



Checklist for Distributed Generation (DG) Application

- Completed and signed DG Application (pages 1-6)
- Completed and signed Interconnect Agreement (pages 7-10)
- Completed and signed Description of Facilities (page 11)
- Completed and signed DG Important Disclosure Form (page 12)
- Completed Site Plan
- One-line Electrical Diagram (single-meter installation)
- Panels, Inverter and Battery (if applicable) Specification Sheets
- DG Application Fee \$750

Please submit your application one of the following ways:

Email to: DGApplications@BanderaElectric.com

By Mail:

Bandera Electric Cooperative
Attn: DG Applications
PO Box 667
Bandera, TX 78003

Bring it to one of our office locations



**APPLICATION FOR INTERCONNECTION & OPERATIONS OF
MEMBER-OWNED GENERATION**

This application should be completed and returned to Bandera Electric Cooperative, Inc. in order to begin processing the request for interconnecting Distributed Generation as required by the Cooperative's Tariffs. See BEC Procedures and Guidelines Manual for Member-Owned Distributed Generation for additional information.

INFORMATION: This application is used by BEC to facilitate the determination of the required equipment configuration for the Member/Cooperative Point of Interconnection. Every effort should be made to supply as much information as possible.

PART 1 - OWNER/APPLICANT INFORMATION

Member Name: _____

Mailing Address: _____

City: _____ County: _____ State: _____ Zip Code: _____

Phone Number: _____ Representative: _____

Email Address: _____ Fax Number: _____

Proposed Location of Generator: _____

City: _____ County: _____

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PART 2 – PROJECT DATA

TYPE OF GENERATOR

Photovoltaic: _____ Wind: _____ Microturbine: _____ Diesel Engine: _____

Gas Engine: _____ Combustion Turbine: _____ Other: _____

ESTIMATED LOAD & GENERATOR RATING INFORMATION

The following information is necessary to help properly design the Cooperative/Member interconnection.

This information is not intended as a commitment or contract for billing purposes.

Total Site Load (excluding any DG): _____ (kW)

% Residential: _____% % Commercial: _____% % Industrial: _____%



**Bandera Electric Cooperative, Inc.
Procedures and Guidelines for Member-Owned
Distributed Generation**

Proposed Number of Generating Units: _____ Generator Rating: _____ (kW)

Proposed Total DG Capacity to be Installed: _____ (kW)

Estimated Annual Generation Output: _____ (kWh)

(DG Facility will connect to the BEC System and will potentially export power to the electrical grid)

PROPOSED MODE OF DG OPERATION

Isolated: _____

Power Export: _____

Paralleling: _____

(DG facility will not connect in any way to the BEC system)

(DG facility will connect to the BEC system, but will not export power to the electric grid)

(DG facility will connect to the BEC system and will potentially export power to the electric grid)

DESCRIPTION OF PROPOSED INSTALLATION AND OPERATION

Provide a general description of the proposed installation, including a detailed description of its planned location, the date you plan to operate the generator, the frequency with which you plan to operate it and whether you plan to operate it during on or off-peak hours. You may attach additional sheets if necessary.

Complete all applicable items. Copy sheets as required for additional generators.

SYNCHRONOUS GENERATOR DATA (as applicable)

Unit Number: _____ Total Number of Units with Listed Specifications on Site: _____

Manufacturer: _____ Type: _____

Serial Number: _____ Date of Manufacture: _____

Rated Output: kW: _____ kW Single Phase: _____ Three Phase: _____ Rated Power Factor: _____%

Rated Voltage (Volts): _____ V Rated Continuous Current: _____ Amperes R.P.M.: _____

Field Volts: _____ Field Amperes: _____ 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 (X_s): _____ % on _____ KVA base

Zero Sequence Reactance (X_o): _____ % on _____ KVA base

Neutral Grounding Resistor (if applicable): _____

I_2^2t or K (Heating Time Constant): _____

Additional Information: _____

INDUCTION GENERATOR DATA (as applicable)

Rotor Resistance (R_r): _____ ohms Stator Resistance (R_s): _____ ohms

Rotor Reactance (X_r): _____ ohms Stator Reactance (X_s): _____ ohms

Magnetizing Reactance (X_m): _____ ohms Short Circuit Reactance ($X'd$): _____ ohms

Design Letter: _____ Frame Size: _____

Exciting Current: _____ Amperes 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 Manufacture: _____

H.P. Rated: _____ H.P. Max.: _____ Inertia Constant: _____ lb.-ft.²

Energy Source (Hydro, Steam, Wind, etc.) _____

INVERTER DATA (if applicable)

