

Adopted 09-16-13; Effective 09-16-13; **Revised** 01-17-18; **06-17-20**

BOARD POLICY NO. 5-36 R-2

SUBJECT: Distributed Generation

POLICY:

I. OBJECTIVE:

These procedures describe the steps Interconnection Members (herein after called Member) must follow in order for their distributed generation (DG) equipment to be evaluated and approved for interconnection to the Upper Cumberland Electric Membership Corporation (UCEMC) distribution system for parallel operation. To assure that the DG equipment does not cause significant degradation of the safety, power quality, or reliability to UCEMC's distribution system, these procedures and standards have been established.

II. PROVISIONS: As outlined in Policy (Interconnect Agreement) listed below.

**UPPER CUMBERLAND
ELECTRIC MEMBERSHIP CORPORATION**

**INTERCONNECTION PROCEDURES
FOR DISTRIBUTED GENERATION**

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1. GENERAL PROCEDURES & STANDARDS

1.1. Scope

These procedures describe the steps Interconnection Members (herein after called Member) must follow in order for their distributed generation (DG) equipment to be evaluated and approved for interconnection to the Upper Cumberland Electric Membership Corporation (UCEMC) distribution system for parallel operation. To assure that the DG equipment does not cause significant degradation of the safety, power quality, or reliability to UCEMC's distribution system, these procedures and standards have been established.

Requirements for interconnection will be based on the size of the system and are defined in the following categories:

Tier 1 – 1 MW or less; or

Tier 2 – Greater than 1 MW and less than 20 MW; or

Tier 3 – Greater than or equal to 20 MW

UCEMC has an all requirements contract to purchase its total electric power requirements from the Tennessee Valley Authority (TVA). Therefore, UCEMC cannot purchase any portion of the output of DG connected to its distribution system. UCEMC can only provide distribution facilities to connect the DG and to transmit the energy to TVA. The owner of the DG must obtain from TVA either 1) a Power Purchase Agreement to buy the electrical energy, or 2) a Transmission Service Contract to move the power to another utility.

1.2. TERM AND TERMINATION

Effective Date, Delivery Commencement Date, and Term.

This Agreement is effective as of the date of UCCEMC's signature ("**Effective Date**").

Termination. This Agreement may be terminated by:

- (a) Participant, at any time, upon thirty (30) Calendar Days' written notice to UCCEMC;
- (b) Mutual agreement of all of the parties in writing at any time; or
- (c) UCCEMC, at any time upon written notice by to Participant, if UCCEMC has determined that any of the following conditions has occurred:

1. after the Effective Date, there has been a sustained lack of generation (less than an average of 10 kWh per month) from the Qualifying System for a period of six (6) consecutive months or more;
2. the Qualifying System or its interconnection or safety equipment violate any applicable local, state, or federal law or code, or pose a safety hazard as determined by UCCEMC;
3. the interconnection or safety equipment ceases to comply with the requirements;
4. the Qualifying System includes generation from a non-Qualifying Resource and/or ceases to meet the participation conditions outlined;
5. generation from the Qualifying System is used by Participant to provide credits for electric consumption at a location other than the Address herein;
6. member ceases to be a customer of UCCEMC at Site;
7. member does not comply with or breaches the terms of this Agreement, including without limitation, providing false or inaccurate information;
8. refusing UCCEMC access to the Qualifying System;
9. member increases the nameplate capacity of the Qualifying System without permission from UCCEMC; or
10. any unauthorized transfer, assignment, or delegation.

1.3. Application for Interconnection

A qualifying system must be located on the same premises of the member, where the member's own electrical load is located (Site).

Existing UCEMC Members

UCEMC members must have at least twelve (12) months of historical energy usage (kWh) data from the Site.

New UCEMC Members/New Construction

For prospective new and existing customers without twelve (12) full months of historical usage, the Member for new construction must submit acceptable and reasonable annual electrical usage projections for its residential or commercial/industrial facility.

In both existing and new (or sites without 12 months of historical usage) the annual generation of the proposed system cannot exceed site usage. For example, if the system is desired to be sized at 10 kW DC, then it could only be installed on a site that had the equivalent usage of the 10 kW generation system output. Solar PV generation output is calculated using the following formula:

Nameplate kW (DC) x 8,760 hours x 15% Annual Capacity Factor of solar PV = Annual Generation system output.

In the example above, the formula would yield 10 kW x 8,760 hours x 15% = 13,140 kWh. Therefore to install a 10 kW Solar PV system, the site annual usage of electricity purchased from UCEMC must be equal to or greater than 13,140 kWh.

Any site without 12 months of billing history to compare usage to generation output should utilize reasonable annual electrical usage projections. An example of reasonable projections would be to compare the usage of a similar size square footage home on UCEMC's system to the site in question.

UCEMC has the final say as to the reasonableness of any projections requested to be used by a participant.

Each Member shall submit a completed application and supporting documents to UCEMC prior to purchasing any DG equipment.

Tier 1

Projects less than 1 MW shall comply with the latest UCEMC guidelines.

Tier 2

Projects with generation between 1 and 20 MW will be required to submit the application form and all supporting information identified in Attachment 2. These projects will also be submitted to TVA for assessment of any potential impacts to the bulk transmission system.

