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DEMCO Distributed Generation Procedures and Guidelines Manual for Members

Guidelines and standards for the Interconnection of Distributed Resources to the DEMCO system. This manual includes the requirements for DG as well as the LPSC's Net Metering requirements. CFR 1730 subpart c.

April, 2011

Distributed Generation Procedures And Guidelines Manual for Member

Table of Contents

GENERAL	1
I. DETERMINE THE CATEGORY OF DISTRIBUTED GENERATION FACILITY	3
1) Connection Level Category	3
2) Contact Persons	3
3) Ownership of Facilities.....	3
4) Power Export Category	3
5) Qualifying or Non-Qualifying Category.....	4
II. MEMBER'S INITIAL REQUIREMENTS	4
1) Notification	4
2) Service Request	5
3) Application Fees	5
III. COOPERATIVE AND POWER SUPPLIER REVIEW PROCESS	6
1) Pre-Interconnection Studies for Interconnection of DG.....	6
IV. SALES TO AND PURCHASES FROM A DG FACILITY	7
V. MEMBER'S RESPONSIBILITY PRIOR TO OPERATION	8
1) Line Extension and Modifications to Cooperative Facilities.....	8
2) Applicable Regulations	8
3) Liability Insurance	9
4) Warranty.....	9
5) Contracts.....	9
6) Initial Interconnection	9
7) Inspection and start-up	10
VI. OPERATION OF PARALLEL FACILITY	10
1) Pre-certified equipment	10

Distributed Generation Procedures And Guidelines Manual for Member

2) General interconnection and protection requirements	11
3) Manual disconnect	11
4) Prevention of interference	11
5) Access	14
7) Metering/Monitoring.....	15
8) Notice of Change in Installation	16
9) Testing and Record Keeping	16
10) Disconnection and Reconnection of Service	17
11) Compliance with Laws Rules and Tariffs.....	17
STANDARD INTERCONNECTION AGREEMENT FOR NET METERING FACILITIES.....	19
I. STANDARD INFORMATION.....	19
Section 1. Customer Information.....	19
Section 2. Generation Facility Information.....	19
Section 3: Installation Information	19
Section 4: Certification.....	20
Section 5. Utility Verification and Approval.....	20
II. INTERCONNECTION AGREEMENT TERMS AND CONDITIONS.....	20
Section 1. The Net Metering Facility.....	20
Section 2. Governing Provisions	20
Section 3. Interruption or Reduction of Deliveries	20
Section 4. Interconnection.....	21
Section 5. Maintenance and Permits	22
Section 6. Access to Premises.....	22
Section 7. Indemnity and Liability.....	22
Section 8. Notices	23

**Distributed Generation Procedures
And Guidelines Manual for Member**

Section 9. Term of Agreement 23

Section 10. Assignment..... 23

Accuracy Requirements for Service Watt-Hour Meters, Demand Meters, and Pulse Recorders25

 1) Initial and Test Adjustments.....25

 2) Acceptable Performance25

 3) Average Error 26

Attachments:

Net Metering Rider – NM

Distributed Generation Procedures And Guidelines Manual for Member

GENERAL

In order to receive service from the Cooperative, a customer must join or become a "Member" of the Cooperative. Throughout this manual, customers will be referred to as "Members." For more information about the cooperative membership application process, including any applicable membership fees or deposits, see the Cooperative to request new member information.

It is the intent of the Cooperative to allow Members to install qualifying Distributed Generation (DG), provided the Member's DG facility does not adversely affect the Cooperative, is less than 100 kw in size, and is rated to produce an amount of electricity less than or equal to the amount of electricity the Member for whom the DG is installed is reasonably expected to consume. The Member must conduct his/her own analysis to determine the economic benefit of DG operation.

The Cooperative is currently under an all power requirements contract with its wholesale power supplier. All DG installations will be subject to this stipulation and may be subject to approval by the Cooperative's wholesale power supplier. The Cooperative shall not be required to make any purchases that will cause the Cooperative to no longer be in compliance with any applicable contracts or all power contract requirements with its power supplier(s).

A DG facility that is not connected to the Cooperative's system in any way is known as "stand-alone" or "isolated" DG. The Member may operate a DG facility in stand-alone or isolated fashion as long as such DG facility does not adversely affect the Cooperative's system. A DG facility connected in any way to the Cooperative's system shall be considered as in "parallel." For purposes of this Manual a DG facility is considered operating in "parallel" anytime it is connected to the Cooperative's system in any way even if the Member does not intend to export power. All provisions of this Manual shall apply to parallel operation of DG facilities as so defined.

This Manual is not a complete description or listing of all laws, ordinances, rules and regulations, nor is this Manual intended to be an installation or safety manual. The Member requesting to interconnect a DG facility to the Cooperative's system is responsible for and must follow, in addition to all provisions of this Manual, the Cooperative's *Rules and Regulations* and *Tariffs for Electric Service*, the Cooperative's *Line Extension Policy*, the *Policies and Procedures* of the Cooperative's power supplier where applicable, the *Policies and Procedures* of the Cooperative's transmission service provider where applicable, the current *IEEE 1547 Standard Guide for Distributed Generation Interconnection* (a copy is on file at the Cooperative for inspection along with information so the Member may obtain his/her own copy), current *IEEE 1547.1 Standard Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems*, other applicable IEEE standards, applicable ANSI standards, including ANSI C84.1 Range A and any other applicable governmental and regulatory laws, rules, ordinances or requirements. All legal, technical, financial, etc. requirements in the following sections of this Manual must be met prior to interconnection of the DG facility to the Cooperative's system.

