



Bandera Electric Cooperative, Inc.

**Procedures and Guidelines for
Member-Owned Distributed Generation**

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

These procedures and guidelines were developed for Member-owned distributed generation facilities. This manual was prepared by the Engineering & Operations Division and Bandera Electric Cooperative, Inc.

Signed by: _____
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Date: _____



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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 easement requirements, membership fees or deposits, see the Cooperative to request new member information.

It is the intent of the Cooperative to allow Members to install Distributed Generation (DG), provided the Member’s DG facility does not adversely affect the Cooperative. The Member must conduct his/her own analysis to determine the economic benefit of DG operation.

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 for Interconnecting Distributed Resources with Electric Power System* (a copy is on file at the Cooperative for inspection along with information so the Member may obtain his/her own copy), 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 loads 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. The Member may connect multiple DG facilities behind a single Cooperative meter, but the total connected maximum rated output shall not adversely affect the Cooperative’s electric system.

DG facilities larger than 1.0 MW are not covered by this Manual and will be considered by the Cooperative on a case-by-case basis.



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 require 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 require connection to the Cooperative's Power Supplier's system. This manual does NOT cover this category.

2) 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 – power generated to be both consumed and exported The Member operates a DG facility connected in any way to the Cooperative's system designed primarily to serve the Member's own load but with the intention to export excess power.
- c) Parallel – power generated to be exported only The Member operates a DG facility connected in any way to the Cooperative's system designed primarily with the intention to export power.

3) 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) In general, a QF must have as its primary energy source biomass, waste, renewable resources, geothermal resources or any combination. See PURPA for a full description.
 - (2) 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 purchase power from a Member with a DG facility that is an NQF.

4) Size Category

- a) Facilities above 0 kW and below 1.0 MW facilities below 1.0 MW of connected generation will be placed in this size category.
- b) Facilities above 1.0 MW of connected generation not considered under this manual.



II. MEMBER'S INITIAL REQUIREMENTS

1) Notification

- a) The Member must meet all the Cooperative's membership and service requirements in addition to the requirements in the Manual.
- b) Anyone owning or operating a DG facility in parallel with the Cooperative's system must notify the Cooperative of the existence, location and category of the DG facility.

2) Service Request

- a) DG facilities under 50 kW in size and of standard manufacture and design (as so determined by the Cooperative) may submit the Agreement Short Form (Appendix A). All other facilities must submit the Agreement Long Form (Appendix B). An Exhibit A: Description of Facilities and Point of Interconnection (Appendix C) shall be submitted as referenced in agreement.
- b) At least sixty (60) days in advance of the desired interconnection date, the Member shall submit the "Application for Interconnection & Operations of Member-Owned Generation and an executed "BEC Cooperative Agreement for Interconnection and Parallel Operation of Distributed Generation" in the forms included in this manual (Appendix D).
- c) A separate form must be submitted for each facility.

3) Submit a DG Plan

- a) As a part of the application, the Member shall submit a general plan of the proposed generator installation showing the electrical design of the generating installation including all major equipment for interconnection with the Cooperative's system (the "DG plan"). Either at the time of submission or at any time during the review process, the Cooperative may require additional information or may require the DG plan to be prepared by a Professional Engineer registered in the state of Texas.
- b) In the case of multiple facilities, a separate application including any required application fees shall be submitted by the Member for each interconnection point desired.
- c) The Member will provide such additional information as may be reasonable required and requested by the cooperative to evaluate the DG plan.
- d) The Cooperative may, at its sole discretion, waive the required application fee and other provisions of this manual in the case of a proposed generation installation which is planned (i) to be operated in parallel with the Cooperative's system, (ii) with no intention to export power to the Cooperative and (iii) that are of standard design and intended entirely as emergency or back-up power supply for the facility.



- e) A non-refundable application fee will be required to be paid by the Member before the Cooperative will consider the application as indicated below.

