BARTLETT ELECTRIC COOPERATIVE, INC.

APPLICATION FOR OPERATION OF MEMBER OWNED GENERATION

This application should be completed as soon as possible and returned to the Bartlett Electric Cooperative, Inc. (c/o Engineering Services Supervisor) in order to begin processing the request. See Distributed Generation Tariff and Distributed Generation Procedures and Guidelines Manual for Members for additional information.

INFORMATION: *This application is used by the Cooperative to determine the required equipment configuration for the Applicant interface. Every effort should be made to supply as much information as possible. Please print or type legibly.*

PART 1

OWNER/APPLICANT INFORMATION

Coop Member or Company Name:_____
Mailing Address:_____
City:_____ County:_____ State:_____ Zip Code:_____
Phone Number: _____ Representative (if company): _____

TYPE OF GENERATOR (as applicable)

A. Small Renewable ≤ 20 kW
Photovoltaic _____ Wind _____ Other (describe) _____

B. Small/Large Commercial Distributed Generation > 20 kW
Photovoltaic _____ Wind _____ Other (describe) _____

C. Combustion Distributed Generation (Wholesale Producer)
Micro Turbine _____
Diesel Engine _____ Gas Engine _____ Turbine Other _____

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: _____

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 DG AC 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.

_____
_____
_____
_____
_____
_____
_____

PART 2

(Complete all applicable items. Copy this page as required for additional generators.)

SYNCHRONOUS GENERATOR DATA

Unit Number: _____ Total number of units with listed specifications on site: _____
Manufacturer:_____
Type: _____ Date of manufacture: _____
Serial Number (each): _____
Phases: Single _____ Three _____ R.P.M.: _____ Frequency (Hz): _____
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 (Xo): _____ % on _____ kVA base
Neutral Grounding Resistor (if applicable): _____
_____
I_2^2 t of K (heating time constant): _____
Additional Information: _____
_____

INDUCTION GENERATOR DATA

Rotor Resistance (Rr): _____ ohms Stator Resistance (Rs): _____ ohms
Rotor Reactance (Xr): _____ ohms Stator Reactance (Xs): _____ ohms
Magnetizing Reactance (Xm): _____ ohms Short Circuit Reactance (Xd"): _____ 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^2
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) (typical for small renewable wind and solar)

Manufacturer: _____ Model: _____
Rate Power Factor (%): _____ Rated Voltage (Volts): _____ Rated Amperes: _____
Inverter Type (ferroresonant, step, pulse-width modulation, etc.) _____
Type commutation: forced line (typical for utility interactive; meets IEEE 1547)
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? No Yes: (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. Additionally, a $200 non-refundable DG Application Fee must be paid before this Application is processed. However, if existing Cooperative facilities are not adequate to serve the proposed DG facilities the additional cost to upgrade these facilities must be paid as a non-refundable contribution-in-aid-of-construction before construction begins.

SIGN OFF AREA

The applicant agrees to provide the Cooperative with any additional information requested by the Cooperative to assist in the review of this Application required to complete the interconnection. The applicant shall operate his equipment within the guidelines set forth by the Cooperative.

_____ _____
Applicant (signature) Date

_____
Applicant (printed/typed name)

BARTLETT ELECTRIC COOPERATIVE, INC. CONTACT FOR APPLICATION SUBMISSION AND FOR MORE INFORMATION:

Cooperative contact: BEC Solar – Solar@bartelettec.coop
Address: 27492 Highway 95
Bartlett, Texas 76511

Phone: 254-527-3551
Fax: 254-527-3221

Attachment 3 - Page One

BARTLETT ELECTRIC COOPERATIVE, INC

COOPERATIVE AGREEMENT FOR INTERCONNECTION AND PARALLEL OPERATION OF DISTRIBUTED GENERATION ("Interconnection Agreement")

SHORT FORM CONTRACT

This Interconnection Agreement ("Agreement") is made and entered into this ____ day of _____, 20____, ("Effective Date") by Bartlett Electric Cooperative, Inc., ("Cooperative"), a corporation organized under the laws of Texas, and _____ ("DG 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 Cooperative's Distributed Generation Tariff ("DG Tariff") shall be considered to be a part of this contract.

