconnect Distributed Generation Owner/Operator's System until compliance is reasonably demonstrated. Notwithstanding, Cooperative may in its sole discretion disconnect Distributed Generation Owner/Operator's generating plant from Distribution Facility without notice if the operating of Generating Plant may be or may become dangerous to life and/or property.

9. **Compliance with Laws, Rules, and Tariffs:** Both Cooperative and Distributed Generation Owner/Operator shall be responsible for complying with all applicable laws, rules and regulations, including but not limited to the laws of the state of Oklahoma, and Cooperative's Distributed Generation Procedures, Tariffs, Rules and Regulations of Service, Bylaws and other governing documents. The interconnection and services provided under this Agreement shall at all times be subject to the terms and conditions set forth in the tariff schedules and rules of Cooperative as applicable to the electric service provided by Cooperative, which tariffs and rules are hereby incorporated into this Agreement by this reference. Cooperative shall have the right to publish changes in rates, classification, service or rules, with the proper notification to all Distributed Generation owners/operators and Cooperative members.

10. **Maintenance Outages:** Maintenance outages will occasionally be required on Cooperative's system. Cooperative will provide as much notice and planning as possible to minimize downtime. It is noted that in some emergency cases such notice may not be possible. Compensation will not be made for unavailability of Cooperative's facilities due to outages.

11. **Access:** Access is required by Cooperative to Distributed Generation Owner/Operator's plant site for maintenance, operating, and meter reading. The Cooperative reserves the right, but not the obligation, to inspect Distributed Generation Owner/Operator's facilities.

12. **Force Majeure:** For the purposes of this Agreement, a Force Majeure event is any event: (a) that is beyond the reasonable control of the affected party; and (b) that the affected party is unable to prevent or provide against by exercising reasonable diligence, including the following events or circumstances, but only to the extent that they satisfy the preceding requirements: acts of war, public disorder, rebellion or insurrection; floods, hurricanes, earthquakes, lightning, storms or other natural calamities; explosions or fires; strikes, work stoppages or labor disputes; embargoes; and sabotage. If a Force Majeure event prevents a party from fulfilling any obligations under this agreement, such party will promptly notify the other party in writing and will keep the other party informed on a continuing basis as to the scope and duration of the Force Majeure event. The affected party will specify the circumstances of the Force Majeure event, its expected duration, and the steps that the affected party is taking to mitigate the effect of the event on its performance. The affected party will be entitled to suspend or modify its performance of obligations under this Agreement but will use reasonable efforts to resume its performance as soon as possible.

13. **Term:** This document is intended to be valid for a period of two (2) years. It may be canceled by either party with 30 days written notice to the other party.

AGREED TO BY

**Distributed Generation Owner/Operator**

**Tri-County Electric Cooperative, Inc.**

\_\_\_\_\_  
Name

\_\_\_\_\_  
Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

\_\_\_\_\_  
Date

## EXHIBIT A

### Description of Facilities and Point of Interconnection

*Distributed Generation Owner/Operator will, at its own cost and expense, operate, maintain, repair, and inspect, and shall be fully responsible for its Facilities, unless otherwise specified on Exhibit A.*

## FACILITIES SCHEDULE

[The following information is to be specified for each Point of Interconnection, if applicable]

1. Name: \_\_\_\_\_
2. Facilities location: \_\_\_\_\_
3. Delivery voltage: \_\_\_\_\_
4. Metering (voltage, location, losses adjustment due to metering location, and other): \_\_\_\_\_
5. Normal Operation of Interconnection: \_\_\_\_\_
6. One line diagram attached (check one):  Yes  No
7. Facilities to be furnished by Cooperative: \_\_\_\_\_
8. Facilities to be furnished by Distributed Generation Owner/Operator: \_\_\_\_\_
9. Cost Responsibility: \_\_\_\_\_
10. Control area interchange point (check one):  Yes  No
11. Supplemental terms and conditions attached (check one):  Yes  No
12. Cooperative rules for Distributed Generation interconnection attached (check one):  Yes  No

**Tri-County Electric Cooperative, Inc.**

BY: \_\_\_\_\_

TITLE: \_\_\_\_\_

DATE: \_\_\_\_\_

**[Distributed Generation Owner/Operator]**

BY: \_\_\_\_\_

TITLE: \_\_\_\_\_

DATE: \_\_\_\_\_

## APPLICATION FOR OPERATION OF MEMBER-OWNED GENERATION

This application should be completed as soon as possible and returned to Cooperative in order to begin processing the request. See Distributed Generation Procedures for additional information.