Manufacturer: _____ Model: _____

Rated Power Factor (%): _____ Rated Voltage (Volts): _____ Rated Amperes: _____

Inverter Type (Ferroresonant, Step, Pulse-Width Modulation, etc.): _____

Type Commutation: _____ Forced _____ Line

Harmonic Distortion: Maximum Single Harmonic (%) _____

Maximum Total Harmonic (%) _____

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



GENERATOR FACILITY TRANSFORMER *(Between generator and utility system if applicable)*

Generator Unit Number: _____
Manufacturer: _____ Size (kVA): _____
Serial Number: _____ Date of Manufacture: _____
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): _____

POWER CIRCUIT BREAKER (if applicable)

Manufacturer: _____ Model: _____ Serial Number: _____
Rated Voltage: _____ kV Continuous Current Capability: _____ Amperes
Maximum Interrupting Rating: _____ Amperes BIL Rating: _____
Interrupting Medium / Insulating Medium (ex. Vacuum, Gas, Oil, etc.) _____ / _____
Control Voltage (Closing): _____ (Volts) ___ AC ___ DC
Close Energy: ___ Spring ___ Motor Hydraulic ___ Pneumatic Other: _____
Control Voltage (Tripping): ___ (Volts) ___ AC ___ DC ___ Battery ___ Charged Capacitor
Trip Energy: ___ Spring ___ Motor Hydraulic ___ Pneumatic Other: _____
Bushing Current Transformers: _____ (Max. ratio) Relay Accuracy Class: ___ Yes ___ No
Multi ratio? ___ Yes ___ No If Yes, Available Taps: _____

ADDITIONAL INFORMATION AND CONTACTS

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. Also describe the project’s planned operating mode (e.g., combined heat and power, peak shaving, etc.), and its address or grid coordinates.



PROJECT DESIGN/ENGINEERING (ARCHITECT) *(as applicable)*

Company: _____

Mailing Address: _____

City: _____ County: _____ State: _____ Zip Code: _____

Phone Number: _____ Representative: _____

Email Address: _____ Fax Number: _____

ELECTRICAL CONTRACTOR *(as applicable)*

Company: _____

Mailing Address: _____

City: _____ County: _____ State: _____ Zip Code: _____

Phone Number: _____ Representative: _____

Email Address: _____ Fax Number: _____

PART 3 - SIGN OFF AREA

The Member agrees to cooperate with and provide to Bandera Electric Cooperative, Inc. any additional information required to complete the Member-Owned Generation Interconnection process. Further, the Member agrees they shall operate their equipment within the guidelines set forth by Bandera Electric Cooperative, Inc.

Member

Date

BANDERA ELECTRIC COOPERATIVE CONTACT FOR

APPLICATION SUBMISSION AND FOR MORE INFORMATION:

Cooperative Contact: Manager, Engineering



*Bandera Electric Cooperative, Inc.
Procedures and Guidelines for Member-Owned
Distributed Generation*

Mailing Address:
P.O. Box 667
Bandera, Texas 78003

Phone: 866.226.3372
Fax: 830.460.3030
Web site: BanderaElectric.com

For BEC Use Only:

Date Application Initially Received by BEC: _____	By: _____
Application Fee Required? ___ No ___ Yes	\$ _____
Application Fee Received? Amount: _____	Date: _____ By: _____
Date Application Deemed Complete: _____	By: _____
Project Proposed on Substation: _____	Feeder: _____

**BEC COOPERATIVE AGREEMENT FOR INTERCONNECTION AND PARALLEL
OPERATION OF DISTRIBUTED GENERATION**

***SHORT FORM CONTRACT
APPLICABLE FOR LOADS LESS THAN OR EQUAL TO 50 KW IN SIZE AND OF
STANDARD MANUFACTURE AND DESIGN***

This Interconnection Agreement (“Agreement”) is made and entered into this ____ day of _____, 20____, by Bandera Electric Cooperative, Inc., (“Cooperative”), an electric cooperative 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 BEC Procedures and Guidelines Manual for Member-Owned Distributed Generation shall be considered to be a part of this contract.

This agreement provides for the safe and orderly operation of the electrical facilities interconnecting the DG Owner/Operator’s facility at _____
_____ and the electrical distribution facility 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 their customers and to maintain a high level of power quality.

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

2. **Establishment of Point of Interconnection:** The point where the electric energy first leaves the wires or facilities owned by the Cooperative and enters the wires or facilities 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 Rules and Regulations and DG Manual relating to interconnection of Distributed Generation (the "Rules") and as described in the attached Exhibit A. The interconnection equipment installed by the customer ("Interconnection Facilities") shall be in accordance with the Rules as well.