This agreement provides for the safe and orderly operation of the DG Owner/Operator's electrical facilities and the interconnection of the DG Owner/Operator's facility(ies) (collectively "Facility") at_____ _____and the electrical distribution system ("System") owned by the Cooperative.

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

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

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

It is the intent of both parties to operate in a way that helps ensure the safety of the public and respective employees.

2. **Establishment of Point of Interconnection -** The point where the electric energy first leaves the wires or facilities of the system owned by the Cooperative and enters the wires or facilities of the Facility provided by DG Owner/Operator is the "Point of Interconnection." Cooperative and DG Owner/Operator agree to interconnect the Facilities at the Point of Interconnection in accordance with the Cooperative's DG Tariff.

3. **Operating authority**: The DG Owner/Operator is responsible for establishing operating procedures and standards within their organization. The operating authority for the DG Owner/Operator and its operating authority shall ensure that the Operator in Charge of the generator constituting a part of the Facility 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 the DG 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 the Facility owned by the DG Owner/Operator.

The Operator in Charge for the DG 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, with respect to the Cooperative's provision of electric service to DG Owner/Operator and the services provided by the Cooperative pursuant to this Agreement, Cooperative's liability to DG Owner/Operator shall be limited as set forth in the Cooperative's tariffs and terms and conditions for electric service, which are incorporated herein by reference.

b. Neither Cooperative nor DG Owner/Operator shall be liable to the other for damages resulting from a Force Majeure event as hereinafter defined.

c. Notwithstanding Paragraph 5.b of this Agreement, the DG Owner/Operator shall assume all liability for, and shall indemnify and hold harmless Cooperative for, any claims, losses, damages, liabilities, costs, and expenses of any kind or character to the extent that they result from DG Owner/Operator's negligence or other wrongful conduct (including the negligence or wrongful conduct of DG Owner/Operator's operators and their agents, employees, or contractors) in connection with the design, construction or operation of the 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.

d. Cooperative and DG 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 DG Owner/Operator's lines, wires, switches, or other equipment or property and will not be responsible therefore. DG Owner/Operator assumes all responsibility for the electric service supplied hereunder and the facilities used in connection therewith.

e. For the mutual protection of the DG Owner/Operator and the Cooperative, only with the Cooperative's prior written authorization are the connections between the Cooperative's service wires and the DG Owner/Operator's service entrance conductors to be energized.

f. The provisions of this Section 5 shall survive any termination of this Agreement.

6. **Metering:** Metering shall be accomplished as described in the Cooperative's DG Tariff.

7. **Insurance:** Insurance shall be required as described in the Cooperative's DG Tariff.

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

9. **Compliance with Laws, Rules and Tariffs:** Both the Cooperative and the DG 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 Texas, and the Cooperative's DG Tariff, other Tariffs, Rules and Regulations, By-Laws 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 the Cooperative as applicable to the electric service provided by the Cooperative, which tariffs and rules are hereby incorporated into this Agreement by this reference. The Cooperative shall have the right to publish changes in rates, classification, service or rule, with the proper notification to all DG owners/operators and Cooperative members.

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

11. **Access**: Access is granted as may be required by the Cooperative to the DG Owner/Operator's Facility for maintenance, operating and meter reading. The Cooperative reserves the right, but not the obligation, to inspect the DG Owner/Operator's Facility.

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, acts of terrorism, public disorder, rebellion or insurrection; floods, hurricanes, earthquakes, lighting, 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 if a Force Majeure event prevents a Party from fulfilling such performance of obligations but will use reasonable efforts to resume its performance as soon as possible.

13. **Assignment -** At any time during the term of this Agreement, the DG Owner/Operator may assign this Agreement to a corporation, an entity with limited liability or an individual (the "Assignee"), provided that the DG Owner/Operator obtains the prior written consent of the Cooperative in advance of the assignment. The Cooperative's consent will be at the Cooperative's discretion based on whether or not the Cooperative determines that the Assignee is financially and technically capable to assume ownership and/or operation of the DG unit. The company or individual to which this Agreement is assigned in accordance with the terms and conditions of this Agreement will be responsible for the proper operation and maintenance of the DG Facilities, and will be a party to all provisions of this Agreement.