DG Size (Connected Load)	Application Fee (\$)	Additional Engineering Fee (\$)
0 KW to 1.0 MW	250	As Required
> 1.0 MW	Not covered by this manual	

III. COOPERATIVE AND POWER SUPPLIER REVIEW PROCESS

1) Plan Review Process

- a) In cases where the generation installation is to be operated in parallel with the Cooperative’s system and is intended to export power to the Cooperative’s system; the Cooperative at its sole discretion may conduct a full interconnection study to determine the impact of the generating facility on the Cooperative’s system. The Member will be required to reimburse the Cooperative for the full amount of the interconnection study in addition to any application fee(s). The Cooperative will bill the Member for the exact cost of the study on a biweekly basis.
- b) The Cooperative will complete the interconnection study and/or review of the DG plan within sixty (60) days following receipt of a completed application and payment of any required fee(s). The Cooperative will undertake any interconnection study in the order in which the complete applications have been received by the Cooperative on a non-discriminatory basis.
- c) In the event the Member’s plan involves the use of non-standard equipment or design techniques, the Cooperative may require the Member to obtain approval of the proposed DG plan by a professional engineer registered in the state of Texas. Any review or acceptance of such plan by the cooperative shall not impose any liability on the Cooperative and does not guarantee the adequacy of the Member’s equipment to perform its intended function. The Cooperative 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 generating installations.
- d) Technical review will be consistent with guidelines established by the most recent *IEEE Standard 1547 Standard for Interconnecting Distributed Resources with Electric Power System*. The Member may be required by the Cooperative to provide proof that Member's DG Facilities have been tested and certified by applicable IEEE guidelines.
- e) If corrections or changes to the plans, specifications and other information are to be made by the Member, the 60 day period may be reinitialized when such changes or corrections are provided to the Cooperative. In addition, any changes to the site or project requiring new analysis by the Cooperative may require additional cost and a new DG plan. The cost will be determined by the Cooperative and shall be paid by the Member.



- f) In the event it is necessary at some future time for the Cooperative in its sole discretion to modify its electric delivery systems in order to serve the Member's DG facilities and/or purchase or continue to purchase the output of the Member's DG facilities, or because the quality of the power provided by the Member's DG adversely affects the Cooperative's electric delivery system, the Member will reimburse the Cooperative for all costs necessary to modify or change out any electrical equipment required to continue to safely establish the interconnection of the Member's DG facilities with the Cooperative's system after the electric delivery system modification is completed.

IV. SALES TO AND PURCHASES FROM A DG FACILITY

- a) Determination of on-site excess generation and on-site consumption shall be accomplished by interconnection through a single meter or meters, per Cooperative discretion, with two registers where one register measures all energy supplied by the Cooperative in excess of on-site consumption, and the other register measures all energy supplied by the Cooperative in excess of on-site generation.
- b) No "banking of energy" or "netting periods" shall be permitted, in which excess generation during one period is used to offset usage during another period.
- c) For power produced in excess of on-site generation, the Member shall be compensated at the Cooperative's avoided wholesale power cost.
- d) The avoided wholesale power cost will be calculated by dividing the prior year's total power purchase cost (excluding demand costs, transmission costs, ERCOT and related fees and distribution costs) by the prior year's total kWh purchased.
- e) For energy supplied by the Cooperative in excess of on-site generation, the Cooperative shall bill the Member according to the Cooperative's retail rate schedule.
- f) If the Cooperative is obligated to provide wheeling service and the Cooperative has in place a tariff for wheeling service, a DG Member requesting such wheeling service shall pay the Cooperative for wheeling service as provided in the Cooperative's tariffs. Otherwise, wheeling service will not be provided.
- g) The Member may also be responsible for paying a facilities charge as determined at the sole discretion of the Cooperative to recover any additional operation and maintenance expenses incurred by the Cooperative as a result of the Member's generating installation. If applied, the charge will be determined during the interconnection study on a non-discriminatory case-by-case basis.
- h) In addition to all other charges, the Member will provide on request to the Cooperative at the Member's expense a communications link as approved at the sole discretion of the Cooperative for remotely obtaining meter readings at a time or times of the month as determined by the Cooperative.
- i) The Cooperative may, at its sole discretion, purchase power from a NQF as described in this section.
- j) 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 power contract requirements with its power supplier(s).