A Member may serve all load behind the meter at the location serving the DG facility but will not be allowed to serve multiple meters, multiple consuming facilities or multiple Members with a single DG facility or under a single DG application without prior approval by the cooperative.

DG facilities larger than 100 kw up to 10 MVA and facilities rated to produce an amount of electricity greater

Distributed Generation Procedures And Guidelines Manual for Member

than the amount of electricity the Member for whom the DG is installed is reasonably expected to consume are not covered by this Manual and will be considered by the Cooperative on a non-discriminatory case-by-case basis.

Distributed Generation Procedures And Guidelines Manual for Member

I. DETERMINE THE CATEGORY OF DISTRIBUTED GENERATION FACILITY

1) Connection Level Category

- a) Connected to the Cooperative's system

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

- b) Connected to the Cooperative's Power Supplier's system

The Member requests and/or the Member's DG facility requires connection to the Cooperative's Power Supplier's system. This manual does **NOT** cover this category. The Member should contact the Cooperative's Power Supplier directly.

2) Contact Persons

- a) The Cooperative's contact for all matters related to DG interconnection shall be:

Name: DEMCO
Address: 16262 Wax Road
Greenwell Springs, LA 70739
Phone: 225-261-1177

3) Ownership of Facilities

The Member shall either 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 the Cooperative's tariffs, or contract with another person to finance, install, or maintain facilities on the Member's side of the meter, regardless of whether the Member takes ownership of the installed distributed generation.

4) Power Export Category

- a) Parallel - no power export

The Member operates a DG facility connected in any way to the Cooperative system but with no intention to export power.

- b) Parallel - primarily intended to be less than or equal to consumption.

The Member operates a DG facility connected in any way to the Cooperative's system rated to produce an amount of electricity less than or equal to the amount of electricity the Member for whom the DG is installed is reasonably expected to consume with the intention to export excess power.

Distributed Generation Procedures And Guidelines Manual for Member

c) Parallel - other

The Member operates a DG facility where either the power generated is intended for export only or where the DG facility is rated to produce an amount of electricity greater than the amount of electricity the Member for whom the DG is installed is reasonably expected to consume: This manual does not cover this category. The Cooperative will consider applications for service under this category on a case-by-case basis.

5) Qualifying or Non-Qualifying Category

a) Qualifying Facilities (QF) are defined by the Public Utility Regulatory Policies Act of 1978 (PURPA). Refer to CFR Title 26, Volume 4, Sec. 292.204.

b) The distinction between QF and Non-Qualifying Facilities (NQF) mainly deals with fuel use.

(1) A QF is defined as electric generation with a capacity of not more than 2 MW provided by renewable energy technology, as defined by PURPA, installed on a retail electric customer's (Member's) side of the meter. In general this means that the DG must have as its primary energy source biomass, waste, renewable resources, geothermal resources or any combination. See PURPA for a full description

(2) Solar electric equipment installed on the Member's side of the meter at a building or other facility owned or operated by an independent school district, irrespective of the level of generation capacity shall be considered as a QF, but is not covered by the provisions of the manual if greater than 100 kW.

(3) DG facilities not designated as QF under the provisions of PURPA will be considered NQF by the Cooperative.

c) The Cooperative will provide interconnection for a DG facility to Members, subject to the provisions of this Manual and all other applicable rules and regulations.

d) The Cooperative will purchase power from a Member with a DG facility that is a QF, subject to the provisions of this policy and other applicable rules and regulations.

e) The Cooperative may choose to provide interconnection and may choose to purchase power from a Member with a DG facility that is an NQF at the sole discretion of the Cooperative as determined on a non-discriminatory case-by case basis.

II. MEMBER'S INITIAL REQUIREMENTS

1) Notification

a) The Member must meet the requirements of all Cooperative tariffs, conditions of service, membership and other service rules and regulations in addition to the requirements in the Manual.

Distributed Generation Procedures And Guidelines Manual for Member

- b) The rated capacity of the Member's DG must not exceed the Cooperative's service capacity at the installation location.
- c) Anyone owning or operating a DG facility in parallel with the Cooperative's system as defined in this manual must notify the Cooperative of the existence, location and category of the DG facility, whether the Member intends to export power to the Cooperative or not.

2) Service Request

- a) In order to interconnect a DG facility to the Cooperative system, a Member must first submit to the Cooperative the "Standard Interconnection Agreement," using the form included in this manual.
- b) A separate form must be submitted for each facility.

3) Application Fees

The Cooperative and its Power Supplier, if requested by the Cooperative, may conduct a service study, coordination study and/or utility system impact study prior to interconnection of a DG facility. See the section on Pre-Interconnection Studies that follows.

- a) DG facilities for which no pre-interconnection study fee may be charged: The Cooperative will not charge a Member a fee to conduct a pre-interconnection study for pre-certified DG units up to 10 kW that export not more than 15% of the total load on a single radial feeder and contribute not more than 25% of the maximum potential short circuit current on a single radial feeder. All other DG facilities may be charged a fee to offset the costs incurred in a pre-interconnection study.
- b) DG facilities for which pre-interconnection study fees may be charged: Prior to the interconnection of a DG facility for which a pre-interconnection study fee may be charged, the Cooperative may charge a Member a fee to offset its costs incurred in a pre-interconnection study.
- c) In the case of DG facilities (1) to be operated in parallel with the Cooperative's system, (2) with no intention to export power to the Cooperative and (3) that are of standard design and intended entirely as emergency or back-up power supply for the facility, the Cooperative may waive the application fee.
 - i) The Member shall receive an estimate of the study cost before the Cooperative initiates the study.

