Distributed Generation Interconnection Policy

Introduction

Carroll Electric Membership Corporation (herein after referred to as "Carroll EMC" or the "Cooperative") is a non-profit cooperative created to provide the best possible service to its members. In efforts to provide great service, Carroll EMC is providing a Distributed Generation Interconnection Policy; allowing the member to connect their own electric power generation in parallel with Carroll EMC's system. This Distributed Generation Interconnection Policy establishes the terms and conditions for the interconnection of distributed generation facilities and for providing net energy metering services.

Net Metering

The Cooperative will furnish, install, own and maintain a bi-directional meter to measure the kWh usage supplied by the Cooperative to the net metering member in addition to the kWh usage supplied by the net metering member to the Cooperative.

Interconnection Process / Requirements

1. Submit a completed Distributed Generation Interconnection Application (see Appendix A), including all attachments thereto, accompanied by payment of $100.00 application fee to the Cooperative at least forty-five (45) days prior to the intended date to interconnect the distributed generation facility to the Cooperative's distribution system.
2. A representative from Carroll EMC will review the Application and notify the prospective member within thirty (30) days if the Application is approved or not approved.
3. Submit
    a) Completed Distributed Generation Interconnection Agreement (see Appendix B) once in compliance with all requirements set forth therein, including all applicable safety, power quality, and interconnection requirements established by the National Electric Code, National Electric Safety Code, the Institute of Electrical and Electronic Engineers, and Underwriters Laboratories. The Cooperative may adopt additional safety, power quality, and interconnection requirements.

    b) Verification that the disconnect switch is installed and operable in compliance with the National Electrical Code, the National Electrical Safety Code and the Institute of Electrical and Electronics Engineers (including, without limitation, IEEE Standards 1547 and 1547.1).

    c) Verification that the distributed generation facility is installed and operable in compliance with the requirements established by Underwriters Laboratories or other national testing laboratories.

    d) Copy of the final, signed, jurisdictional approval (Permit) for the member's distributed generation facility from any local government entity with jurisdiction

over the member's distributed generation facility (generally the local building and inspection department).

e) All payments required by and have otherwise complied with the conditions for extension or modification of the Cooperative's distribution system as may be determined herein and as set forth in the Cooperative's service rules and regulations.

4. The Cooperative will install metering equipment to measure energy (kWh) delivered by the Cooperative to the member and the energy delivered from the member to the Cooperative.
5. The Cooperative will provide written authorization to begin parallel operation of distributed generation.

Distributed Generation Interconnection Policy

Appendix A

Distributed Generation Interconnection Application

Carroll Electric Membership Corporation
Distributed Generation Interconnection Application

Members must not operate their distributed generation facilities in parallel with Carroll EMC's system until they have received written authorization for parallel operation from Carroll EMC. Unauthorized parallel operation of the member generating facilities could result in injury to persons and/or damage to equipment or property.

Section 1: Application Information

Name:_____

Mail Address:_____

Facility Address (if different from above):_____

City:_____ State:_____ Zip Code:_____

Phone Number:_____ Account Number:_____

Email:_____

Contractor (if applicable):_____

Mail Address:_____

City:_____ State:_____ Zip Code:_____

Phone Number:_____ Representative:_____

Email:_____

Section 2: Generation Facility Information

Type (Check One): Solar ☐ Wind ☐ Fuel Cell ☐ Hydro ☐

Make and Model:_____

Power Rating (KW):_____ Number of Panels:_____

Inverter Make and Model:_____

Power Rating (KW):_____ Number of Inverters:_____

Battery Make and Model:_____

Power Rating (KW):_____ (KWH):_____

Disconnect Switch is handle style operated and lockable: YES ☐ NO ☐

UL 1741 Listed: YES ☐ NO ☐

Section 3: One-Line Diagram

Attach **a detailed one line diagram of the proposed generating facility** and the interconnection to Carroll EMC's system. Devices such as the service panel, disconnect switch, inverters, generators, circuit breakers, etc. must contain the electrical rating and operating voltages.

Section 4: Installation Information

Installation Date:_____Proposed Interconnection Date:_____

I hereby certify that, to the best of my knowledge, all of the information provided in the Application is true and correct.