V. MEMBER'S RESPONSIBILITY PRIOR TO OPERATION

1) Line Extension and Modifications to Cooperative Facilities

- a) 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.
- b) Notwithstanding the Cooperative's line extension policy, the Member shall pay in advance the full cost of the construction of any transmission, substation, distribution, transformation, metering, protective, or other facilities or equipment which, at the sole discretion of the Cooperative and/or its Power supplier, is required to serve the Member's DG facility.
- c) In the event it is necessary at some future time for the Cooperative in its sole discretion to modify electric delivery systems in order to serve the Member's DG facilities and/or purchase or continue to purchase the Member's output, or because the quality of the power provided by the Member's DG adversely affects the Cooperative's delivery system, or because the Cooperative desires to change primary voltage or make other changes in its electric delivery system, the Member will reimburse the Cooperative for all costs necessary to modify or change out any electrical equipment required to continue to safely establish the interconnection of the Member's DG facilities with the Cooperative's system after the electric delivery system modification is completed.
- d) In all cases, the Member shall pay the full cost of the installation of a visible load break disconnect switch by and to the sole specification of the Cooperative. The switch will be readily accessible to Cooperative personnel and of a type that can be secured in an open position by a Cooperative lock.

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 *Standard for Interconnecting Distributed Resources with Electric Power System* applicable ANSI standards, including ANSI C84.1 Range A, Electric Reliability Council of Texas (ERCOT) market rules, including the ERCOT Nodal Protocols and Operating Procedures, and in accordance with industry standard prudent engineering practices.

3) Liability Insurance

When required by law, the Member, at the Member's own expense, shall carry and maintain Worker's Compensation insurance covering the Member's employees. In such cases, the Member, at the Member's own expense, shall be required to carry Employer's Liability



Insurance. These coverages are to provide for the payment to the Member's employees and/or their dependent's

Worker's Compensation benefits, including Occupational Disease benefits in accordance with the law of the state of Texas.

The Member hereby waives all rights of subrogation that the Member's insurers may have against the Cooperative, and its directors, officers and employees. Regardless of the legal requirements, the Cooperative recommends the Member obtain adequate insurance.

4) Contracts

The Member will sign and deliver to the Cooperative an "Agreement for Interconnection and Parallel Operation of Distributed Generation" (Interconnection Agreement) for each interconnection point as detailed in this manual.

5) Initial Interconnection

- a) Upon satisfactory completion of the review process and execution of required agreements as outlined in this Manual, the Cooperative will notify the Member. The Member shall notify the Cooperative in writing at least fourteen (14) days in advance of energizing the generation installation and permit the Cooperative or its agents to inspect and test any or all protective equipment required for the interconnection.
- b) The Cooperative's review process and final inspection is 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.

VI. REFUSAL TO INTERCONNECT SERVICE OR DISCONNECTION OF INTERCONNECTION SERVICE

The Cooperative may, at its sole discretion, prevent the interconnection or disconnect the interconnection of DG facilities due to reasons such as safety concerns, reliability issues, power quality issues, breach of interconnection contract or any other reasonable issue. Any disconnection may be without prior notice.



VII. OPERATION OF PARALLEL FACILITY

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

1) Ownership of facilities

- a) With the exception of only the Cooperative's meter, the Member shall own and solely be responsible for all expense, installation, maintenance and operation of the generating installation at and beyond the point of delivery as defined in the Cooperative's tariffs.
- b) At its sole discretion, the Cooperative may locate cooperative owned metering equipment and transformers past the point of delivery.

2) Self-Protection of DG Facilities

- a) The Member (at the Member's expense) will furnish, install, operate and maintain in good order and repair all equipment necessary for the safe operation of DG facilities operated in parallel with the Cooperative system.
- b) The Member's equipment will have capability to both establish and maintain synchronism with the Cooperative system and to automatically disconnect and isolate the DG facility from the Cooperative system in the event of an outage of the Cooperative's system or a malfunction of the generating installation.
- c) The Member's DG facility will also be designed, installed and maintained to be self-protected from normal and abnormal conditions on the Cooperative system. The conditions for which the power generating installation shall be self-protected shall include, but not be limited to, over-voltage, under-voltage, overcurrent, frequency deviation, and faults. The self-protection will be compatible with the Cooperative's system protection arrangements and operating policies.
- d) Specialized protective functions may be required by the Cooperative when, in the sole judgment of the Cooperative, the particular DG facility installation and/or the electric power system characteristics so warrant. The Member shall be responsible for the costs of any specialized protective functions.