Distributed Generation Procedures And Guidelines Manual for Member

III. COOPERATIVE AND POWER SUPPLIER REVIEW PROCESS

1) Pre-Interconnection Studies for Interconnection of DG

a) General

The Cooperative and/or its Power Supplier, if requested by the Cooperative, may conduct a service study, coordination study and/or utility system impact study prior to interconnection of a DG facility. In instances where the studies are deemed necessary, the scope of such studies shall be based on the characteristics of the particular DG facility to be interconnected and the Cooperative's system at the specific proposed location. By agreement between the Cooperative and the Member, studies related to interconnection of a DG facility on the Member's premises may be conducted by a qualified third party.

b) Time to complete

The conduct of the pre-interconnection studies shall take no more than four weeks.

c) Reporting

The Cooperative shall prepare written reports of the study findings and make them available to the Member.

d) Costs and Benefits

The study shall consider both the costs incurred and the benefits realized as a result of the interconnection of the distributed generation to the Cooperative's system.

e) Network service

Network service is defined as two or more Cooperative primary distribution feeder sources electrically tied together on the secondary or low voltage side to form one power source for one or more customers. The service is designed to maintain service to the customers even after the loss of one of these primary distribution feeder sources. In the event that a DG facility requests interconnection to a secondary network system, additional requirements may apply.

f) Communications

The Cooperative and the Member agree to treat knowledge gained as a result of the application and/or interconnection studies about the other party as confidential.

Distributed Generation Procedures And Guidelines Manual for Member

g) Liability

The Member acknowledges and agrees that any review or acceptance of such plans, specifications and other information by the Cooperative and/or its Power Supplier shall not impose any liability on the Cooperative and/or its Power Supplier and does not guarantee the adequacy of the Member's equipment or DG facility to perform its intended function. The Cooperative and its Power Supplier disclaim 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.

h) Non-discrimination

All applications for interconnection and parallel operation shall be processed by the Cooperative in a non-discriminatory manner. Applications will be processed in the order that they are received. It is recognized that certain applications may require minor modifications while they are being reviewed by the Cooperative. Such minor modifications to a pending application shall not require that it be considered incomplete and treated as a new or separate application.

IV. SALES TO AND PURCHASES FROM A DG FACILITY

For QF less than 100 kw and rated to produce an amount of electricity less than or equal to the amount of electricity the Member for whom the DG is installed is reasonably expected to consume and where the Member desires to export power:

- a) The Cooperative shall bill the Member for the energy supplied by the Cooperative during each billing period according to the Cooperative's applicable retail rate schedule.
- b) Energy supplied by the Member to the Cooperative's system exceeding on site consumption shall be purchased by the Cooperative at the Cooperative's avoided cost of generation.
- c) The Member shall sign an approved contract for interconnection service with the Cooperative.
- d) In addition to all other charges, the Cooperative may bill the Member for any additional facilities charges as determined by the Cooperative and appended to the Interconnection Agreement.
- e) The Cooperative may, at its sole discretion, as determined on a case-by-case non-discriminatory basis, purchase power from an NQF.
- f) The type of metering to be used shall provide data so the Cooperative can determine the energy supplied to the Member by the Cooperative in excess of on-site consumption and the energy supplied to the Cooperative by the Member.

Distributed Generation Procedures And Guidelines Manual for Member

- g) The Cooperative shall not be required to make any purchases that will cause the Cooperative to no longer be in compliance with any applicable contracts or all power contract requirements with its power supplier(s) unless required by law or state regulation.
- h) Any renewable energy credits (RECs) resulting from the operation of the DG are the property of the DG Member unless sold or otherwise transferred by the Member.

V. MEMBER'S RESPONSIBILITY PRIOR TO OPERATION

1) Line Extension and Modifications to Cooperative Facilities

- a) If interconnection of a particular DG facility will require substantial capital upgrades to the Cooperative system, the Cooperative shall provide the Member with an estimate of the schedule and Member's cost for the upgrade. If the Member desires to proceed with the upgrade, the Member and the Cooperative will enter into a contract for the completion of the upgrade.
- b) If the Cooperative concludes that an application for interconnection describes facilities that may require additional devices and operating schemes beyond those described in this manual, the Cooperative shall make those additional requirements known to the Member at the time the interconnection studies are completed.
- c) As a part of the interconnection analysis performed by the Cooperative, the Member will be provided with an estimate of any line extension or other cost to be incurred in providing electric delivery service to the Member's DG facility.
- d) Notwithstanding the Cooperative's line extension policy, the Member shall pay the full cost of construction of any transmission, substation, distribution, transformation, metering, protective relaying, or other facilities or equipment which is required to serve the Member's DG facility.
- e) In the event it is necessary at the time of initial interconnection or at some future time for the Cooperative and/or its Power Supplier to modify electric delivery systems because the Member's DG and/or the quality of power provided by the Member's DG adversely affects the Cooperative and/or its Power Supplier's delivery system, the Member will reimburse the Cooperative and/or its Power Supplier for all costs of modifications required for the interconnection of the Member's DG facilities.

2) Applicable Regulations

The DG facility shall be installed and operated subject to and in accordance with the terms and conditions set forth in the Cooperative's rules, regulations, bylaws, rates and tariffs, as amended from time to time, and, if applicable, approved by the Cooperative's board of directors, 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, the most recent IEEE Standard 1547

Distributed Generation Procedures And Guidelines Manual for Member

Guide for Distributed Generation Interconnection, applicable ANSI standards, including ANSI C84.1 Range A, Electric Reliability Council of Texas (ERCOT) Independent System Operator (ISO) directives and **SERC** guidelines, and in accordance with industry standard prudent engineering practices.

