



East Mississippi Electric Power Association

Interconnection Procedures and Requirements

For

Distributed Generation

February 2010

Revision History

Revision	Author	Date	Notes
1	PIW	2/1/2010	Initial revision used for Board Approval, February 2010
2	PIW	3/1/2010	Updated draft version of south system PPA and DG rate. Changed purchase times to reflect Kevin H. comments
3	PIW	3/12/2010	Finalized purchase agreement and DG-1 Rate per Randy Carroll. Updated graphic and saved as R1.1

Table of Contents

- 1. General Procedures and Standards**
 - 1.1 Scope
 - 1.2 DG Interconnection Types
 - 1.3 Qualifying System
 - 1.4 Independent Power Producers (IPP)
 - 1.5 Application for Interconnection
 - 1.6 Interconnection Application Processing
 - 1.7 Standards and Certification Criteria
 - 1.8 Liability

- 2. Fast Track Screening Process**
 - 2.1. Applicability
 - 2.2. Fast Track Screening Results

- 3. Study Process**
 - 3.1. Study Process
 - 3.2. Minimum Engineering Review
 - 3.3. System Impact and Facilities Studies

- 4. Metering Considerations**
 - 4.1. Typical Installation
 - 4.2. TVA Generation Partners Program Preferred Installation
 - 4.3. Automated Metering and Processing

- 5. System Certification and Testing**
 - 5.1. Additional DG testing
 - 5.2. Installation of a Component DG system
 - 5.3. Installation of a Pre-packaged DG system
 - 5.4. Commissioning Tests
 - 5.5. Final Inspection
 - 5.6. Periodic Interconnection Tests and Maintenance

- 6. Additional Considerations**
 - 6.1. Normal Operations
 - 6.2. Financial Considerations

Attachments and Exhibits

Attachment 1 - Application for Interconnection - Tier 1

Attachment 2 - Application for Interconnection - Tier 2 & 3

Attachment 3 - Certificate of Completion

Attachment 4 - Fee Schedule

Attachment 5 – North System Participation Agreement

Attachment 6 – South System Participation Agreement

Attachment 7 – Distributed Generation Electric Rate

1. General Procedures and Standards

1.1. Scope

These procedures describe the steps a member (Customer) must follow in order for their renewable distributed generation equipment (DG equipment), otherwise known as Distributed Resources, to be evaluated and approved for interconnection to East Mississippi Electric Power Association (EMEPA) distribution system.

This document is EMEPA's standard policy relating to the Interconnection of Distributed Resources (IDR) pursuant to the Department of Agriculture Rural Utilities Service 7 CFR Part 1730, RIN 0572-AC07 Interconnection of Distributed Resources.

EMEPA operates two distinct and separate distribution systems, the North System served by the Tennessee Valley Authority (TVA) and the South System served by Mississippi Power Company (MPC) a Southern Company. EMEPA is contractually obligated to purchase electricity exclusively from TVA and MPC however both companies have made provisions or developed programs to facilitate the interconnection of renewable generation facilities to EMEPA's distribution system. The TVA Generation Partners Program is available in Winston and Kemper counties and surrounding areas served by TVA in EMEPA's North System. While MPC does not have a similar program in the South System serving Lauderdale and Clarke counties and surrounding areas, MPC does allow such interconnections with some stipulations. While financial incentives vary considerably, the technical interconnection requirements are very similar.

Requirements for interconnection are dependent upon the size of the system and will be categorized as follows:

- Tier 1 – 10 kW or less
- Tier 2 – Greater than 10 kW and less than or equal to 100 kW
- Tier 3 – Greater than 100 kW and less than 1 MW *

** Systems larger than 100 KW in the South System and 1 MW in the North System are subject to negotiations with the wholesale supplier. Any systems larger than 10 MVA are not considered a distributed resource and are outside the scope of applicability.*

1.2. DG Interconnection Types

1.2.1. DG never connected to the electric grid –Owner does not sell energy

The DG owner may build a system that is electrically and mechanically prevented from interconnecting to the electric distribution system. Customer load would be served by the DG system and would displace energy purchases from the electric distribution system. No interconnection contracts are required, however for safety reasons, EMEPA reserves the right to inspect the installation to ensure no interconnection to the electric distribution system exists.

1.2.2. DG connected to the grid – Owner does not sell energy

The DG owner may build a system that normal connects to the electric distribution system. Some or the entire load becomes displaced. An Interconnection Agreement contract must be executed to ensure safe operation, however no contract or agreement is executed for the purchase of excess power.