Tier 3

- 1.2. If the generation is a Tier 3 project of greater than or equal to 20 MW, these large generation projects must comply with all current TVA program requirements. This process will assess and mitigate the impacts of connecting larger amounts of generation to both UCEMC's distribution and TVA's transmission facilities.

The latest application and completion forms along with other program details can be obtained by contacting the UCEMC office at:

Upper Cumberland Electric Membership Corporation
P.O. Box 159, Carthage, TN 37030-0159
907 Main Street North
Carthage, TN 37030-1002

1.4. Application Processing (See Figure 1)

- 1.4.1. UCCEMC will review the applications for new projects for sufficiency and completeness and notify the Member of receipt of application that it has received all documents required or indicate how the application is deficient. Tier 1, 2 & 3 projects will be submitted by UCCEMC to TVA for additional review and approval.
- 1.4.2. UCCEMC will evaluate the system using the criteria of Section 2 Fast Track Screening Process to determine if an interconnection study is necessary. If the project does not pass the Fast Track Screening Process, the requirements outlined in Section 3 Study Process will be followed. Upon TVA approval, UCCEMC will notify the Member that they may proceed with purchase and installation of the project and will send a completed interconnection agreement to the Member for execution. The Member will also be notified of any additional requirements. The Member will not be allowed to proceed with parallel operation until all provisions of these procedures have been met and UCCEMC has given written notification to proceed with parallel operation.
- 1.4.3. The Member must execute the interconnection agreement and return it to UCCEMC at least 30 calendar days prior to the desired date of parallel operation and within 180 days after UCCEMC executes the agreement.
- 1.4.4. After installation, the Member returns the Certificate of Completion to UCCEMC. Prior to parallel operation, UCCEMC shall inspect the DG equipment for compliance with the proposed design and shall require a Commissioning Test in accordance with the procedures defined by the latest version of IEEE 1547. UCCEMC shall have the option of witnessing the Commissioning test or may require documentation from the equipment owner describing which tests were performed and their results. UCCEMC shall require the member to reimburse UCCEMC for any and all costs associated with the required inspection as listed herein above of the DG equipment.

1.4.5. If the inspection of the completed system and any required Commissioning test are satisfactory, UCEMC will notify the Member that interconnection of the DG equipment is authorized for parallel operation. If the system does not pass the inspection and/or Commissioning test, UCEMC has the right to Lockout the Facility. The Member shall not under any circumstance take any action to operate the system in parallel until the problems have been corrected and a new inspection and Commissioning test are performed, or waived by UCEMC.

1.4.6.