3) Liability Insurance

A Member meeting the standards of this manual shall not be required to purchase any amount, type or classification of liability insurance the Member would not have in the absence of the DG. The Cooperative recommends, however, the Member obtain 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.

4) Warranty

The Member must provide credible tangible proof that the DG to be interconnected has or had an original manufacturer's warranty against breakdown or undue degradation for at least five years.

5) Contracts

The Member will sign and deliver an Agreement for Interconnection to the Cooperative substantially in the form as shown in the COOPERATIVE STANDARD INTERCONNECTION AGREEMENT FOR NET METERING FACILITIES included in this Manual.

6) Initial Interconnection

The Member shall provide the Cooperative with a completed application for interconnection and parallel operation with the Cooperative system using the form contained in the manual. The interconnection of the DG to the Cooperative system shall take place on the following schedule:

- a) For a facility qualifying under the provisions of pre-certified equipment, as certified under the provisions of the Public Service Commission of Louisiana, interconnection shall take place within four weeks of the Cooperative's receipt of a completed interconnection agreement.
- b) For other facilities, interconnection shall take place within six weeks of the Cooperative's receipt of a completed application, except as described in this manual.
- c) If interconnection of a particular DG facility will require substantial capital upgrades to the Cooperative system, the Cooperative shall provide the Member with an estimated of the schedule and Member's cost for the upgrade. If the Member desires to proceed with the upgrade, the Member and the Cooperative will enter into a contract for the completion of the upgrade. The interconnection shall take place no later than two weeks following the completion of such upgrades. The Cooperative shall employ reasonable efforts to complete such system upgrades in the shortest time reasonable practical.

Distributed Generation Procedures And Guidelines Manual for Member

- d) The Cooperative shall use reasonable efforts to interconnect facilities within the time frames described in this manual. If in a particular instance the Cooperative determines that it cannot interconnect a DG facility within the time frames stated in this manual, it will notify the DG Member of that fact. The notification will identify the reason or reasons interconnection could not be performed in accordance with the schedule and provide an estimated date for interconnection.
- e) The Cooperative's review process and any inspections are intended as a means to safeguard the Cooperative's facilities and personnel. The Member acknowledges and agrees that any review or acceptance of such plans, specifications and other information by the Cooperative and/or its Power Supplier shall not impose any liability on the Cooperative and/or its Power Supplier and does not guarantee the adequacy of the Member's equipment or DG facility to perform its intended function. The Cooperative and its Power Supplier 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.

7) Inspection and start-up

The Member shall provide the Cooperative with notice at least two weeks before the initial energizing and start-up testing of the Member's DG equipment and the Cooperative may witness the testing of any equipment and protective systems associated with the interconnection. The Member shall revise and re-submit the application with information reflecting any proposed modification that may affect the safe and reliable operation of the Cooperative system.

VI. OPERATION OF PARALLEL FACILITY

The purpose of this section is to describe the requirements and procedures for safe and effective connection and operation of DG.

- a) The Member may operate a 60 Hertz (Hz) three-phase or single-phase DG facility, in parallel with the Cooperative system pursuant to an interconnection agreement, provided that the equipment meets or exceeds the requirements of this manual.
- b) This manual describes typical interconnection requirements. Certain specific interconnection locations and conditions may require the installation and use of more sophisticated protective devices and operating schemes, especially when the facility is exporting power to the Cooperative system.

1) Pre-certified equipment

Equipment pre-certified under the provisions of the Public Service Commission of Louisiana may be installed on the Cooperative's system in accordance with an approved interconnection control and protection scheme without further review of their design by the Cooperative, though the protective settings and operations shall be those specified by the Cooperative.

Distributed Generation Procedures And Guidelines Manual for Member

2) General interconnection and protection requirements

- a) The DG shall be equipped with protective hardware and software designed to prevent the DG from being connected to a de-energized circuit owned by the Cooperative.
- b) The DG shall be equipped with the necessary protective hardware and software designed to prevent connection or parallel operation of the DG with the Cooperative system unless the Cooperative system voltage and frequency are of normal magnitude.
- c) The Member will be responsible for protecting his or her DG in such a manner that Cooperative system outages, short circuits, or other disturbances including zero sequence currents and Ferro resonant over-voltages do not damage the Member's DG. The Member's protective equipment shall also prevent unnecessary tripping of the Cooperative system breakers that would affect the Cooperative system's capability of providing reliable service to other members.
- d) Circuit breakers or other interrupting devices at the point of common coupling must be capable of interrupting maximum available fault current.

3) Manual disconnect

The Member will furnish and install a manual disconnect device that has a visual break that is appropriate to the voltage level (a disconnect switch, a draw-out breaker, or fuse block), and is accessible to the Cooperative personnel, and capable of being locked in the open position. The Member shall follow the Cooperative's switching, clearance, tagging, and locking procedures, which the Cooperative shall provide for the Member.

4) Prevention of interference

a) Voltage

The Member will operate its DG in such a manner that the voltage levels on the Cooperative system are in the same range as if the DG were not connected to the Cooperative system. The Member shall provide an automatic method of disconnecting the DG from the Cooperative system if a sustained voltage deviation in excess of +5% or -10% from normal voltage persists for more than 30 seconds, or a deviation in excess of +10% or -30% from normal voltage persists for more than 10 cycles. The Member may reconnect when the Cooperative system voltage and frequency return to normal range and the system is stabilized.

b) Flicker

The Member's equipment shall not cause excessive voltage flicker on the Cooperative's system. This flicker shall not exceed 3% voltage dip, in accordance with the IEEE Standard 519 as measured at the point of common coupling.