3) Quality of service

- a) The Member's DG facility will provide power at the nominal voltage of the Cooperative's electric system at the Member's delivery point plus or minus five percent (5%), at the nominal system frequency of 60 Hz plus or minus one-tenth (1/10) Hz as defined by ANSI C84.1 Range A.
- b) Member's DG installation will generate power at a frequency within the tolerances as defined by IEEE 1547.
- c) Member's DG facility shall interconnect at a power factor that is at or near one hundred percent (100%) as is practicable. In the event the Member's power factor is less than ninety



percent (90%) leading or lagging, the Member will provide proper power factor correction (within ten percent (10%) of unity) or reimburse the Cooperative the cost of any necessary

correction. Member's DG facility shall be in accordance with the power quality limits specific in IEEE 519.

- d) The overall quality of the power provided by the Member's DG facility including, but not limited to, the effects of harmonic distortion, voltage regulation, voltage flicker, switching surges and power factor, will be such that the Cooperative electric system is not adversely affected in any manner.
- e) In the event that the adverse effects are caused in whole or in part by the Member's DG facility, the Member will correct the cause of such effects or reimburse the Cooperative for required correction.

4) Monitoring

- a) The member shall be required to monitor the distributed generator production through a "PV" meter to measure generation and "Load" meter to monitor load side of the generation. The meter(s) should be compatible with Apolloware Communications Module.
- b) The member shall purchase the "PV" meter from the cooperative whichever is applicable
 - (1) Single phase meter
 - (2) Three phase meter
- c) To ensure reliability of the distribution system the DG system is tied into, the Cooperative requires all members to install Apolloware Communications Module and software. The monitoring software shall have the ability to read and display the generation and load of the installation.
 - (1) Apolloware Communications Module
 - (2) Apolloware Monthly Licensing
- d) Sample block diagram illustrating a typical installation shown in Figure 1.0.

5) Safety disconnect

- a) The Member or the Cooperative shall provide and install, at the Member's expense, a visible load break disconnect switch.
- b) The switch will be located so as to be readily accessible to Cooperative personnel at all times in a location acceptable to both the Member and Cooperative.
- c) The switch shall be a type that can be secured in an open position by a Cooperative padlock.
- d) The Member shall not bypass the disconnect switch or lock at any time for any reason.
- e) The Cooperative shall have the right to lock the switch open when, in the judgment of the Cooperative:
 - (1) It is necessary to maintain safe electrical operating or maintenance conditions,



- (2) The Member's DG adversely affects the Cooperative's electric system, or
 - (3) There is a system emergency or other abnormal operating condition warranting disconnection.
- f) The Cooperative reserves the right to operate the disconnect switch for the protection of the Cooperative system even if it affects the Member's DG facility. In the event the Cooperative opens and/or closes the disconnect switch:
- (1) The Cooperative shall not be responsible for energizing or restoration of parallel operation of the DG facility.
 - (2) The Cooperative will make reasonable efforts to notify the Member.
- g) The Member will not bypass the disconnect switch at any time for any reason.
- h) Signage shall be placed by the Cooperative at the Member's expense and located at the disconnect indicating the purpose of the switch along with contact names and numbers of both the Member and the Cooperative.
- i) Members with DG facilities as defined in this Manual which are solely for the purpose of emergency backup or peak shaving without intent to export power shall not operate their DG facilities at any time unless visibly disconnected from the Cooperative system. At its sole discretion, the Cooperative may require Member to install at his/her own expense an interlocking switch for the purpose of insuring the Member's facilities do not operate in parallel with the Cooperative's facilities.
- j) Should the Cooperative lose power serving the Member's DG facilities for any reason, Members with DG facilities shall not operate their DG facilities unless visibly disconnected from the Cooperative system.

6) Access

- a) Persons authorized by the Cooperative will have the right to enter the Member's property for purposes of operating the disconnect switch, reading or metering at any time. Such entry onto the Member's property may be without notice.
- 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 access to the disconnect switch and meter(s).