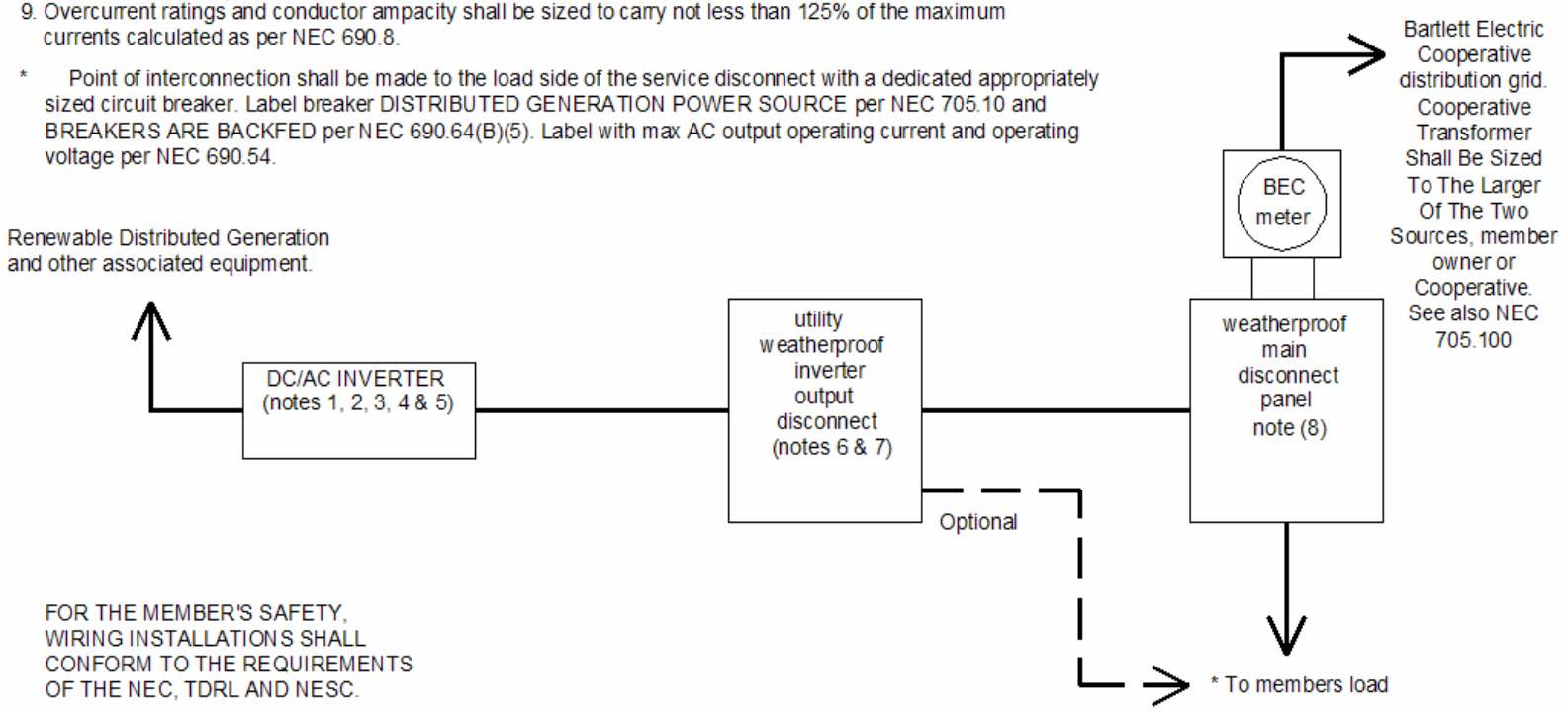
14. **Term**: The term of this Agreement is a period of two (2) years from the Effective Date ("Initial Term"). This Agreement shall automatically renew in (1) year increments after the Initial Term unless terminated sooner. This Agreement may be canceled by either party with 30 days prior written notice to the other party during the Initial Term or any renewal period.