Distributed Generation Procedures And Guidelines Manual for Member

c) Frequency

The operating frequency of the Member's DG shall not deviate more than +0.5 Hz or -0.7 Hz from a 60 Hz base. The Member shall automatically disconnect the DG from the Cooperative system within 15 cycles if this frequency tolerance cannot be maintained. The Member may reconnect when the Cooperative system voltage and frequency return to normal range and the system is stabilized.

d) Harmonics

In accordance with IEEE Standard 519 the total harmonic distortion (THD) voltage shall not exceed 5% of the fundamental 60 Hz frequency nor 3% of the fundamental frequency for any individual harmonic when measuring at the point of common coupling with the utility system.

e) Fault and line clearing

The Member shall automatically disconnect from the Cooperative system within 10 cycles if the voltage on one or more phases falls below -30% of nominal voltage on the Cooperative system serving the Member premises. This disconnect timing also ensures that the DG is disconnected from the Cooperative system prior to automatic re-close of breakers. The member may reconnect when the Cooperative system voltage and frequency return to normal range and the system is stabilized. To enhance reliability and safety and with the Cooperative's approval, the member may employ a modified relay scheme with delayed tripping or blocking using communications equipment between the Member and the Cooperative.

f) Control, protection and safety protection requirements specific to single phase generators of 50 kW or less connected to the Cooperative's system

Exporting to the Cooperative's system may require additional operational or protection devices and will require coordination of operations with the Cooperative. The necessary control, protection and safety equipment specific to single-phase DG of 50 kW or less connected to secondary or primary systems include an interconnect disconnect device, a generator disconnect device, an over-voltage trip, and under-voltage trip, an over/under frequency trip, and a synchronization check for synchronous and other types of DG with stand-alone capability.

g) Control, protection and safety equipment requirements specific to three-phase synchronous generators induction generators and inverter systems

i) Three phase synchronous generators

The Member's DG circuit breakers shall be three-phase devices with electronic or electromechanical control; The Member is solely responsible for properly synchronizing

Distributed Generation Procedures And Guidelines Manual for Member

its generator with the Cooperative. The excitation system response ratio shall not be less than 0.5. The generator's excitation system(s) shall conform, as near as reasonably achievable, to the field voltage versus time criteria specified in the ANSI Standard C50.13-1989 in order to permit adequate field forcing during transient conditions.

ii) Three phase induction generators and inverter systems

Induction generation may be connected and brought up to synchronous speed (as an induction motor) if it can be demonstrated that the initial voltage drop measured on the utility system at the point of common coupling is within the visible flicker stated in this manual, Otherwise, the Member may be required to install hardware or employ other techniques to bring voltage fluctuations to acceptable levels. Line-commutated inverters do not require synchronizing equipment. Self-commutated inverters whether of the utility interactive type or stand-alone type shall be used in parallel with the utility system only with synchronizing equipment. Direct-current generation shall not operate in parallel with the utility system.

h) Protective function requirements

i) Facilities rated ten kW or less

Must have an interconnect disconnect device, a generator disconnect device, an over-voltage trip, an under-voltage trip, an over/under frequency trip, and a manual or automatic synchronizing check (for facilities with stand-alone capability).

ii) Facilities rated in excess of ten kW but not more than 100 kW

Must have an interconnect disconnect device, a generator disconnect device, an over-voltage trip, and under-voltage trip, and over/under frequency trip, a manual or automatic synchronizing check (for facilities with stand-alone capability), either a ground over-voltage trip or a ground over-current trip depending on the ground system if required by the Cooperative, an reverse power sensing if the facility is not exporting (unless the generator is less than the minimum load of the Member).

iii) Facilities rated more than 100 kW

Must have an interconnect disconnect device, a generator disconnect device, an over-voltage trip, and under-voltage trip, and over/under frequency trip, either a ground over-voltage trip or a ground over-current trip depending on the ground system if required by the Cooperative, an automatic synchronizing check (for facilities with stand-alone capability) and reverse power sensing if the facility is not exporting (unless the facility is less than the minimum load of the customer). If the facility is exporting power, the power direction protective function may be used to block or delay the under frequency trip with the agreement of the Cooperative.

Distributed Generation Procedures And Guidelines Manual for Member

i) Facilities not identified

In the event the standards for a specific unit or facility are not set out in this manual, the Cooperative and the Member may interconnect a facility using mutually agreed upon technical standards.

j) Requirements specific to a facility paralleling for 60 cycles or less (closed transition switching)

The protective devices required for facilities 10 MW or less which parallel with the Cooperative system for 60 cycles or less are an interconnect disconnect device, a generator disconnect device, an automatic synchronizing check for generators with stand-alone capability, an over-voltage trip, an under voltage trip, an over/under frequency trip, and either a ground over-voltage trip or a ground over current trip depending on the grounding system, if required by the Cooperative.

k) Inspection and start-up

The Member shall provide the Cooperative with notice at least two weeks before the initial energizing and start-up testing of the Member's DG equipment and the Cooperative may witness the testing of any equipment and protective systems associated with the interconnection. The Member shall revise and re-submit the application with information reflecting any proposed modification that may affect the safe and reliable operation of the Cooperative system.

l) Site testing and commissioning

Testing of protection systems shall include procedures to functionally test the protective elements of the system up to and including tripping of the generator and interconnection point. Testing will verify all protective set points and relay/breaker trip timing. The Cooperative may witness the testing of installed switchgear, protection and generator. The Member is responsible for routine maintenance of the generator and control and protective equipment. The Member will maintain records of such maintenance activities, which the Cooperative may review at reasonable times. For DG systems greater than 100 kW, a log of generator operations shall be kept. At a minimum, the log shall include the date, generator time on, generator time off, and megawatt and mega-var output. The Cooperative may review such logs at reasonable times.