1.2.3. DG connected to the grid – Owner may sell energy

The DG owner may build a system that normal connects to the electric distribution system. Some or all the entire load becomes displaced. An Interconnection Agreement contract must be executed to ensure safe operation and a contract or agreement is executed for the purchase of excess power.

1.3. Qualifying Systems

A Qualifying System shall meet the requirements indicated in Section 1.1 above, meet all the applicable electrical interconnection rules and standards and shall derive its energy from the following types of renewable generation sources:

- Solar – Photovoltaic or Concentrated Solar Power
- Wind
- Landfill Methane
- Other biologically derived methane gas such as biogas from anaerobic digestion
- Hydropower - Low impact hydrokinetic provided that meets the certification standards established by the Low Impact Hydropower Institute.
- Biomass-solid, non-hazardous, cellulosic material derived from forest-related waste resources, solid wood waste materials (not chemically treated woods or garbage), agricultural wastes or plants grown exclusively as the fuel for electric generation.

1.4. Independent Power Producers (IPP)

The processes, procedures and policies defined herein are intended for residential, commercial and industrial customers of EMEPA. The location of distributed generation resources shall be located at an occupied residences building or at businesses where the primary purpose is not electricity generation. Any IPP business wishing to interconnect to EMEPA facilities will be subject to the restrictions placed upon EMEPA by their whole power suppliers, and are not subject to the terms herein.

1.5. Application for Interconnection

1.5.1. Each customer will be required to submit three documents when applying for interconnection. These documents include the following:

1.5.1.1. **Interconnection Application** - This document serves as a technical overview of the proposed generation including ownership, location, type and size. If the system being considered is 10KW or less (Tier 1) complete the application in Attachment 1. If the system is larger (Tier 2 or 3) complete the application in Attachment 2. Please provide the supporting documents such as system drawings, certification, test results, etc. requested with each application.

1.5.1.2. **Interconnection Agreement** – This document serves as the agreement between the customer and EMEPA regarding the safety, liability, maintenance and operations of the generation facilities and the interconnection with the EMEPA electrical system.

1.5.1.3. **Participation Agreement** – This document serves as the agreement regarding rates, incentives and the purchase of power produced by the generation facility and the obligations regarding EMEPA’s whole power suppliers. In the North System this is an agreement between the customer, EMEPA and TVA. In the South System this is an agreement between customer and EMEPA.

1.5.2. Each customer should receive approved and executed agreements from EMEPA **prior to purchasing** any DG equipment. Failure to do so may result in the purchase of equipment that does not qualify for interconnection.

1.6. Interconnection Application Processing (See Figure 1)

- 1.6.1. EMEPA will review the application for sufficiency and completeness and notify the customer within 10 business days of receipt of application that it has received all documents required or indicate how the application is deficient.
- 1.6.2. Within 28 calendar days EMEPA 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. Time required to complete the Study Process depends upon a number of factors and the level of impact on the electric system. A customer is subject to any costs associated with developing system studies.
- 1.6.3. After a system is approved either through the Fast Track or the Study Process, EMEPA will submit the Participation Agreement to the appropriate wholesale supplier for review and execution. Once the Participation Agreement is approved by the wholesale supplier, EMEPA will provide executed agreements to the customer. The customer may then proceed with purchase and installation of the system. The customer will also be notified of any additional requirements.

The customer will not be allowed to proceed with parallel operation (connection to EMEPA equipment) until all provisions of these procedures have been met and EMEPA has given written notification to proceed with parallel operation.

- 1.6.4. After installation, the Customer shall return the Certificate of Completion (Attachment 3) to EMEPA. Prior to parallel operation, EMEPA may inspect the DG equipment for compliance with the proposed design and may require witnessing of a Commissioning Test in accordance with the procedures defined by the latest version of IEEE 1547.1. Whether or not EMEPA elects to witness the Commissioning tests, the Customer will provide EMEPA with the schedule for, and results of, all applicable Commissioning tests as well as testing information and results required in Section 3.1 of the Participation Agreement, and Sections 3 and 5 below. All testing information and results will be given to EMEPA prior to or at the time of the Final Inspection of the Qualifying System.
- 1.6.5. If the inspection of the completed system and any required Commissioning test are satisfactory, EMEPA will notify the Customer in writing that interconnection of the DG Equipment is authorized for parallel operation. If the system does not pass the inspection and any required Commissioning test(s), EMEPA has the right to Lockout the Facility. The Customer shall not under any circumstance operate the system in parallel until the problems have been corrected and until a subsequent inspection and/or required Commissioning test(s) are deemed satisfactory, or waived by EMEPA.
- 1.6.6. EMEPA will provide the necessary certification to the Wholesale Provider to initiate any applicable credits or incentives.