AGREED TO BY:

DG Owner/Operator	Cooperative
_____	_____
Name	Name
_____	_____
Title	Title
_____	_____
Date Signed	Date Signed

1. Installation of one or more electrical power production sources shall only be installed by qualified persons per NEC 705.6 ONLY UTILITY INTERACTIVE SYSTEMS SHALL BE CONNECTED.
2. Ground-Fault Protection provided in DC/AC inverter.
3. Inverter is Listed to UL-1741 Utility-interactive.
4. Equipment is required to be Non-islanding to ensure compliance with IEEE 1547 and PUC Rule 25.212.
5. Where multiple inverters are installed remotely from each other a directory in accordance with NEC 705.10 shall be installed at each PV disconnecting means, each ac disconnecting means and at the main service disconnecting means.
6. Label DISTRIBUTED GENERATION SYSTEM UTILITY DISCONNECT SWITCH. Switch to be located on exterior of building in a readily accessible location. Switch shall be lockable in the open position per NEC 705.22.
7. Provide warning sign per NEC 690.17 reading WARNING- ELECTRICAL SHOCK HAZARD- DO NOT TOUCH TERMINALS- TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OFF POSITION.
8. Sign on interior of weatherproof main disconnect panel per NEC 702.8 (A) notifying the type of interactive system and location of utility disconnect switch.
9. Overcurrent ratings and conductor ampacity shall be sized to carry not less than 125% of the maximum currents calculated as per NEC 690.8.

* Point of interconnection shall be made to the load side of the service disconnect with a dedicated appropriately sized circuit breaker. Label breaker DISTRIBUTED GENERATION POWER SOURCE per NEC 705.10 and BREAKERS ARE BACKFED per NEC 690.64(B)(5). Label with max AC output operating current and operating voltage per NEC 690.54.