7) Liability for Injury and Damages

- (a) The Member assumes full responsibility for electric energy furnished at and past the point of interconnection 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 therefrom, 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 ERCOT market rules, including the ERCOT Nodal Protocols and Operating Procedures.

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 it comes to the Cooperative's attention that the modification will create or has created conditions which may be unsafe or adversely affect the Cooperative system, it shall notify the Member and the Member shall immediately correct the problem.

9) Testing and Record Keeping

- a) 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.
- b) The Member will maintain records of all maintenance activities, which the Cooperative may review at reasonable times.
- c) For systems greater than 500 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 megavar output. The Cooperative may review such logs at reasonable times.



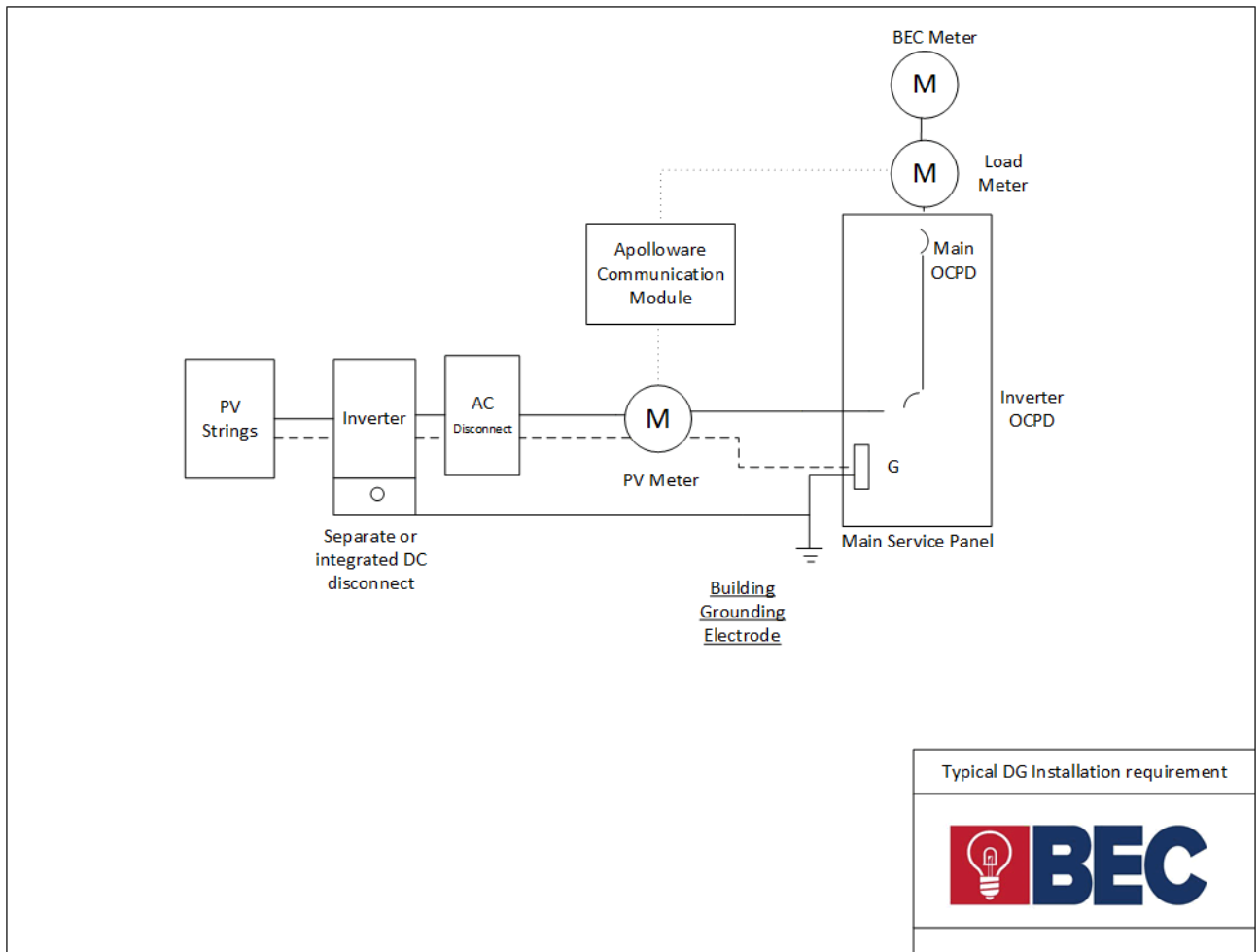
10) Refusal to Purchase

The Cooperative may at certain times and as operating conditions warrant reasonably refuse to accept part or all of the output of the Member's facility. Such refusal shall be based on system emergency constraints, special operating requirement, and adverse effects of the Member's facility on the Cooperative's system or violation by the Member of the terms of the "Application for Interconnection and Operation of Member-Owned Generation.

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, 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, ERCOT market rules, including the ERCOT Nodal Protocols and Operating Procedures, and in accordance with industry standard prudent engineering practices.

Figure 1.0: Typical DG Installation Requirement.





APPENDIX A:

**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 Appendix C. 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, 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 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



APPENDIX B:

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

***LONG FORM CONTRACT
APPLICABLE FOR LOADS GREATER THAN 50 KW AND LESS THAN 1.0MW
AND/OR NOT OF STANDARD MANUFACTURE AND DESIGN***

This Interconnection Agreement ("Agreement") is made and entered into this ____ day of _____, 20__, by Bandera 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 BEC Procedures and Guidelines Manual for Member-Owned Distributed Generation shall be considered to be a part of this contract.

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

1. **Scope of Agreement** -- This Agreement is applicable to conditions under which the Cooperative and the DG Owner/Operator agree that one or more generating facilities (described in Appendix C) owned by the DG Owner/Operator of between 50kW < Load ____ kW < 1.0MW or less, to be interconnected at ____ kV or less ("Facilities") may be interconnected to the Cooperative's electric power distribution system ("System").

The provisions of the Cooperative's Distributed Generation Manual shall be considered to be a part of this contract.