5) Access

- a) Persons authorized by the Cooperative will have the right to enter the Member's property for purposes of testing, operating the disconnect switch, reading or testing the metering equipment, maintaining right-of-way or other DG facility equipment and/or Cooperative service requirement. Such entry onto the Member's property may be without notice.

Distributed Generation Procedures And Guidelines Manual for Member

- b) If the Member erects or maintains locked gates or other barriers, the Member will furnish the Cooperative 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 delivery and shall indemnify the Cooperative and/or its Power Supplier against and hold the Cooperative and/or its Power Supplier 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 the Cooperative or in any way arising directly or indirectly from the Member's DG facility.
 - b) The 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 the 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 THE COOPERATIVE BE LIABLE TO THE 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 PART, TO THIS AGREEMENT. The Cooperative shall not be liable in any event for consequential damages.
 - c) The Member is solely responsible for insuring his/her facility complies with all applicable regulations including, but not limited to, laws, regulations, ordinances, Cooperative and Cooperative Power Supplier tariffs, policies and directives, and SERC rules, policies and directives.
- 7) Metering/Monitoring
- a) The Cooperative may supply, own and maintain all necessary meters and associated equipment to record energy purchases by the Member and energy exports to the Cooperative system.
 - b) The Member shall supply at no cost to the Cooperative a suitable location on his or her premises for the installation of the Cooperative's meters and other equipment.
 - c) The facility will be metered by one of the following methods, at the discretion of the Cooperative. The two metered values shall be separately accounted for by the Cooperative.

Distributed Generation Procedures And Guidelines Manual for Member

- i) Installing a single meter with two registers capable of measuring in-flow and out-flow at the point of common coupling or
 - ii) Installing separate meters, that measure the in-flow and the out-flow at the point of common coupling.
 - d) The meter shall be read at a time or times of month determined by the Cooperative's for acquiring metering data.
 - e) The Cooperative may, at its sole discretion, require the Member to pay the Cooperative any significant differential cost of the metering and monitoring equipment and installation expense beyond that that a standard Member in the same rate class would require.
 - f) Meter testing shall follow the Cooperative's standard policy on metering testing and accuracy.
 - g) At its sole discretion, the Cooperative may meter the facility at primary or secondary level.
- 8) Notice of Change in Installation
- a) The Member will notify the Cooperative in writing thirty (30) days in advance of making any change affecting the characteristics, performance, or protection of the DG facility.
 - b) If any modification undertaken by the Member will create or has created conditions which may be unsafe or adversely affect the Cooperative system, the Member shall immediately correct such conditions or be subject to immediate disconnection from the Cooperative system.
- 9) Testing and Record Keeping
- a) The Cooperative shall maintain records concerning applications received for interconnection and parallel operation of DG facilities. Such records will include the date each application is received, documents generated in the course of processing each application, correspondence regarding each application, and the final disposition of each application.
 - b) 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. The Cooperative may witness the testing.
 - c) The Member will maintain records of all maintenance activities, which the Cooperative may review at reasonable times.

Distributed Generation Procedures And Guidelines Manual for Member

10) Disconnection and Reconnection of Service

a) The Cooperative may disconnect a DG facility under the following conditions:

i) Expiration or termination of the interconnection agreement

Upon expiration or termination of the interconnection agreement with a Member, in accordance with the terms of the agreement, the Cooperative may disconnect the DG facilities.

ii) Non-compliance with technical requirements

The Cooperative may disconnect a DG facility if the facility is not in compliance with the technical requirements specified in this manual. Within two business days from the time the Member notifies the Cooperative that the DG facility has been restored to compliance with the technical requirements of this manual, the Cooperative shall verify such compliance. Upon such verification, the Member in coordination with the Cooperative may reconnect the DG facility.

iii) System emergency

The Cooperative may temporarily disconnect a Member and/or a DG facility without prior written notice in cases where continued interconnection will endanger persons or property. During the forced outage of the Cooperative system, the Cooperative shall have the right to temporarily disconnect a Member and/or a DG facility to make immediate repairs on the Cooperative system. When possible, the Cooperative shall provide the Member with reasonable notice and reconnect the Member as quickly as reasonable practical.

iv) Routine maintenance repairs and modifications

The Cooperative may disconnect a Member and/or a DG facility with seven business days prior written notice of service interruption for routine maintenance, repairs and Cooperative system modifications. The Cooperative shall reconnect the Member as quickly as reasonably possible following such service interruption.

v) Lack of approved application and interconnection agreement

The Cooperative may refuse to connect or may disconnect a DG facility if the application has not been received and approved.

11) Compliance with Laws Rules and Tariffs

The DG installation owned and installed by the Member shall be installed and operated subject to and in accordance with the terms and conditions set forth in the Cooperative's rules, regulations,

Distributed Generation Procedures And Guidelines Manual for Member

bylaws, rates and tariffs, as amended from time to time, and, if applicable, approved by the Cooperative's board of directors, 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, Public Service Commission of Louisiana , SERC guidelines, and in accordance with industry standard prudent engineering practices.

STANDARD INTERCONNECTION AGREEMENT FOR NET METERING FACILITIES

I. STANDARD INFORMATION

Section 1. Customer Information

Name: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Facility Location (if different from above): _____

Daytime Phone: _____ Evening Phone: _____

Utility Customer Account (from electric bill): _____

Section 2. Generation Facility Information

System Type: Solar Wind Hydro Geothermal Biomass Fuel Cell Micro Turbine

Generator Rating (kW): AC or DC (circle one)

Describe Location of Accessible and Lockable Disconnect: _____

Inverter Manufacturer: Inverter Model: _____

Inverter Location: Inverter Power Rating: _____

Section 3: Installation Information

Attach a detailed electrical diagram of the net metering facility.