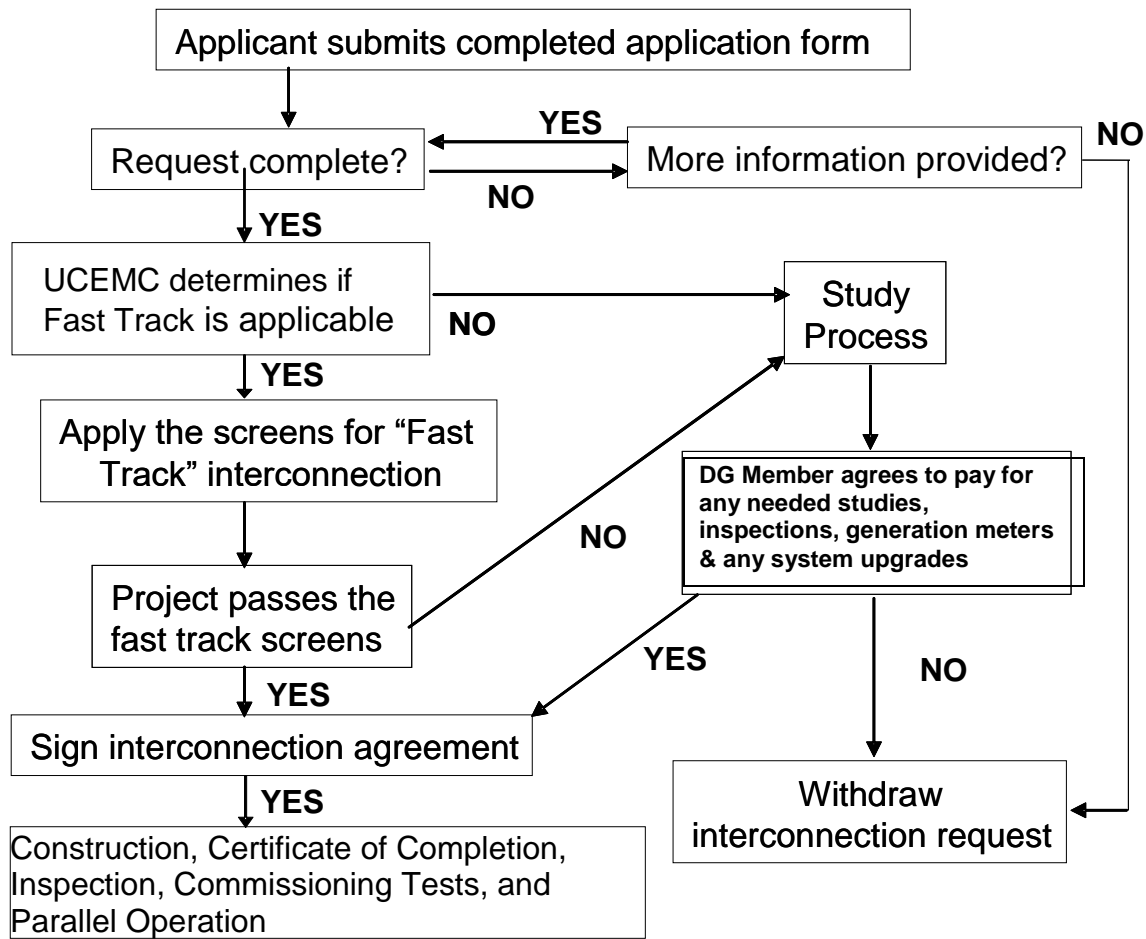


Figure 1. The Application Process

1.5. Standards and Certification Criteria

The DG equipment must comply with the latest revision of the following standards and the Member must provide evidence of certification with the DG Equipment Application or with the Certificate of Completion:

- 1.5.1 IEEE 1547 Standard for Interconnecting Distributed Resources with Electric Power Systems (including use of IEEE 1547.1 testing protocols to establish conformity)
- 1.5.2 IEEE 1547.1 Standard Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems
- 1.5.3 IEE 519 Standard for Harmonic Distortion Limits
- 1.5.4 UL 1741 Inverters, Converters, and Controllers for Use in Independent Power Systems
- 1.5.5 NFPA 70 National Electrical Code
- 1.5.6 The DG Equipment shall be considered certified for interconnected operation if the generation equipment and all related interconnection components have been tested and listed by a Nationally Recognized Testing Laboratory (NRTL certification by Department of Labor) for continuous interactive operation with an electric distribution system in compliance with the codes and standards outlined in 1.4.1 – 1.4.4 above.
- 1.5.7 The Member must provide evidence that the installation has been inspected and approved by state or local code officials, as applicable, prior to its operation in parallel. This information will be submitted with the Certification of Completion.
- 1.5.8 The Member's equipment must be installed by an individual or company certified by the North American Board of Certified Energy Practitioners (NABCEP)

2. FAST TRACK SCREENING PROCESS

~~2.1.~~ Applicability

UCEMC will determine if the proposed system can follow the Fast Track process or if the design of the system would require evaluation under the Study Process of Section 3. Generally this process is available to a Member whose proposed DG equipment is no larger than 1 MW and meets the codes, standards, and certification requirements of 1.4 above.

2.2. Fast Track Review Screens

After UCEMC has received a sufficient and complete Interconnection Application, UCEMC shall perform an initial review using the screens set forth below and shall notify the Interconnection Member of the results.

2.2.1. Generation On Circuit As A Percent of Annual Peak Load

For interconnection of a proposed DG equipment to a radial distribution circuit, the aggregated generation, including the proposed DG Equipment, on the circuit shall not exceed 15 % of the line section annual peak load as most recently measured at the substation. A line section is that portion of UCEMC's electric system connected to a Member bounded by automatic sectionalizing devices or the end of the distribution line.

2.2.2. Maximum Fault Current

The proposed DG Equipment, in aggregation with other generation on the distribution circuit shall not contribute more than 10% to the distribution circuit's maximum fault current at the point on the high voltage (primary) level nearest the proposed point of interconnection.

2.2.3. Short Circuit Interrupting Capability

The proposed DG equipment, in aggregate with other generation on the distribution circuit, shall not cause any distribution protective devices and equipment (including, but not limited to, substation breakers, fuse cutouts, and line reclosers), or Member equipment on the system to exceed 87.5 % of the short circuit interrupting capability; nor shall the interconnection be proposed for a circuit that already exceeds 87.5 % of the short circuit interrupting capability.

2.2.4. **Type of Interconnection**

Using the table below; determine the type of transformer connection allowable to interconnect a DG with a primary distribution line through a transformer. This screen includes a review of the type of electrical service provided to the Member, including line configuration and the transformer connection to limit the potential for creating over-voltages on UCCEMC's electric power system due to a loss of ground during the operating time of any anti-islanding function.

Primary Distribution Line Type	Type of Interconnection to Primary Distribution Line	Result/ Criteria
Three-phase, four wire	Effectively-grounded 3 phase or Single-phase, line-to-neutral	Pass screen

2.2.5. **Maximum Size for Single Phase**

If the proposed DG equipment is to be interconnected on single-phase secondary, shared secondary, or individual service, the aggregate generation capacity on the single-phase secondary, shared secondary, or individual service shall not exceed 15 kW.

2.2.6. **Load Balance**

If the proposed DG equipment is single-phase and is to be interconnected on a center tap neutral of a 240 volt service; its addition shall not create an imbalance between the two sides of the 240 volt service of more than 20 % of the nameplate rating of the service transformer. If the proposed DG equipment is single-phase and is to be interconnected to a three phase service secondary or service, its addition shall not cause the load on any of the individual phases to exceed twice the load on any of the other two phases.

2.2.7. **Transient Stability Problems**

The DG equipment, in aggregate with other generation interconnected to the distribution side of a substation transformer feeding the circuit where the DG equipment proposes to interconnect shall not exceed 10 MW in an area where there are known, or posted, transient stability limitations to generating units located in the general electrical vicinity (e.g., three or four distribution busses from the point of interconnection).

2.2.8. **No Upgrades Required**

No construction of facilities by UCCEMC on its own system shall be required to accommodate the DG equipment.