Signature of Applicant: _____ Date:_____

ELECTRIC COOPERATIVE CONTACT FOR APPLICATION SUBMISSION AND INFORMATION

Primary Cooperative Contact:	James Layton
Title:	VP, Engineering and Technology
Address:	155 N. Hwy 113 Carrollton, GA 30117
Phone:	770-830-5785 Fax: 770-832-0240
Email:	James.Layton@cemc.com

Secondary Cooperative Contact:	Heather Whisenhunt
Title:	Administrative Assistant to Chief Operating Officer
Address:	155 N. Hwy 113 Carrollton, GA 30117
Phone:	770-830-5726 Fax: 770-832-0240
Email:	Heather.Whisenhunt@cemc.com

Distributed Generation Interconnection Policy

Appendix B

Distributed Generation Interconnection Agreement

Carroll Electric Membership Corporation
Distributed Generation Interconnection Agreement

This Agreement made_____, 20_____, between

Carroll Electric Membership Corporation (hereinafter called "Cooperative"), and

_____(hereinafter called the "Member Generator").

W I T N E S S E T H:

WHEREAS, the Cooperative is a non-profit electric membership corporation providing retail electric service; and

WHEREAS, the Member Generator is a member of the Cooperative; and

WHEREAS, the Member Generator desires to install, own, operate and maintain a renewable resource distributed generation facility primarily intended to supply all or part of its total electric power and energy requirements; and

WHEREAS, the Member Generator desires to interconnect with the Cooperative's electric distribution system (hereinafter called "System") of the Cooperative and has complied with the provisions for interconnection contained in the Cooperative's Distributed Generation and Net Metering Policy; and

WHEREAS, the Member Generator desires to operate its generation equipment in parallel with the Cooperative's System.

NOW THEREFORE, it is understood and agreed that the Cooperative shall permit the Member Generator to connect its generation system to the System and to operate its generation equipment in parallel with the System subject to the following terms and conditions:

1. COST OF INTERCONNECTION AND PROTECTIVE EQUIPMENT:

The Member Generator shall be responsible for all costs of installing, operating and maintaining protective equipment and/or electrical facilities required to interconnect the member's generation equipment with the System.

2. OPERATING LIMITS:

Operation of Member Generator-owned parallel generating equipment shall not compromise the quality of electric service to other members on the system. The Member Generator's parallel generating equipment shall meet the following minimum requirements:

a) Voltage

The Member Generator shall be capable of operating its generating equipment at a voltage level of plus/minus 6% of nominal system voltage (120 volts ac). Utility grade negative sequence/under-voltage relaying shall be used to trip the equipment off the line for negative excursions exceeding 8.25% of nominal for a

maximum duration of six electrical cycles. Positive excursions exceeding 10% of nominal voltage shall cause the equipment to trip offline. Voltage regulating equipment shall maintain stable excitation levels with negligible hunting (less than 2% of nominal phase current).

b) Flicker

Parallel operation of the generating equipment shall not cause voltage flicker in excess of 2% of nominal line voltage (120 volt ac) as measured at the primary terminals of the Member Generator's generator interface transformer.

c) Frequency

While operating in parallel with the System, the Member Generator must provide a utility grade precision over/under frequency relay calibrated to trip for frequency excursions exceeding plus/minus 0.25 Hz for greater than 10 electrical cycles on a 60 Hz base.

d) Power Factor

Member Generator-owned generation shall employ automatic means of reactive power regulation while operating in parallel with the System. The Member Generator's generating equipment shall be capable of operation within the range of 0.9 lagging to 0.9 leading power factor as required by the Cooperative.

e) Harmonics

Total current harmonic distortion shall not exceed 5.0%. Total voltage harmonic distortion shall not exceed 5.0%, with a limit of 3.0% on any individual harmonic. Special consideration will be given to regenerative drive systems and invertors reviewed on an individual case-by-case basis.

f) Stability

While operating in parallel with the System, the Member Generator's generating equipment shall maintain a stable output level with no noticeable hunting exhibited. In the event a system instability condition arises due to Member Generator-owned generation, it is the Member Generator's responsibility to take measures to rectify the source of instability.