Installed by: _____ Qualifications/Credentials: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Daytime Phone: _____ Installation Date: _____

Section 4: Certification

1. The system has been installed in compliance with the local Building/Electrical Code of (City/Parish)

Signed (Inspector): _____ Date: _____

(In lieu of signature of inspector, a copy of the final inspection certificate may be attached.)

2. The system has been installed to my satisfaction and I have been given system warranty information and an operation manual, and have been instructed in the operation of the system.

Signed (Owner): _____ Date: _____

Section 5. Utility Verification and Approval

1. Facility Interconnection Approved: _____ Date: _____

Metering Facility Verification by: _____ Verification Date: _____

II. INTERCONNECTION AGREEMENT TERMS AND CONDITIONS

This Interconnection Agreement for Net Metering Facilities (“Agreement”) is made and entered into this _____ day of _____, 20____, by _____ (“Utility”) and _____ (“Customer”), a _____ (specify whether corporation or other), each hereinafter sometimes referred to individually as “Party” or collectively as the “Parties”. In consideration of the mutual covenants set forth herein, the Parties agree as follows:

Section 1. The Net Metering Facility

The Net Metering Facility meets the requirements of “Net Metering Facility”, as defined in the Louisiana Net Metering Rules.

Section 2. Governing Provisions

The terms of this agreement shall be interpreted under and subject to Louisiana Law. The parties shall be subject to the provisions of Act No. 653, the terms and conditions as set forth in this Agreement, the Net Metering Rules, the Distributed Generation Procedures and Guidelines Manual for members, and the Utility’s applicable tariffs.

Section 3. Interruption or Reduction of Deliveries

The Utility shall not be obligated to accept and may require Customer to interrupt or reduce deliveries when necessary in order to construct, install, repair, replace, remove, investigate, or inspect any of its equipment or part of its system; or if it reasonably determines that curtailment, interruption, or reduction is necessary because of emergencies, forced outages, force majeure, or compliance with prudent electrical practices. Whenever possible, the Utility shall give the Customer reasonable notice of the possibility that interruption or reduction of deliveries may be required. Notwithstanding any other provision of this Agreement, if at any time the Utility reasonably determines that either the facility may

endanger the Utility's personnel or other persons or property, or the continued operation of the Customer's facility may endanger the integrity or safety of the Utility's electric system, the Utility shall have the right to disconnect and lock out the Customer's facility from the Utility's electric system. The Customer's facility shall remain disconnected until such time as the Utility is reasonably satisfied that the conditions referenced in this Section have been corrected.

Section 4. Interconnection

Customer shall deliver the as-available energy to the Utility at the Utility's meter.

Utility shall furnish and install a standard kilowatt-hour meter. Customer shall provide and install a meter socket for the Utility's meter and any related interconnection equipment per the Utility's technical requirements, including safety and performance standards. Customer shall be responsible for all costs associated with installation of the standard kilowatt-hour meter and testing in conformity with Section 2.02 of the Net Metering Rules.

The customer shall submit a Standard Interconnection Agreement to the electric utility at least forty-five (45) days prior to the date the customer intends to interconnect the net metering facilities to the utility's facilities. Part I, Standard Information Sections 1 through 4 of the Standard Interconnection Agreement must be completed for the notification to be valid. The customer shall have all equipment necessary to complete the interconnection prior to such notification. If mailed, the date of notification shall be the third day following the mailing of the Standard Interconnection Agreement. The net metering customer will be required to provide documentation indicating the date upon which the notification was mailed to the electric utility. The electric utility shall provide a copy of the Standard Interconnection Agreement to the customer upon request.

Following notification by the customer is specified in Rule 3.01.C, the utility shall review the plans of the facility and provide the results of its review to the customer within 45 calendar days. Any items that would prevent parallel operation due to violation of applicable safety standards and/or power generation limits shall be explained along with a description of the modifications necessary to remedy the violations.

To prevent a net metering customer from back-feeding a de-energized line, the customer shall install a manual disconnect switch with lockout capability that is accessible to utility personnel at all hours. This requirement for a manual disconnect switch may be waived if the following three conditions are met: 1) The inverter equipment must be designed to shut down or disconnect and cannot be manually overridden by the customer upon loss of utility service; 2) The inverter must be warranted by the manufacturer to shut down or disconnect upon loss of utility service, and 3) the inverter must be properly installed and operated, and inspected and/or tested by utility personnel. The decision to grant the waiver will be at the Utility's discretion; however, any decision will be subject to review by the Commission.

Customer, at his own expense, shall meet all safety and performance standards established by local and national electrical codes including the National Electrical Code (NEC), the Institute of Electrical and Electronics Engineers (IEEE), the National Electrical Safety Code (NESC), and Underwriters Laboratories (UL).

Customer, at his own expense, shall meet all safety and performance standards adopted by the utility and filed with and approved by the Commission pursuant to Rule 3.01.F that are necessary to assure safe and reliable operation of the net metering facility to the utility's system.

Customer shall not commence parallel operation of the net metering facility until the net metering facility has been inspected and approved by the Utility. Such approval shall not be unreasonably withheld or delayed. Notwithstanding the foregoing, the Utility's approval to operate the Customer's net metering facility in parallel with the Utility's electrical system should not be construed as an endorsement, confirmation, warranty, guarantee, or representation concerning the safety, operating characteristics, durability, or reliability of the Customer's net metering facility.