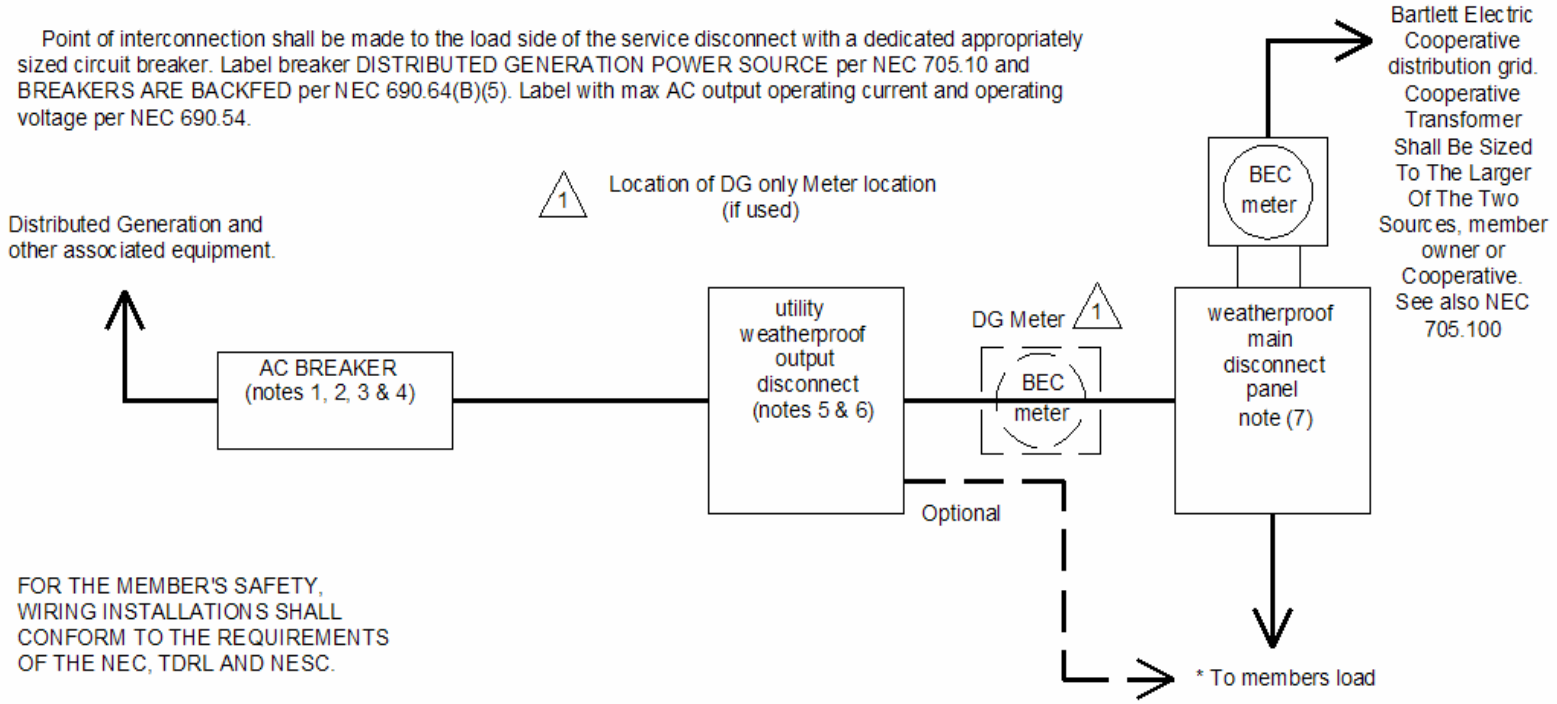


FOR THE MEMBER'S SAFETY, WIRING INSTALLATIONS SHALL CONFORM TO THE REQUIREMENTS OF THE NEC, TDRL AND NESC.

	Bartlett Electric Cooperative, Inc 27492 HWY 95 Bartlett, TX 76511	ONE-LINE DIAGRAM FOR RENEWABLE SYSTEM (SOLAR OR WIND)	DRAWN BY: REV2-SE	JOB CODE:	APPROVED BY: KS
			SCALE: NONE	DATE: 12-1-2010	DRAWING NO.

1. Installation of one or more electrical power production sources shall only be installed by qualified persons per NEC 705.6 ONLY UTILITY INTERACTIVE SYSTEMS SHALL BE CONNECTED.
2. Ground-Fault Protection provided in DC/AC breaker.
3. Equipment or/ module must have a listing label per NEC 110.3(B).
4. Equipment is required to be Non-islanding to ensure compliance with IEEE 1547 and PUC Rule 25.212.
5. Label DISTRIBUTED GENERATION SYSTEM UTILITY DISCONNECT SWITCH. Switch to be located on exterior of building in a readily accessible location. Switch shall be lockable in the open position per NEC 705.22.
6. Provide warning sign per NEC 690.17 reading WARNING- ELECTRICAL SHOCK HAZARD- DO NOT TOUCH TERMINALS- TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OFF POSITION.
7. Sign on interior of weatherproof main disconnect panel per NEC 702.8 (A) notifying the type of interactive system and location of utility disconnect switch.
8. Overcurrent ratings and conductor ampacity shall be sized to carry not less than 125% of the maximum currents calculated as per NEC 690.8.

* Point of interconnection shall be made to the load side of the service disconnect with a dedicated appropriately sized circuit breaker. Label breaker DISTRIBUTED GENERATION POWER SOURCE per NEC 705.10 and BREAKERS ARE BACKFED per NEC 690.64(B)(5). Label with max AC output operating current and operating voltage per NEC 690.54.



FOR THE MEMBER'S SAFETY, WIRING INSTALLATIONS SHALL CONFORM TO THE REQUIREMENTS OF THE NEC, TDRL AND NESC.

Bartlett Electric Cooperative, Inc 27492 HWY 95 Bartlett, TX 76511	ONE-LINE DIAGRAM FOR WHOLESALE SYSTEM	DRAWN BY: REV2-SE	JOB CODE:	APPROVED BY: KS
		SCALE: NONE	DATE: 12-1-2010	DRAWING NO.