INFORMATION: This application is used by Cooperative to determine the required equipment configuration for Customer interface. Every effort should be made to supply as much information as possible.

### Applicant Information

Owner: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ County: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Phone Number: \_\_\_\_\_ Representative: \_\_\_\_\_

### Project Design/Engineering (as applicable)

Company: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ County: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Phone Number: \_\_\_\_\_ Representative: \_\_\_\_\_

### Electrical Contractor (as applicable)

Company: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ County: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Phone Number: \_\_\_\_\_ Representative: \_\_\_\_\_

### Type of Generator (as applicable)

Photovoltaic  Wind  Microturbine  Diesel Engine  Gas Engine  Turbine  Other \_\_\_\_\_

### Estimated Load Information

The following information will be used to help properly design the Cooperative customer interconnection. This information is not intended as a commitment or contract for billing purposes.

Total Site Load \_\_\_\_\_(kW) Total Generation Output \_\_\_\_\_(kW)

Mode of Operation (check all that apply)

Isolated  Paralleling  Power Export

Description of Proposed Installation and Operation

Give a general description of the proposed installation, including when you plan to operate the generator.

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Generation Data

Unit Number: \_\_\_\_\_ Total number of units with listed specifications on site: \_\_\_\_\_

Manufacturer: \_\_\_\_\_

Type: \_\_\_\_\_ Date of manufacture: \_\_\_\_\_

Serial Number (each): \_\_\_\_\_

Phase:  Single  Three R.P.M.: \_\_\_\_\_ Frequency (Hz):  60Hz  Other

Rated Output (for one unit): \_\_\_\_\_ Kilowatt \_\_\_\_\_ KiloVolt-Ampere \_\_\_\_\_

Rated Power Factor (%): \_\_\_\_\_ Rated Voltage (Volts) \_\_\_\_\_ Rated Amperes: \_\_\_\_\_

Field Volts: \_\_\_\_\_ Field Amps: \_\_\_\_\_ Motoring power (kW): \_\_\_\_\_

Synchronous Reactance (X'd): \_\_\_\_\_ % on \_\_\_\_\_ KVA base

Transient Reactance (X'd): \_\_\_\_\_ % on \_\_\_\_\_ KVA base

Subtransient Reactance (X'd): \_\_\_\_\_ % on \_\_\_\_\_ KVA base

Negative Sequence Reactance (Xs): \_\_\_\_\_ % on \_\_\_\_\_ KVA base

Zero Sequence Reactance ( $X_0$ ): \_\_\_\_\_ % on \_\_\_\_\_ KVA base

Neutral Grounding Resistor (if applicable): \_\_\_\_\_

$I_2^2t$  of K (heating time constant): \_\_\_\_\_

Additional Information: \_\_\_\_\_

**Induction Generator Data**

Rotor Resistance ( $R_r$ ): \_\_\_\_\_ ohms Stator Resistance ( $R_s$ ): \_\_\_\_\_ ohms

Rotor Reactance ( $X_r$ ): \_\_\_\_\_ ohms Stator Reactance ( $X_s$ ): \_\_\_\_\_ ohms

Magnetizing Reactance ( $X_m$ ): \_\_\_\_\_ ohms Short Circuit Reactance ( $X_d''$ ): \_\_\_\_\_ ohms

Design letter: \_\_\_\_\_ Frame Size: \_\_\_\_\_

Exciting Current: \_\_\_\_\_ Temp Rise (deg C°): \_\_\_\_\_

Reactive Power Required: \_\_\_\_\_ VARs (no load), VARs \_\_\_\_\_ (full load)