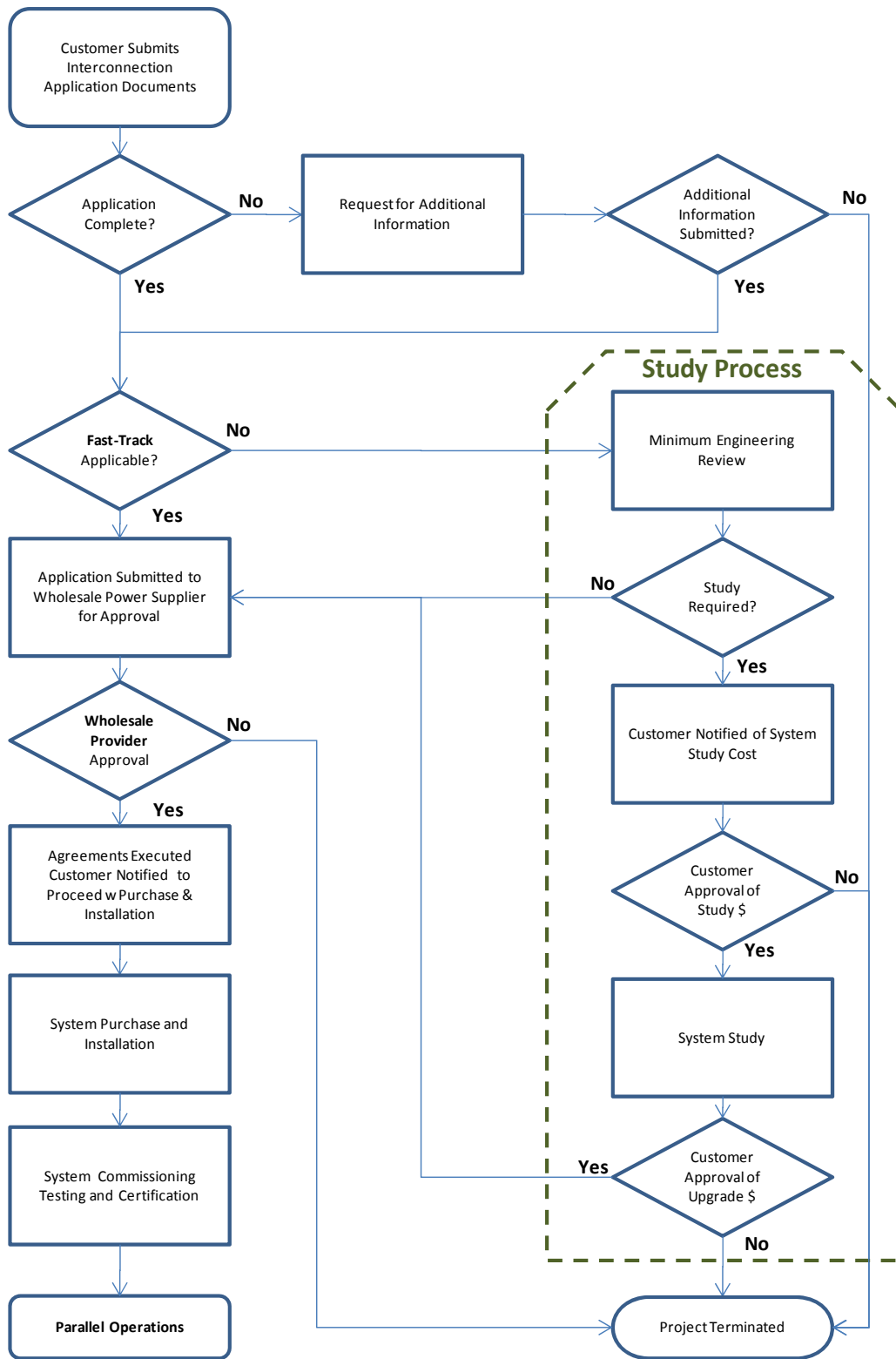


Figure 1. Application Process.

1.7. Standards and Certification Criteria

The DG equipment shall be held to the same standard of safety the EMEPA is held to maintain. The safety of the general public and the personnel and equipment of EMEPA shall in no way be reduced or impaired as a result of interconnection.