3. GENERATOR INTERFACE TRANSFORMER:

The generator interface transformer is intended to provide isolation of the Member Generator's generating equipment from the System. The inherent impedance of the transformer will minimize the impact on the System due to faults originating at the Member Generator's generation equipment. This transformer may consist of an existing transformer serving the Member Generator's loads or a dedicated transformer dictated by generator or prevailing system characteristics. Interface transformer specifications are determined by the Cooperative and determination of ownership of said transformer shall be at the Cooperative's option.

4. GENERATOR PARALLELING BREAKER:

It is required that a generator-paralleling breaker be of draw-out construction, electrically operated, and rated as a five electrical cycle device for fault clearing or tripping.

5. SYNCHRONIZATION:

It is the Member Generator's responsibility to provide proper synchronizing of its parallel generating equipment. The Cooperative assumes no liability for any Member Generator-owned generation and assumes that the Member Generator operates its equipment at its own risk. Synchronizing equipment shall be capable of matching frequency within plus/minus 0.05 Hz and plus/minus 10 electrical degrees phase angle prior to paralleling breaker closure. Voltage shall be matched within plus/minus 4%.

6. SAFETY:

It is not the intent of this document to specify protection of the Member Generator's generator. Protection of the Member Generator's generating equipment is the responsibility of the Member Generator and the Cooperative assumes no liability for damage to or failure of the Member Generator's generation equipment.

a) Operation of Member Generator-owned generation equipment shall not present a safety hazard to the Cooperative employees or other members connected to the System or the public at large. Under no circumstances shall the Member Generator-owned generation be used or be capable of energizing a dead System circuit. A positive means of disconnecting and locking out the Member Generator-owned generation equipment with visible air-gap shall be provided to insure safety of Cooperative operating personnel during line maintenance. This disconnecting means may be via a lockable air-break disconnect or by a lockable draw out circuit breaker. Islanding of the Member Generator-owned generation (a situation whereby the Member Generator's loads and generation remains connected to the bus) shall be prevented by protective relaying specified by the Cooperative based on individual review of the Member Generator's proposed generating system;

b) The Member Generator must provide verification that a qualified electrical contractor licensed to practice in Georgia has certified that the required manual disconnect switch has been installed properly; that the distributed generation facility has been installed in accordance with the manufacturer's specifications; and that the installation meets all applicable safety, power quality, and interconnection requirements established by the National Electrical Code, the National Electrical Safety Code and the Institute of Electrical and Electronics Engineers;

c) The Member Generator must provide verification that the vendor has certified that the distributed generation facility which has been installed is in compliance with Underwriter's Laboratory UL 1741 standards as "Utility Interactive" (or induction system standards).

d) The Member Generator must provide verification that the distributed generation facility was inspected and approved by the electrical inspector having legal jurisdiction (generally the local building or inspections department).

7. OUTAGES:

The Member Generator shall not back feed onto the Cooperative's power system during any outage situation. Maintenance outages will occasionally be required on the System, and the Cooperative will provide as much notice and planning as practical to minimize downtime. It is noted that in some emergency cases such notice may not be practical. Compensation will not be made for unavailability of the System due to outages or disconnection of any kind.

8. ACCESS:

The Cooperative shall have access at all times to the member generator's premises for the purpose of metering reading and performing operations and maintenance activities.

9. INSPECTION / OPERATION / COMPLIANCE PROCEDURE:

The Cooperative reserves the right to inspect the Member Generator's facility at any reasonable time and to immediately disconnect the Member Generator's facility without providing prior notice should it be necessary to address a hazardous condition or failure to comply with the interconnection requirements as specified via this Agreement.

10. NET METERING AND INTERCONNECTION CHARGE:

The Member Generator shall pay the Cooperative in accordance with the rates, terms and conditions of the "Net Energy Metering Rider" attached to and made a part of this Agreement. The Member Generator shall be charged for the direct cost incurred by the Cooperative as a result of the interconnection and for providing net metering service. Said charges will be determined in accordance with the Cooperative Net Energy Metering Rider (see Appendix C).

11. LIABILITY and INDEMNIFICATION:

The Member Generator shall assume all liability for and shall indemnify the Cooperative and its members, directors, officers, manager, employees, agents, representatives, affiliates, successors, and assigns for and shall hold them harmless from and against any claims, losses, cost, and expenses of any kind or character to the extent that they result from the Member Generator's design, construction, installation, operation or maintenance of the Member Generator's generation or interconnection facilities. Such indemnity shall include, but is not limited to, financial responsibility for (a) monetary losses; (b) reasonable cost 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.