2.3 Fast Track Screening Results

If the proposed DG equipment passes the screens, the Member's Application will be approved and UCEMC will provide the Member an executable interconnection agreement. If the proposed project does not pass the screens, the Member will be notified and offered the opportunity to attend a meeting where the processes outlined in Section **3.0** will be explained and a course of action determined.

3. STUDY PROCESS

The study process (see Figure 2) consists of the minimum engineering review, the system impact study and the facilities study. At an initial meeting, the parties shall determine whether a minimum engineering review is sufficient, or the parties shall proceed directly to a system impact study, or a system upgrade study.

3.1. Minimum Engineering Review

The “Minimum Engineering Review” also known as the Feasibility Study in FERC Order 2006 is designed to identify any adverse system impacts that would result from interconnection of the DG equipment. Examples of such negative impacts would include exceeding the short circuit capability rating of any breakers, violations of thermal overload or voltage limits, and a review of grounding requirements and electric system protection. If UCEMC determines that the Minimum Engineering Review will require substantial time, UCEMC shall require the Member to reimburse UCEMC for all costs associated with any reviews or studies deemed appropriate.

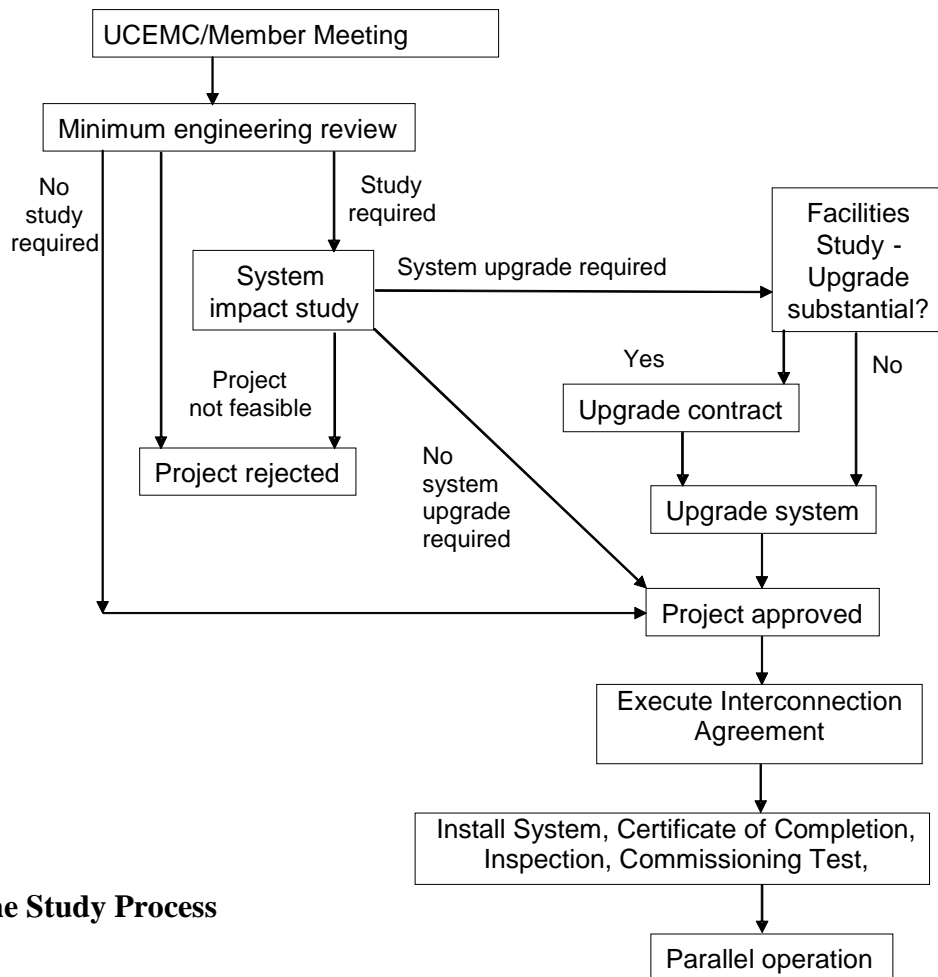


Figure 2. The Study Process

3.2. System Impact and Facilities Studies

Beyond the minimum engineering review (or Feasibility Review), the study process includes the System Impact Study and the Facilities Study. A system impact study is designed to identify and detail the electric system impacts that would result if the proposed project were interconnected without project modifications or electric system modifications, focusing on the adverse system impacts identified in the feasibility study. A system impact study shall evaluate the impact of the proposed interconnection on the reliability of the electric system.

In instances where the system impact study shows potential for distribution system adverse impacts, UCEMC shall send the Member a distribution system impact study agreement, including an outline of the scope of the study and a non-binding good faith estimate of the cost to perform the study, if such a study is required. Once the Member agrees to pay the cost of the study, the process continues.

Once the required system impact study is complete, a facilities study agreement if needed, including an outline of the scope of the study and a non-binding good faith estimate of the cost to perform the facilities study, shall be sent to the Member. Design for any required Interconnection Facilities and/or Upgrades shall be performed under the facilities study agreement. Upon completion of the facilities study, and with the agreement of the Member to pay for Interconnection Facilities and Upgrades identified in the facilities study, UCEMC shall provide the Member an executable interconnection agreement.