The quality, reliability and availability of delivery service to the other members of EMEPA shall not be diminished or impaired as a result of interconnection.

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

- 1.7.1. IEEE1547 Standard for Interconnecting Distributed Resources with Electric Power Systems (including use of IEEE 1547.1 testing protocols to establish conformity)
- 1.7.2. IEEE1547.1 Standard Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems
- 1.7.3. UL 1741 Inverters, Converters, and Controllers for Use in Independent Power Systems
- 1.7.4. NFPA 70 National Electrical Code
- 1.7.5. 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.
- 1.7.6. The customer 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.
- 1.7.7. A licensed Professional Engineer is required to approve the final system design and submittal.

1.8. Liability

1.8.1. Damages caused by electrical power system disturbances (self-protection) -

The DG owner will be responsible for protecting his DG and interconnection facilities in such a manner that electric distribution system outages, protection\isolation device operations, short circuits, faults or other disturbances including zero sequence currents and ferroresonant over-voltages do not damage the DG owner's facilities.

1.8.2. Damages caused by DG Owner's Interconnection

The DG owner will be responsible for any damages created or harm done as the result of the DG owner's interconnection equipment and/or the improper operation of that equipment.

1.8.3. Internal Damages

The DG owner will be responsible for any damages to his DG interconnection facilities as the result of his own interconnection.

1.8.4. External Damages

The DG owner shall be liable for any external damages or harm done as a result of his DG interconnection. The external parties include but are not limited to the electric power system owner and/or any other connected members that were harmed. Those harmed may include non-members or animals that come into contact with power line facilities being supplied by the DG Owner's interconnected DG when the power line would otherwise be de-energized.

1.9. Insurance

The DG owner shall maintain the following levels of Liability Insurance for Personal Injury and Property Damage:

- Tier 1 – 10 kW or less – Not less than \$100,000
- Tier 2 – Greater than 10 kW to 100 kW – Not less than \$300,000
- Tier 3 – Greater than 100 kW to 1 MW - Not less than \$1,000,000

2. Fast Track Screening Process

2.1. Applicability

EMEPA 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 the Fast Track process is available to a Customer whose proposed DG equipment is no larger than 10 KW and meets the codes, standards, and certification requirements of 1.4 above.

2.1.1. Fast Track Review Screens

Within 28 Calendar Days after EMEPA has received a sufficient and complete Interconnection Application, EMEPA shall perform an initial review using the screens set forth below and shall notify the Interconnection Customer of the results.

2.1.2. 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 or calculated. A line section is that portion of EMEPA's electric system connected to a customer bounded by automatic sectionalizing devices or the end of the distribution line.

2.1.3. 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.

2.1.4. 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 Customer equipment on the system to exceed 75 % of the short circuit interrupting capability; nor shall the interconnection be proposed for a circuit that already exceeds 75 % of the short circuit interrupting capability.

2.1.5. 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 Customer, including line configuration and the transformer connection to limit the potential for creating over-voltages on the EMEPA'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, three wire	3-phase or single phase, phase-to-phase	Pass screen
<i>Three-phase, four wire</i>	<i>Effectively-grounded 3 phase or Single-phase, line-to-neutral</i>	<i>Pass screen</i>

2.1.6. 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 10 KW.

2.1.7. 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.

2.1.8. Voltage Imbalance

If the proposed DG Equipment is single-phase and is to be interconnected on the secondary of a multi-phase service, it shall not create a voltage imbalance of greater than 2%. The proposed DG Equipment shall not create a voltage imbalance of greater than 1% at the point on the high voltage (primary) level nearest the proposed point of interconnection.

2.1.9. No Upgrades Required

No upgrade of existing facilities or construction of new facilities by EMEPA on its own system shall be required to accommodate the DG Equipment.

2.2. Fast Track Screening Results

If the proposed DG Equipment passes the screens, the Customer's Application will be submitted to the appropriate Wholesale Power Provider for approval. Upon receipt of approval from the Wholesale provider, EMEPA will notify the customer and will provide the Customer with executed agreements. If the proposed project does not pass the Fast Track screens, the Customer will be notified and offered the opportunity to attend a meeting where the processes outlined in 3. System Study Process will be explained and a course of action determined.

3. System Study Process

3.1. Study Process

The study process (see Figure 2) consists of the minimum engineering review, the system impact study and the facilities study. EMEPA shall review applications and perform a Minimal Engineering Review of any projects that do not pass the Fast Track screening process. Should EMEPA determine that the review will require substantial time and resources, EMEPA will contact the Customer and schedule an initial meeting to discuss associated concerns, potential costs of the review and potential additional studies including a system impact study and a system upgrade study.