The Cooperative and Member Generator 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 where the electric energy first leaves the wires or facilities owned by the Cooperative and enters the wires or facilities provided by the Member Generator (the "Point of Interconnection'). The Cooperative does not assume any duty of inspecting the Member Generator's lines, wires, switches, or other equipment or property. The Member Generator assumes all responsibility for the electric service supplied hereunder and the facilities used in connection therewith, at or beyond the Point of Interconnection. The Member Generator acknowledges that the Cooperative cannot prevent voltage fluctuations, surges, or other

anomalies on its distribution system, and that such anomalies may result in damage to the distributed generation facility or the Member Generator's other property. The Member Generator hereby accepts all such risks and agrees to hold the Cooperative harmless from them. As a condition of entering this Agreement, the Member generator agrees to install such protective devices, and to acquire such insurance coverage, as the Member Generator believes are appropriate to protect the Member Generator's property in light of this known risk.

12. INSURANCE

The Member Generator agrees to maintain adequate liability coverage for damages to the Member Generator's facility, other property and persons who may be damaged by it, and to fully indemnify the Cooperative from all liability to the Cooperative and damages to the Cooperative or its member(s) arising from the operation, maintenance, or use of the distributed generation facility. Coverage limits shall be appropriate for the capacity and other characteristics of the distributed generation facility.

13. NON-OPERATIONAL

The Cooperative will monitor the distributed generation facility for non-performance. If the facility becomes non-operable, the Member Generator will have three (3) years to become operational or the Distribution Generation Interconnection Agreement will become void. Once void, the Member Generator will have to reapply for interconnection with the Cooperative. Due to the aggregate limits on net metering, it is possible the non- performing distributed generation facility will not be approved to rejoin the net metering program even if they facility becomes operational.

14. TRANSFER OF OWNERSHIP

If ownership or operational control of the Member Generator's distributed generation facility transfers to any party other than the Member Generator, a new Application and Agreement must be completed by the person or persons taking ownership or operational control of the existing facility. The Cooperative shall be notified in writing no less than thirty (30) days before the Member Generator anticipates transferring ownership or operational control of the distributed generation facility. The person or persons taking over operational control of the distributed generation facility must receive written authorization from the Cooperative for the facility to continue to operate in parallel with the System.

15. TERM:

This Agreement shall become effective on the date first above written and shall remain in effect until one (1) year following the start of the initial billing period and thereafter until terminated by either party giving to the other three (3) months' notice in writing; provided, however, the Cooperative may terminate this Agreement prior to the expiration of the term hereof upon any breach of this Agreement by the Member Generator.

The parties hereto have executed this Agreement all as of the day and year first above written.

Member Generator	**Carroll EMC**
_____	_____
Signature	Signature
_____	_____
Name	Name
_____	_____
Title	Title

Distributed Generation Interconnection Policy

Appendix C

Net Metering Rider

Carroll Electric Membership Corporation

NET ENERGY METERING RIDER
Schedule NEM-1R

A. PURPOSE

The purpose of this rider is to establish the methods and procedures for determining credits, payments, and charges applicable to members of the Cooperative who own and operate a distributed generation facility as defined in the Cooperative's Distributed Generation Interconnection Policy.

B. AVAILABILITY

This rider is available to any member of the Cooperative owning and operating a distributed generation facility, as defined in the Cooperative's Distributed Generation Interconnection Policy, that is interconnected with the Cooperative's distribution system.

Distributed generation interconnection is available to 60-cycle services at one of the following approximate voltages:

Single-Phase, 120/240 Volts, or
Three-Phase, 208Y/120 Volts, 480Y/277 Volts, or
Three-Phase, three-wire, 240, 480 Volts

The type of service supplied will depend upon the voltage available. Prospective member generators should ascertain the available voltage by inquiring at the Cooperative's office before purchasing equipment. Three-phase voltage, other than the foregoing, is subject to mutual agreement between the Cooperative and the member. Other types of installations may be permitted, subject to approval by the Cooperative.