RESPONSIBILITY: General Manager

PROCEDURE: As Stated herein and in Appendices listed below.

APPENDICES: As outlined in Appendices listed below.

1. Interconnection and Parallel Operation Agreement for Renewable Generation Tier Level 1 (Less Than 1 MW)
2. Application for Interconnection of Distributed Generation Tier 2 (Over 1 MW And Less Than 20 MW)
3. Interconnection and Parallel Operation Agreement For Distributed Generation Tier Levels 2 & 3 (1 MW and Greater)

ATTACHMENT 1

APPLICATION FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Tier 1 (Less than 1 MW)

The Member or his designated representative shall supply the following information.

Member Name: _____

Member Account Number: _____

Service Address: _____

No. of Generators _____ Manufacturer _____ Model No: _____

KW Rating _____ kVA Rating _____ Power Factor _____

Voltage Rating: _____ Number of Phases: _____ Frequency: _____

Type (Synchronous, Induction, photo-voltaic, micro-turbine, fuel cell etc.) _____

Amount of power to be exported. _____ kW

Description of normal operation of distributed generation: (examples: provide power to meet base load, demand management, and provide standby power)

Is one line diagram attached? _____ Is disconnect device location shown? _____

Is list of specifications on protective devices attached? _____

Expected Start-up Date: _____

Submitted by: _____ Title: _____

Signature _____ Date: _____

Address _____

Phone Number: _____ e-mail: _____

Fax: _____

Return completed application to your local contact:

ATTACHMENT 1

INTERCONNECTION AND PARALLEL OPERATION AGREEMENT FOR RENEWABLE GENERATION TIER LEVEL 1 (Less than 1 MW)

This Interconnection Agreement (“Agreement”) is made and entered into this ____ day of _____, 20____, by Upper Cumberland Electric Membership Corporation, a corporation organized under the laws of _____ the State of Tennessee _____, and _____ hereinafter referred to as Participant, and

WHEREAS, the Participant has requested interconnection services for the output of distributed generation that is owned by the Participant or a third party (see attached Application for Interconnection) at the Participant’s presently metered location, which is _____.

NOW, therefore, for and in consideration of the mutual covenants and agreements set forth herein, the Parties agree as follows:

1. Scope of Agreement

- 1.1. This Agreement is applicable to conditions under which UCCEMC and the Participant agree that one or more generating systems and all related interconnection equipment (described in the Application For Interconnection of Distributed Generation and attached to this agreement and hereinafter referred to as “Qualifying System”) located at Participant’s presently metered location with gross power rating of ____ kW and to be interconnected at ____ kV may be interconnected to UCCEMC’s electric power distribution system (“System”). Execution of this agreement allows the Participant to proceed with procurement and installation of the system but Participant is not allowed to proceed with parallel operation until UCCEMC has received a completed Certificate of Completion, UCCEMC has conducted an onsite inspection and witnessed any required commissioning test or waived such test, and has given Participant written authorization to proceed with parallel operation.

2. Establishment of Point of Interconnection

- 2.1. The point where the electric energy first leaves the wires or facilities owned by UCCEMC and enters the wires or facilities provided by Participant is the “Point of Interconnection.” UCCEMC and Participant agree to interconnect the Qualifying System at the Point of Interconnection in accordance with UCCEMC’s rules, regulations, by-laws, and rates (the “Rules”) which are incorporated herein by reference and the generator and all related interconnection equipment will comply with UCCEMC’s Distributed Generation Interconnection Procedures.

3. General Responsibilities of the Parties

- 3.1. UCCEMC has reviewed the proposed generation and related equipment as described in the Application for compliance with UCCEMC's Interconnection Procedures and approved the Qualifying System for interconnection based on one of the following conditions:
- 3.2. Qualifying System has been certified as meeting the applicable codes and standards and has passed the Fast Track Screening Process, or
- 3.3. UCCEMC in agreement with Participant has conducted additional engineering evaluations or detailed impact studies and any necessary System upgrades or changes identified by these additional studies have been implemented and Participant has paid for such changes where necessary;
- 3.4. Participant shall comply with all applicable laws, regulations, zoning codes, building codes, safety rules and environmental restrictions, including the latest version of the National Electrical Code applicable to the design, installation, operation and maintenance of its Qualifying System.
- 3.5. The Participant shall provide Local Building Code Official inspection and certification of installation forms to UCCEMC. The certification shall reflect that the code official has inspected and certified that the installation was permitted, has been approved, and has met all electrical and mechanical qualifications.
- 3.6. After installation, the Participant shall return the Certificate of Completion to UCCEMC. Prior to parallel operation, UCCEMC shall inspect the Qualifying System for compliance with standards which shall include a witness test, unless waived (see 1.1). UCCEMC must provide authorization before Participant can begin parallel operation.
- 3.7. Participant shall conduct operations of its Qualifying System in compliance with all aspects of the Rules and in accordance with industry standard prudent engineering practice and must comply with the latest version of IEEE 519.
- 3.8. The Participant shall be responsible for protecting its generation equipment, inverters, protective devices, and other system components from damage from the normal and abnormal conditions and operations that occur on the System in delivering and restoring power; and shall be responsible for ensuring that the Qualifying System is inspected, maintained, and tested on an ongoing basis in accordance with the manufacturer's instructions to ensure that it is operating correctly and safely. UCCEMC will have the right to requests and receive copies of the test results.