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. **Responsibilities of Cooperative and DG Owner/Operator for Installation, Operation and Maintenance of Facilities** - 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. DG Owner/Operator shall conduct operations of its facilities in compliance with all aspects of the Rules, and Cooperative shall conduct operations of its



electric distribution facilities in compliance with all aspects of the Rules, or as further described and mutually agreed to in the applicable Facilities Schedule. Maintenance of Interconnection

facilities shall be performed in accordance with the applicable manufacturers' recommended maintenance schedule. The DG Owner/Operator agrees to cause its Interconnection Facilities to be constructed in accordance with specifications equal to or better than those provided by the National Electrical Safety Code and the National Electrical Code, both codes approved by the American National Standards Institute, in effect at the time of construction.

The DG Owner/Operator covenants and agrees to cause the design, installation, maintenance, and operation of, its Interconnection Facilities so as to reasonably minimize the likelihood of a malfunction or other disturbance, damaging or otherwise affecting or impairing the System. DG Owner/Operator shall comply with all applicable laws, regulations, zoning codes, building codes, safety rules and environmental restrictions applicable to the design, installation and operation of its Facilities.

Cooperative will notify DG Owner/Operator if there is evidence that the Facilities' operation causes disruption or deterioration of service to other customer(s) served from the System or if the Facilities' operation causes damage to the System. DG Owner/Operator will notify the Cooperative of any emergency or hazardous condition or occurrence with the DG Owner/Operator's Facilities, which could affect safe operation of the System.

4. **Operator in Charge** - The Cooperative and the DG Owner/Operator shall each identify an individual (by name or title) who will perform as "Operator in Charge" of the facilities and their section of the Interconnection Facilities. This individual must be familiar with this Agreement as well as provisions of other agreements and any regulations that may apply.

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 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. **Design Reviews and Inspections** - The DG Owner/Operator shall provide to the Cooperative the following documentation and inspection results:
- a. One-Line Diagram. The diagram shall include at a minimum, all major electrical equipment that is pertinent to understanding the normal and contingency operations of the DG Interconnection Facilities, including generators, switches, circuit breakers, fuses, protective relays and instrument transformers.
- b. Testing Records. Testing of protection systems shall be limited to records of compliance with standard acceptance procedures and by industry standards and practices. These records shall include testing at the start of commercial operation and periodic testing thereafter.
7. **Right of Access, Equipment Installation, Removal & Inspection** - The Cooperative may send an employee, agent or contractor to the premises of the DG Owner/Operator at any time whether before, during or after the time the Facilities first produces energy to inspect the Interconnection Facilities, and observe the Facility's installation, commissioning (including any testing), startup, and operation.