- 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 shall ensure that the Operator in Charge of the generator is competent in the operation of the electrical generation system and is aware of the provisions of any operating agreements and regulations relating to the safe operation of electrical power systems.

The operating authority for 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 all electrical facilities related to the interconnection and owned by their organization.

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 for any act or omission that is beyond such party's control, including, but not limited to, any event that is a result of an act of God, labor disturbance, act of the public enemy, war, insurrection, riot, fire, storm, flood, explosion, breakage or accident to any part of the System or to any other machinery or equipment, a curtailment, law, order, or regulation or restriction by governmental, military, or lawfully established civilian authorities.
- c. Notwithstanding Paragraph 5.b of this Agreement, the DG Owner/Operator shall assume all liability for, and shall indemnify Cooperative for, any claims, losses, costs, and expenses of any kind or character to the extent that they result from DG Owner/Operator's negligence or other wrongful conduct in connection with the design, construction or operation of the Facilities or Interconnection Facilities. Such indemnity shall include, but is not limited to, financial responsibility for (a) monetary losses; (b) reasonable costs and expenses of defending an action or claim;

- (c) damages related to death or injury; (d) damages to property; and (e) damages for the disruption of business. This paragraph does not create a liability on the part of the DG Owner/Operator to the Cooperative or a third person, but requires indemnification where such liability exists.
- 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 at or beyond the Point of Interconnection.
- e. For the mutual protection of the DG Owner/Operator and the Cooperative, only with 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.
6. **Metering:** Metering shall be accomplished as described in the Cooperative's DG Manual.
7. **Insurance:** Insurance shall be required as described in the Cooperative's DG Manual.
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 System 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 system or quality of electric energy supplied (in the case of power export), does not meet the standards as specified, then (the Cooperative) will notify the DG Owner/Operator to take reasonable and expedient corrective action. The Cooperative shall have the right to disconnect the DG Owner/Operator's System, until compliance is reasonably demonstrated. Notwithstanding, the Cooperative may in its sole discretion disconnect the DG Owner/Operator's generating plant from the Distribution Facility 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 Manual, 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 change any rate, classification, service or rule, in the manner allowed by law.

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

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

12. **Force Majeure:** For the purposes of this Agreement, a Force Majeure event is any event:

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

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

AGREED TO BY

DG Owner/Operator

BEC Cooperative Representative

Name

Name

Title

Title

Date

Date

EXHIBIT A: DESCRIPTION OF FACILITIES AND POINT OF INTERCONNECTION

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

FACILITIES SCHEDULE NO.

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

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

Bandera Electric Cooperative, Inc.

[DG OWNER/OPERATOR NAME]

BY: _____

BY: _____

TITLE: _____

TITLE: _____

DATE: _____

DATE: _____



IMPORTANT DG DISCLOSURES

THIS DISCLOSURE STATEMENT IS DESIGNED TO HELP YOU UNDERSTAND THE TERMS AND COSTS OF YOUR SOLAR ENERGY SYSTEM. PLEASE CONSULT A TAX ADVISER TO DETERMINE ELIGIBILITY OF YOUR SYSTEM FOR FEDERAL TAX CREDITS.

Initials

- _____ I understand it is in my best interest to obtain multiple solar quotes from other installation companies.
- _____ The solar contractor has explained the cost of my solar system and broken down the cost as \$_____._____/Watt (DC) which includes all solar equipment, sales commissions, sales tax, finance, and installation costs.
- _____ I have been presented with the estimated annual savings I am expected to save on my electric bill. BEC's energy rates have not increased at the same rate as the rest of Texas and the U.S.
- _____ I have been informed and understand BEC provides a flat export rate for any and all energy exported to the grid by my solar system regardless of time of day the energy is exported or the amount of energy consumed from the grid.
- _____ I understand BEC **does not** offer Retail Net Metering. **BEC does not net meter energy at the retail rate.**
- _____ I understand that all of the excess energy produced and exported by my solar system is valued at the Avoided Cost (Wholesale Cost BEC pays for energy) and the Avoided Cost is subject to change depending on the cost of energy BEC pays.
- _____ I understand if I export energy, (when energy generated is greater than energy I am consuming in real time) I will receive credits valued at BEC's Avoided Cost rate. The amount of energy exported will impact the financial pay back for the solar system. The greater the amount of exported energy, the lower the financial payback on your solar system.
- _____ I understand the current Avoided Cost is \$0._____/kWh and that BEC has the right to change the amount of this credit at any time to reflect the cost BEC pays for energy.
- _____ I understand I am required to allow BEC to install its Apolloware meter and I agree to allow BEC to use my internet.

DG/Member Applicant Name

Address

Signature

Phone Number

Date

Email