4. Inspection and On-Going Compliance

- 4.1. UCCEMC will provide Participant with as much notice as reasonably practicable; either in writing, e-mail, facsimile or by phone as to when UCCEMC may conduct inspection and/or document review. Upon reasonable notice, or at any time without notice in the event of an emergency or hazardous condition, UCCEMC shall have access to the Participant's premises for the purpose of accessing the manual disconnect switch, performing an inspection or disconnection, or, if necessary, to meet UCCEMC's legal obligation to provide service to its Members.

5. Manual Disconnect Switch

- 5.1. Participant must install a manual, lockable, visible load break disconnect switch between the generation source and UCEMC's system that is visibly marked "Participant Generation Disconnect". The disconnect switch shall be mounted separate from but adjacent to the UCEMC's meter socket. The Participant shall ensure that such manual disconnect switch shall remain readily accessible to UCEMC and be capable of being locked in the open position with a single UCEMC utility padlock. A permanent, weatherproof single line diagram of the facility must be located adjacent to the disconnect switch. Names and current telephone numbers of at least two persons authorized to provide access to the facility that have authority to make decisions regarding the interconnection and operation of the Qualifying System will be included.

6. Disconnection / Reconnection

- 6.1. UCEMC may open the manual disconnect switch or disconnect the Participant's meter, pursuant to the conditions set forth in Section 6.2 below, isolating the Qualifying System, without prior notice to the Participant. To the extent practicable, however, prior notice shall be given. If prior notice is not given, UCEMC shall at the time of disconnection leave a door hanger notifying the Participant that its Participant-owned generation has been disconnected, including an explanation of the condition necessitating such action. As soon as practicable after the condition(s) necessitating disconnection has been remedied, UCEMC will unlock the disconnect switch so Participant may reenergize the Qualifying System.
- 6.2. UCEMC has the right to disconnect the Participant-owned generation at any time. Some examples of situations that may require disconnect are:
 - 6.2.1. Emergencies or maintenance requirements on UCEMC's system;
 - 6.2.2. Hazardous conditions existing on UCEMC's system due to the operation of the Participant's generating or protective equipment as determined by UCEMC; and
 - 6.2.3. Adverse electrical effects, such as power quality problems, on the electrical equipment of UCEMC's other electric consumers caused by the Participant-owned generation as determined by UCEMC.

7. Modifications/Additions to Participant-owned Generation

- 7.1. If the Qualifying System is subsequently modified in order to increase or decrease its Gross power rating or any components are changed, the Participant must provide UCEMC with written notification that fully describes the proposed modifications at least sixty (60) calendar days prior to making the modifications. UCEMC reserves the right to reject any system modifications that are not consistent with the guidelines herein contained.

8. Indemnity

- 8.1. Participant agrees to release, indemnify, and save harmless UCEMC, TVA, the United States of America, and their respective agents and employees from all liability, claims, demands, causes of action, costs, or losses for personal injuries, property damage, or loss of life or property, sustained by Participant, Participant's agents and family, or third parties arising out of or in any way connected with the installation, testing, operation, maintenance, repair, replacement,

removal, defect, or failure of Participant's Qualifying System. The obligations of this section 8.1 shall survive termination of this agreement.

9. Assignment

- 9.1. The Interconnection Agreement shall not be assignable by either party without sixty (60) calendar days' notice to the other Party and written consent of the other Party, which consent shall not be unreasonably withheld or delayed.
- 9.2. An assignee to this Interconnection Agreement shall be required to assume in writing the Participant's rights, responsibilities, and obligations under this Interconnection Agreement.

10. Insurance

- 10.1. UCCEMC requires participants to maintain Liability Insurance for Personal Injury and Property Damage during the entire term of this Interconnection Agreement.
- 10.2. Participants shall be required to provide proof of said Liability Insurance for Personal Injury and Property Damage upon request of UCCEMC.
- 10.3. Participants shall maintain coverage for all Liability Insurance and Personal Injury and Property Damage in an amount to be determined by UCCEMC based upon kW/MW and after a Liability and Property Damage exposure assessment has been conducted by UCCEMC.

11. Effective Term and Termination Rights

- 11.1. This Agreement becomes effective when executed by both Parties and shall continue in effect as long as the Agreement between UCCEMC and Participant is in effect. Notwithstanding the foregoing the parties are bound by all rights, duties, and privileges contained in the UCCEMC Bylaws and other Policies.

12. Entirety of Agreement and Prior Agreements Superseded

- 12.1. This Agreement, including the Rules, executed by UCCEMC and Participant, and all attached Exhibits, 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 Qualifying System of the Parties at the Point 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, in the Participant's Application for Interconnection of Distributed Generation, Certificate of Completion, the Green Power Providers Program Attachment A, Participation Agreement or other written information provided by the Participant in compliance with the Rules.

13. Notices

13.1. 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 UCCEMC:

Upper Cumberland EMC
P.O. Box 159
Carthage, TN 37030-0159
907 Main Street North
Carthage, TN 37030-1002

(b) If to Participant:

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

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

UPPER CUMBERLAND EMC

DG OWNER / OPERATOR

BY: _____

BY: _____

TITLE: _____

TITLE: _____

DATE: _____

DATE: _____

ATTACHMENT 2

APPLICATION FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Tier 2 (Over 1 MW and less than 20 MW)

The Member or his designated representative shall supply the following information.