Modifications or changes made to a net metering facility shall be evaluated by the Utility prior to being made. The Customer shall provide detailed information describing the modifications or changes to the Utility in writing prior to making the modifications to the net metering facility. The Utility shall review the proposed changes to the facility and provide the results of its evaluation to the Customer within forty-five (45) calendar days of receipt of the Customer's proposal. Any items that would prevent parallel operation due to violation of applicable safety standards and/or power generation limits shall be explained along with a description of the modifications necessary to remedy the violations.

Section 5. Maintenance and Permits

The customer shall obtain any governmental authorizations and permits required for the construction and operation of the net metering facility and interconnection facilities. The Customer shall maintain the net metering facility and interconnection facilities in a safe and reliable manner and in conformance with all applicable laws and regulations.

Section 6. Access to Premises

The Utility may enter the Customer's premises to inspect the Customer's protective devices and read or test the meter. The Utility may disconnect the interconnection facilities without notice if the Utility reasonably believes a hazardous condition exists and such immediate action is necessary to protect persons, or the Utility's facilities, or property of others from damage or interference caused by the Customer's facilities, or lock of properly operating protective devices.

Section 7. Indemnity and Liability

Each party shall indemnify the other party, its directors, officers, agents, and employees against all loss, damages expense and liability to third persons for injury to or death of persons or injury to property caused by the indemnifying party's engineering design, construction ownership or operations of, or the making of replacements, additions or betterment to, or by failure of, any of such party's works or facilities used in connection with this Agreement by reason of omission or negligence, whether active or passive. The indemnifying party shall, on the other party's request, defend any suit asserting a claim covered by this indemnity. The indemnifying party shall pay all costs that may be incurred by the other party in enforcing this indemnity. It is the intent of the parties hereto that, where negligence is determined to be contributory, principles of comparative negligence will be followed and each party shall bear the proportionate cost of any loss, damage, expense and liability attributable to that party's negligence.

Nothing in this Agreement shall be construed to create any duty to, any standard of care with reference to or any liability to any person not a party to this Agreement. Neither the Utility, its officers, agents or employees shall be liable for any claims, demands, costs, losses, causes of action, or any other liability or any nature or kind, arising out of the engineering, design construction, ownership, maintenance or operations of, or making replacements, additions or betterment to, the Customer's facilities by the Customer or any other person or entity.

Section 8. Notices

All completed Standard Interconnection Agreement paperwork and/or written notices should be directed to the following:

E-mail: solarapp@demco.org

Or mail to:

DEMCO
Attention: Net Meter Department
P.O. Box 15659
Baton Rouge, LA 70895

Customer notices to Utility shall refer to the Customer's electric service account number set forth in Section 1 of this Agreement.

Section 9. Term of Agreement

The term of this Agreement shall be the same as the term of the otherwise applicable standard rate schedule. This Agreement shall remain in effect until modified or terminated in accordance with its terms or applicable regulations or laws.

Section 10. Assignment

This Agreement and all provisions hereof shall inure to and be binding upon the respective parties hereto, their personal representatives, heirs, successors, and assigns. The Customer shall not assign this Agreement or any part hereof without the prior written consent of the Utility, and such unauthorized assignment may result in termination of this Agreement.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed by their duly authorized representatives.

Dated this _____ day of _____, 20____.

Customer:

Utility:
DEMCO

By: _____
Title: _____

By: _____
Title: _____

Mailing Address:

P.O. Box 15659
Baton Rouge, LA 70895

Accuracy Requirements for Service Watt-Hour Meters, Demand Meters, and Pulse Recorders:

1) Initial and Test Adjustments

- a) No watt-hour meter that has an incorrect register constant, test constant, gear ratio or dial train, or that registers upon no load (“creeps”), shall be placed in service or allowed to remain in service without adjustment and correction. An in-service meter “creeps” when, with potential applied to all stators and with all load wires disconnected, the moving element makes one complete rotation in 10 minutes or less.
- b) No watt-hour meter that has an error in registration of more than the limits allowed in Rule 7.05.B (1) shall be placed in service or be allowed to remain in service without adjustment. When meter error is found to exceed any one of the test limits in Rule 7.05.B (1), it must be adjusted and a correction made to the customer’s bill.
- c) Meters must be adjusted as closely as practicable to the condition of zero error by no greater than +/-0.5 percent.

2) Acceptable Performance

a) Watt-Hour Meter Accuracy

The average error of the watt-hour meter shall not exceed +/-2 percent.

	<u>Test Current</u>	<u>Power Factor</u>	<u>Accuracy</u>
Heavy Load	100% Test Amperes	1.0	+/-2%
	100% Test Amperes	0.5	+/-2%
Light Load	10% Test Amperes	1.0	+/-2%

b) Demand Meter Accuracy

The error of the demand register shall not exceed +/-4% of the full scale value when tested between 25 percent and 100 percent of full scale value.

c) Pulse Recorders

Pulse recorders shall not differ by more than +/-2 percent from the corresponding kilowatt hour meter registration. The timing error shall not exceed +/-2 minutes per day.

d) Time of Use Meters

The timing element of time of use meters shall not be in error with central standard daylight savings time by more than +/-15 minutes.

3) Average Error

- a) The average error of a service watt-hour meter shall be determined as follows:

$$WA = LL + 4HL/5$$

Where: WA = weighted average error of a service watt-hour meter
LL = error at light load for 100 percent power factor
HL = error at heavy load for 100 percent power factor

- b) The average error of the watt-hour portion of a demand meter shall be determined as follows:

$$WA = LL + 4HL + 2HHL/7$$

Where: WA = weighted average of error of the watt-hour portion of a demand meter
LL = error at light load of 100 percent power factor
HL = error at heavy load for 100 percent power factor
HHL = error at heavy load with 50 percent lagging power factor