Additional Information: \_\_\_\_\_

**Prime Mover** (Complete all applicable items)

Unit Number: \_\_\_\_\_ Type: \_\_\_\_\_

Manufacturer: \_\_\_\_\_

Serial Number: \_\_\_\_\_ Date of manufacturer: \_\_\_\_\_

H.P. Rates: \_\_\_\_\_ H.P. Max.: \_\_\_\_\_ Inertia Constant: \_\_\_\_\_ lb.-ft<sup>2</sup>

Energy Source (hydro, steam, wind, etc.) \_\_\_\_\_

**Generator Transformer** (Complete all applicable items) Transformer between generator and utility system

Generator unit number: \_\_\_\_\_ Date of manufacturer: \_\_\_\_\_

Manufacturer: \_\_\_\_\_

Serial Number: \_\_\_\_\_

High Voltage: \_\_\_\_\_ kV, Connection:  delta  wye, Neutral solidly grounded? \_\_\_\_\_

Low Voltage: \_\_\_\_\_ kV, Connection:  delta  wye, Neutral solidly grounded? \_\_\_\_\_

Transformer Impedance (Z): \_\_\_\_\_ % on \_\_\_\_\_ KVA base

Transformer Resistance (R): \_\_\_\_\_ % on \_\_\_\_\_ KVA base

Transformer Reactance (X): \_\_\_\_\_ % on \_\_\_\_\_ KVA base

Neutral Grounding Resistor (if applicable): \_\_\_\_\_

**Inverter Data** (if applicable)

Manufacturer: \_\_\_\_\_ Model: \_\_\_\_\_

Rate Power Factor (%): \_\_\_\_\_ Rated Voltage (Volts): \_\_\_\_\_ Rated Amperes: \_\_\_\_\_

Inverter Type (ferroresonant, step, pulse-width modulation, etc.): \_\_\_\_\_

Type commutation:  forced  line

Harmonic Distortion: Maximum Single Harmonic (%) \_\_\_\_\_

Maximum Total Harmonic (%) \_\_\_\_\_

Note: Attach all available calculations, test reports, and oscillographic prints showing inverter output voltage and current waveforms.

**Power Circuit Breaker** (if applicable)

Manufacturer: \_\_\_\_\_ Model: \_\_\_\_\_

Rated Voltage (*kilovolts*): \_\_\_\_\_ Rated ampacity (*Amperes*) \_\_\_\_\_

*Interrupting rating (Amperes)*: \_\_\_\_\_ BIL Rating \_\_\_\_\_

Interrupting medium / insulating medium (ex. Vacuum, gas, oil) \_\_\_\_\_ / \_\_\_\_\_

Control Voltage (Closing): \_\_\_\_\_ (Volts)  AC  DC

Control Voltage (Tripping): \_\_\_\_\_ (Volts)  AC  DC

Battery Charged Capacitor

Close energy:  Spring  Motor  Hydraulic  Pneumatic Other: \_\_\_\_\_

Trip energy:  Spring  Motor  Hydraulic  Pneumatic Other: \_\_\_\_\_

Bushing Current Transformers: \_\_\_\_\_ (Max. ratio) Relay Accuracy Class: \_\_\_\_\_

Multi Ratio?  Yes  No (available taps) \_\_\_\_\_

**Additional Information**

*In addition to the items listed above, please attach a detailed one-line diagram of the proposed facility, all applicable elementary diagrams, major equipment (generators, transformers, inverters, circuit breakers, protective relays, etc.), specifications, test reports, etc., and any other applicable drawings or documents necessary for the proper design of the interconnection.*

## SIGN OFF AREA

Member agrees to provide Cooperative with any additional information required to complete the interconnection. Member shall operate his equipment within the guidelines set forth by Cooperative.

\_\_\_\_\_  
Applicant

\_\_\_\_\_  
Date

For Contract for Application, Submission, and/or More Information:

Cooperative contact: Mike Swearingen  
Title: Manager of Engineering and Operations  
Address: Tri-County Electric Cooperative, Inc.  
P.O. Box 880  
302 East Glaydas Street  
Hooker, Oklahoma 73945  
Phone: (800) 522-3315  
Fax: (580) 652-3151