Member Name: _____

Member Account Number: _____

Service Address: _____

No. of Generators _____ Manufacturer _____ Model No: _____

KW Rating _____ kVA Rating _____ Power Factor _____

Voltage Rating: _____ Number of Phases: _____ Frequency: _____

Type (Synchronous, Induction, photo-voltaic, micro-turbine, fuel cell etc.) _____

Amount of power to be exported. _____kW

Description of normal operation of distributed generation: (examples: provide power to meet base load, demand management, and provide standby power)

Is one line diagram attached? _____ Is disconnect device location shown? _____

Is list of specifications on protective devices attached? _____

Expected Start-up Date: _____

Submitted by: _____ Title: _____

Signature _____ Date: _____

Address _____

Phone Number: _____ e-mail: _____

Fax: _____

Return completed application to your local contact:

ATTACHMENT 3

INTERCONNECTION AND PARALLEL OPERATION AGREEMENT

FOR DISTRIBUTED GENERATION

TIER LEVELS 2 & 3 (1MW and Greater)

This Interconnection Agreement (“Agreement”) is made and entered into this ____ day of _____, 20____, by _____, Upper Cumberland Electric Membership Corporation (UCEMC), a corporation organized under the laws of Tennessee, 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:

1. Scope of Agreement – This Agreement is applicable to conditions under which UCEMC and the DG Owner/Operator agree that one or more generating facilities (described in Exhibit A) owned by the DG Owner/Operator of ____ kW or less, to be interconnected at ____ kV or less (“Facilities”) may be interconnected to UCEMC’s electric power distribution system (“System”).

2. Establishment of Point of Interconnection – The point where the electric energy first leaves the wires or facilities owned by UCEMC and enters the wires or facilities provided by DG Owner/Operator is the “Point of Interconnection.” UCEMC and DG Owner/Operator agree to interconnect the Facilities at the Point of Interconnection in accordance with UCEMC’s rules, regulations, by-laws, rates, and tariffs (the “Rules”) which are incorporated herein by reference. The interconnection equipment installed by the DG Owner/Operator (“Interconnection Facilities”) shall be in accordance with the Rules as well.

3. Responsibilities of UCEMC and DG Owner/Operator for Installation, Operation and Maintenance of Facilities – DG Owner/Operator will, at its own cost and expense, install, operate, maintain, repair, and inspect, and shall be fully responsible for, its Facilities and Interconnection Facilities, unless otherwise specified on Exhibit A. DG Owner/Operator shall conduct operations of its Facilities and Interconnection Facilities in compliance with all aspects of the Rules and in accordance with industry standard prudent engineering practice. UCEMC 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 attached hereto as Exhibit A. Maintenance of Facilities and Interconnection Facilities shall be performed in accordance with the applicable manufacturers’ recommended maintenance schedule. The DG Owner/Operator agrees to cause its Facilities and Interconnection Facilities to be constructed in accordance with the Rules and 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 Facilities and 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, operation and maintenance of its Facilities and Interconnection Facilities.

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

4. Operator in Charge – The DG Owner/Operator shall each identify an individual (by name or title) who will perform as “Operator in Charge” of the Facilities and the DG Owner/Operator portion of the Interconnection Facilities. This individual must be familiar with this Agreement as well as provisions of the Rules and any other agreements or regulations that may apply.

5. Power Sales to UCEMC - Interconnection of the Facilities with the System does not grant the DG Owner/Operator the right to export power nor does it constitute an agreement by UCEMC to purchase or wheel excess power.¹

6. Limitation of Liability and Indemnification

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

b. 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.

c. Notwithstanding any provision of this Agreement, the DG Owner/Operator shall assume all liability for and shall indemnify UCEMC and its members, trustees, directors, officers, managers, employees, agents, representatives, affiliates, successors and assigns for and shall hold them harmless from and against any claims, losses, costs, and expenses of any kind or character to the

¹ If the DG Owner/Operator wishes to export power, separate agreements must be in place with TVA for Power Purchase or Transmission Service.

extent that they result from DG Owner/Operator's negligence or other wrongful conduct in connection with the design, construction, installation, operation or maintenance 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.

d. UCCEMC 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. UCCEMC 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 UCCEMC, only with UCCEMC prior written authorization are the connections between UCCEMC's service wires and the DG Owner/Operator's service entrance conductors to be energized.

7. Testing and Testing Records – The DG Owner/Operator shall provide to UCCEMC all records of testing. Testing of protection systems for intermediate and large units 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. Factory testing of pre-packaged Interconnection Facilities and the protective systems of small units shall be acceptable. In the case of a factory test, the DG Owner/Operator needs to provide a written description and certification by the factory of the test, the test results, and the qualification of any independent testing laboratory. In addition, the settings of the equipment being installed are to be approved by UCCEMC prior to DG operation.

8. Right of Access, Equipment Installation, Removal & Inspection – UCCEMC 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 produce energy to inspect the Facilities and Interconnection Facilities, and observe the Facility's installation, commissioning (including any testing), startup, operation, and maintenance.

At any time UCCEMC 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 Members.

9. Disconnection of Facilities – DG Owner/Operator retains the option to disconnect its Facilities from the System, provided that DG Owner/Operator notifies UCCEMC of its intent to disconnect by giving UCCEMC at least sixty (60) days' prior written notice. Such disconnection shall not be a termination of this Agreement unless DG Owner/Operator exercises rights under Section 12 that do not lead to a resolution of the issue.