At all times Cooperative shall have access to DG Owner/Operator's premises for any reasonable purpose in connection with the interconnection described in this Agreement, the Rules, or to provide service to its customers.



8. **Confidentiality of Information** - Unless compelled to disclose by judicial or administrative process, or by other provisions of law or as otherwise provided for in this Agreement, the DG Owner/Operator and the Cooperative will hold in confidence any and all documents and information furnished by the other party in connection with this Agreement.
9. **Prudent Operation and Maintenance Requirements** - The DG Owner/Operator shall operate and maintain its generation and interconnection facilities in accordance with industry standard prudent electrical practices. The said standards shall be those in effect at the time a DG Owner/Operator executes an interconnection agreement with the Cooperative.
10. **Disconnection of Unit** - DG Owner/Operator retains the option to disconnect its Facilities from the System, provided that DG Owner/Operator notifies the Cooperative of its intent to disconnect by giving the Cooperative at least thirty (30) days' prior written notice. Such disconnection shall not be a termination of the agreement unless DG Owner/Operator exercises rights under Section 13.

DG Owner/Operator shall disconnect Facilities from the System upon the effective date of any termination under Section 13.

Subject to the Rules, for routine maintenance and repairs on the System, Cooperative shall provide DG Owner/Operator with seven (7) business days' notice of service interruption.

Cooperative shall have the right to suspend service in cases where continuance of service to DG Owner/Operator will endanger persons or property. During the forced outage of the System serving DG Owner/Operator, Cooperative shall have the right to suspend service to effect repairs on the System, but the Cooperative shall use its efforts to provide the DG Owner/Operator with reasonable prior notice.

11. **Metering** - Metering shall be accomplished as described in the Cooperative's DG Manual.
12. **Insurance** – Insurance shall be required as described in the Cooperative's DG Manual.
13. **Effective Term and Termination Rights** - This Agreement becomes effective when executed by both Parties and shall continue in effect until terminated. This agreement may be terminated as follows: (a) DG Owner/Operator may terminate this Agreement at any time by giving the Cooperative sixty days' written notice; (b) Cooperative may terminate upon failure by the DG Owner/Operator to generate energy from the Facilities in parallel within six (6) months after completion of the interconnection; (c) either Party may terminate by giving the other Party at least thirty (30) days prior written notice that the other Party is in default of any of the terms and conditions of the Agreement or the Rules or any rate schedule, tariff, regulation, contract, or policy of the Cooperative, so long as the notice specifies the basis for

termination and there is opportunity to cure the default; (d) Cooperative may terminate by giving DG Owner/Operator at least sixty (60) days notice in the event that there is a material change in an applicable law, or any requirement of the Cooperative's wholesale electric



suppliers or any transmission utility, independent system operator or regional transmission organization having responsibility for the operation of any part of the System.

14. **Dispute Resolution** - Each party agrees to attempt to resolve any and all disputes arising hereunder promptly, equitably and in good faith. If a dispute arises under this Agreement that cannot be resolved by the parties within forty-five (45) working days after written notice of

the dispute, the parties agree to submit the dispute to mediation by a mutually acceptable mediator. The parties agree to participate in good faith in the mediation for thirty (30) days. If the parties are unsuccessful in resolving their dispute through mediation, then the parties shall submit to arbitration pursuant to the Commercial Arbitration Rules of the American Arbitration Association. The venue of such arbitration shall be in the City of Bandera, Texas.

15. **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.

16. **Severability** - If any portion or provision of this Agreement is held or adjudged for any reason to be invalid or illegal or unenforceable by any court of competent jurisdiction then such portion shall be deemed separate and independent, and the remainder of this Agreement shall remain in full force and effect.