The Cooperative will purchase energy from distributed generation facilities on a first come, first serve basis, only until the cumulative generating capacity of all renewable resources equals 0.2 percent of the Cooperative's annual peak demand in the previous year. The capacity of distributed generation facilities used by residential members shall not exceed 10 kW. The capacity of distributed generation facilities used by non-residential members shall not exceed 100 kW.

C. DEFINITIONS

The following words and terms shall have the following meanings unless the context clearly indicates otherwise:

1. "*Billing period*" means, as to a particular member, the time period between the dates on which the Cooperative normally reads the retail service meter for billing purposes.
2. "*Bi-directional meter*" is a meter capable of measuring (but not necessarily displaying) electricity flow in both directions.
3. "*Bi-directional metering*" means measuring the amount of electricity supplied by the Cooperative and the amount fed back to the Cooperative by the member's distributed generation facility using the same meter.
4. "*Member Generator*" means a member of the Cooperative that owns and operates a distributed generation facility.

5. "*Distributed generation facility*" means a facility owned and operated by a member of the Cooperative for the production of electrical energy that:

    a. Uses a solar Photovoltaic system, fuel cell, wind turbine or hydro;
    b. Has peak generating capacity of not more than 10 kW for a residential application and 100 kW for a commercial application;
    c. Is located on the member's premises;
    d. Operates in parallel with the Cooperative's distribution facilities;
    e. Is connected to the Cooperative's distribution system via the members side of the Cooperative's retail service meter; and
    f. Is intended primarily to offset part or all of the member generator's requirements for electricity.

6. "*Excess net energy*" is the electricity generated by the distributed generation facility during the billing period as registered by the meter and delivered to the Cooperative.

7. "*Net metering member*" means a member generator receiving net metering service.

8. "*Net metering*" means measuring the difference, over the billing period, between electricity supplied to a net metering member from the electric grid and the electricity generated and fed into the electric grid by the net metering member, using a single bi- directional meter or an additional single direction meter.

9. "*Renewable Energy Sources*" means energy supplied from technologies as approved in the Georgia Green Pricing Accreditation Program.

D. CONDITIONS OF SERVICE

1. There must be an executed Distributed Generation Interconnection Agreement with the member.

2. The member must have met all the conditions of interconnection contained in the Distributed Generation Interconnection Policy.

E. DISPOSITION OF ENERGY

All electricity consumed by the net metering member during the billing period shall be deemed to have been used by the net metering member. The net metering member will be charged for electric service under that rate schedule which would otherwise be applicable if the member was not a net metering member. All electricity generated by the member's distributed generation facility during the billing period as registered by the meter and delivered to the Cooperative shall be purchased by the Cooperative at rates as provided under the Purchase Rate section of this Rider.

F. RATES AND CHARGES FOR NET METERING SERVICE

Each net metering member shall be charged for electric service under that rate schedule which would otherwise be applicable if the member was not a net metering member. In addition, each net metering member shall pay a monthly service charge based upon the direct costs to the Cooperative associated with interconnecting the member's distributed generation facility and with the provision of and administration of net metering services. Said monthly service charge shall include the following:

1. A facilities charge based on the total cost of all facilities installed by the Cooperative, including transformers, protective devices, controls, and monitoring equipment times

the Cooperative's monthly Fixed Charge Rate.

2. A facilities charge based on the total incremental cost of metering equipment times the Cooperative's monthly Fixed Charge Rate.

G. PURCHASE RATE

The rates paid for net energy purchased by the Cooperative shall be based upon the Cooperative's avoided cost of energy. The avoided cost of energy shall be applied monthly as follows:

June – September	$0.0474 per kWh
December – February	$0.0478 per kWh
All Other Months	$0.0412 per kWh

The above-stated rate may be adjusted annually at the sole discretion of the Cooperative, to reflect the prevailing avoided average cost of purchased power.

H. FIXED CHARGE RATE

The Fixed Charge Rate of the Cooperative shall be a percentage factor that includes components for the recovery of operations and maintenance expense, administrative and general expense, taxes, depreciation, and the cost of capital which are all associated with owning and operating the utility plant necessary for interconnection and for the provision of Net Metering pursuant to this Rider. The Fixed Charge Rate may be modified at any time by the Cooperative to reflect prevailing costs.

I. TERM OF SERVICE

The term of service under this rider shall be the same as that under the Distributed Generation Interconnection Agreement.