DG Owner/Operator shall disconnect Facilities from the System upon the effective date of any termination resulting from and required by actions under Section 12.

UCEMC shall have access to and the right to disconnect or cause the DG Owner/Operator to disconnect the Facilities from the System and 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, UCEMC shall have the right to suspend service and disconnect or cause the DG Owner/Operator to disconnect the Facilities from the System to effect repairs on the System, but UCEMC shall use its reasonable efforts to provide the DG Owner/Operator with reasonable prior notice.

10. Metering – UCEMC shall purchase, own, install and maintain such metering equipment as may be necessary to meter the electrical output of the Facilities in accordance with Section 3 and 9. All costs associated therewith shall be borne by the DG Owner/Operator. Metering shall meet accuracy standards required for equivalent electrical services and can be done with standard meters or any devices that meet data collection and accuracy requirements. For Facilities greater than 200 kW, telemetry may be required by UCEMC to monitor real-time output and other DG functions for large and medium generators that are operated remotely². Telemetry data shall be available to UCEMC and the communication of such data shall be compatible with UCEMC’s communication methods.

11. Insurance – DG Owner/Operator shall carry adequate insurance coverage that shall be acceptable to UCEMC in its sole discretion. DG Owner/Operator shall provide proof of coverage annually or upon five (5) days written notice requesting such proof.

12. 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 UCEMC at least sixty (60) days’ written notice; (b) UCEMC may terminate upon failure by the DG Owner/Operator to generate energy from the Facilities within six (6) months after completion of the interconnection; (c) either Party may terminate by giving the other Party at least sixty (60) 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 UCEMC, so long as the notice specifies the basis for termination and there is reasonable opportunity to cure the default; (d) UCEMC 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 UCEMC’s wholesale electric suppliers or of any transmission utility, independent system operator or regional transmission organization having responsibility for the operation of any part of the System.

13. Compliance with Laws, Rules and Tariffs – Both UCEMC and the DG Owner/Operator shall be responsible for complying with the laws of the state, and the Rules. The interconnection and services provided under this Agreement shall at all times be subject to the terms and conditions set forth in the Rules, which Rules are hereby incorporated into this Agreement by this reference. UCEMC shall have the right to publish changes in any of the Rules at any time.

14. 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, such portion shall be deemed separate and independent and the remainder of this Agreement shall remain in full force and effect.

² Telemetry is not required if it is prevented via protective relaying from injecting energy into UCEMC distribution system.

15. **Amendment** – This Agreement may be amended only upon consent of UCEMC, which amendment will not be effective until reduced to writing and executed by the Parties. UCEMC reserves the right to unilaterally amend this agreement upon thirty (30) days written notice to participants.

16. **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. It is expressly acknowledged that the parties are bound by UCEMC Bylaws and other Policies

17. **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”) to whom the DG Owner/Operator transfers ownership of the Facilities; provided that the DG Owner/Operator obtains the written consent of UCEMC in advance of the assignment. UCEMC’s consent will be based on a determination that the Assignee is financially and technically capable to assume ownership and/or operation of the Facilities, which will not be unreasonably withheld. The company or individual to which this Agreement is assigned will be responsible for the proper operation and maintenance of the Facilities, and must agree in writing to be subject to all provisions of this Agreement.

18. **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:

(c) If to UCEMC:

Upper Cumberland EMC
P.O. Box 159
Carthage, TN 37030-0159
907 Main Street North
Carthage, TN 37030-1002

(d) 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 18.

19. Invoicing and Payment – Invoicing and payment terms for services associated with this Agreement shall be consistent with applicable Rules.

20. 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 UCEMC as specified in Section 17. 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.

21. 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.

22. 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.

UPPER CUMBERLAND EMC

DG OWNER/OPERATOR

BY: _____

BY: _____

TITLE: _____

TITLE: _____

DATE: _____

DATE: _____

EXHIBIT A
LIST OF FACILITIES SCHEDULES AND POINTS OF INTERCONNECTION

Facility Schedule No.

Name of 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.

ATTACHMENT 4

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 UCEMC:
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. UCEMC rules for DG interconnection attached (check one): /_____ Yes / _____ No

UPPER CUMBERLAND EMC

DG OWNER/OPERATOR

BY: _____

BY: _____

TITLE: _____

TITLE: _____

DATE: _____

DATE: _____

ATTACHMENT 5

Certificate of Completion

INTERCONNECTION CUSTOMER

Name: _____

Contact Person: _____

Address: _____

Location of the Small Generating Facility (if different from above): _____

City: _____ State: _____ Zip Code: _____

Telephone (Day): _____ (Evening): _____

Fax: _____ Email Address: _____

ELECTRICIAN

Name: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Telephone (Day): _____ (Evening): _____

Fax: _____ Email Address: _____

License Number: _____

INSPECTION

The Small Generating Facility has been installed and inspected in compliance with the local building/electrical code of

Signed (local electrical wiring inspector, or attach signed electrical inspection):

Signature: _____ Date: _____

Print Name: _____

As a condition of interconnection, you are required to send/fax a copy of this form along with a copy of the signed electrical permit to:

Name: _____

Company: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Fax: _____