17. **Amendment** - This Agreement may be amended only upon mutual agreement of the Parties, which amendment will not be effective until reduced to writing and executed by the Parties.

18. **Entirety of Agreement and Prior Agreements Superseded** - This Agreement, including the Rules and all attached Exhibits and Facilities Schedules, which are expressly made a part hereof for all purposes, constitutes the entire agreement and understanding between the Parties with regard to the interconnection of the facilities of the Parties at the Points of Interconnection expressly provided for in this Agreement. The Parties are not bound by or liable for any statement, representation, promise, inducement, understanding, or undertaking of any kind or nature (whether written or oral) with regard to the subject matter hereof not set forth or provided for herein or in the DG Owner/Operator application, or other written information provided by the DG Owner/Operator in compliance with the Rules. It is expressly

acknowledged that the Parties may have other agreements covering other services not expressly provided for herein, which agreements are unaffected by this Agreement.



19. **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.

20. **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 consent of the Cooperative in advance of the assignment. The Cooperative's consent will be based on a determination 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 will be responsible for the proper operation and maintenance of the unit, and will be a party to all provisions of this Agreement.

21. **Permits, Fees and Approvals** - The Cooperative will have responsibility for the review, approval or rejection of the DG interconnection application. The approval process is intended to ensure that the implementation of the applicant's DG project will not adversely affect the safe and reliable operation of the Cooperative's System. The fees associated with the Application are listed in the most current fee schedule issued by the Cooperative. All fees are to be submitted in the form of a Bank Cashier's check along with the Application, unless other payment terms have been approved in advance by the Cooperative.

22. **Notices** - Notices given under this Agreement are deemed to have been duly delivered if hand delivered or sent by United States certified mail, return receipt requested, postage prepaid, to:

(a) If to Cooperative:

(b) If to DG Owner/Operator:



The above-listed names, titles, and addresses of either Party may be changed by written notification to the other, notwithstanding Section 17.

- 23. **Invoicing and Payment** - Invoicing and payment terms for services associated with this Agreement shall be consistent with applicable Rules of the Cooperative.
- 24. **Limitations (No Third-Party Beneficiaries, Waiver, etc.)** - This Agreement is not intended to, and does not create, rights, remedies, or benefits of any character whatsoever in favor of any persons, corporations, associations, or entities other than the Parties, and the obligations herein assumed are solely for the use and benefit of the Parties. This Agreement may not be assigned by the DG Owner/Operator without the prior written consent of the Cooperative as specified in Section 20. The failure of a Party to this Agreement to insist, on any occasion, upon strict performance of any provision of this Agreement will not be considered to waive the obligations, rights, or duties imposed upon the Parties.
- 25. **Headings** - The descriptive headings of the various articles and sections of this Agreement have been inserted for convenience of reference only and are to be afforded no significance in the interpretation or construction of this Agreement.
- 26. **Multiple Counterparts** - This Agreement may be executed in two or more counterparts, each of which is deemed an original but all constitute one and the same instrument.

IN WITNESS WHEREOF, the Parties have caused this Agreement to be signed by their respective duly authorized representatives.

Bandera Electric Cooperative, Inc.

[DG OWNER/OPERATOR NAME]

BY: _____

BY: _____

TITLE: _____

TITLE: _____

DATE: _____

DATE: _____



APPENDIX C

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: _____



APPENDIX D

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: _____

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: _____ %



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

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

Power Export: _____
(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

Address:
3172 State Hwy 16 North
P.O. Box 667
Bandera, Texas 78003



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

Phone: 830-796-3741
Fax: 830-460-3030
Web site: www.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: _____



APPENDIX E

LIST OF REFERENCES

1. 26 CFR §292.204 Criteria for Qualifying Small Power Production Facilities
2. 2003 IEEE 1547 Standard for Interconnecting Distributed Resources with Electric Power Systems.
3. ANSI C84.1-2006 American National Standard For Electric Power Systems and Equipment-Voltage Ratings (60Hertz0).
4. 1992 IEEE 519: IEEE Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems.
5. ERCOT Nodal Protocols: <http://www.ercot.com/mktrules/nprotocols/>
6. ERCOT Operating Procedures: <http://www.ercot.com/mktrules/guides/procedures/>