3.2. 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 EMEPA determines that the minimum engineering review will require substantial time, EMEPA will require customer to reimburse EMEPA for the costs associated with this review.

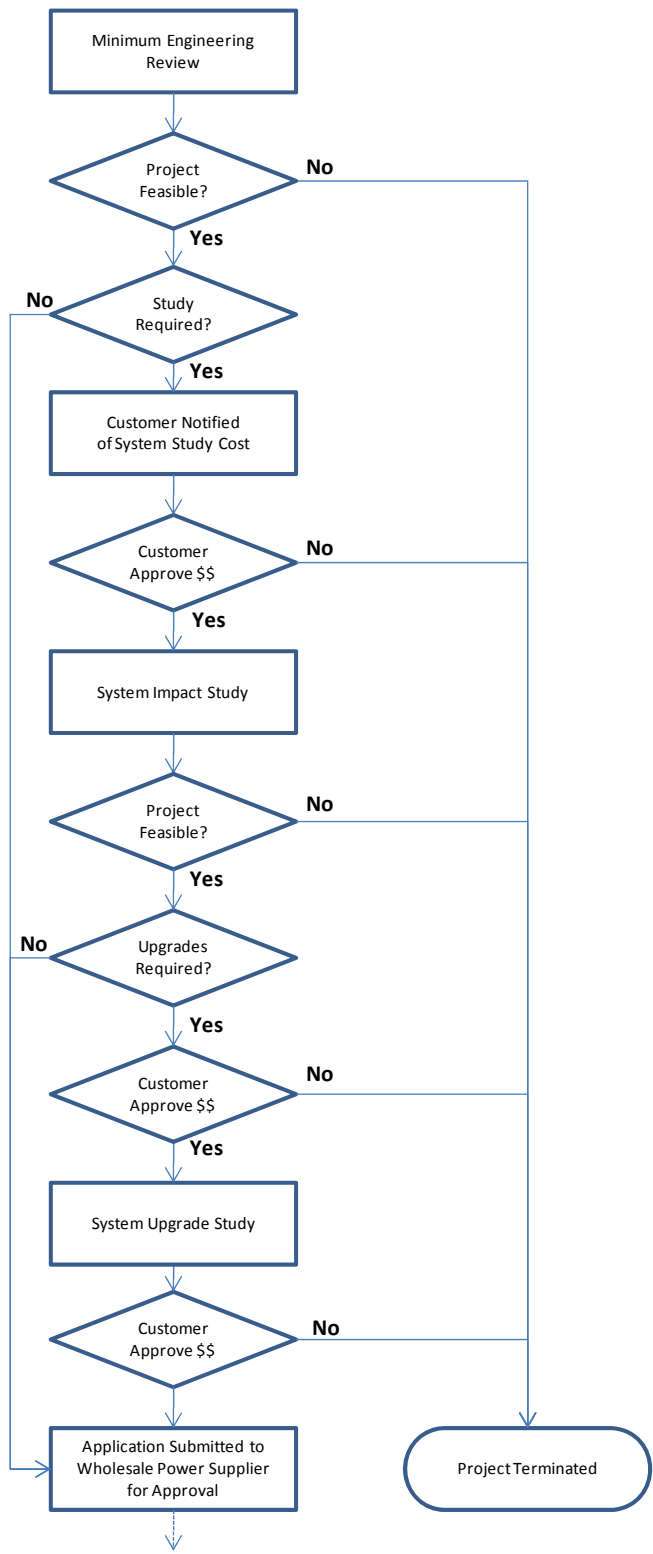


Figure 2. The Study Process.

3.3. System Impact and Facilities Studies

Beyond the minimum engineering 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, EMEPA shall send the Customer 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 customer 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 customer. 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 Customer to pay for Interconnection Facilities and Upgrades identified in the facilities study, EMEPA will submit the approved project to the Wholesale Supplier for final approval. Once the project is approved, the process in Section 1.3.3 will be followed.

In the event the Wholesale Provider does not approve the project, the reason will be discussed with the Customer. Resolution to the Wholesale Providers objections will be explored, but if the problem cannot be resolved, the project will be terminated.

4. Metering Considerations

4.1. Metering Requirements

A DG installation may not only supply power to a Customer's home, it may, in periods of low usage, supply power to the EMEPA distribution system. As a result, additional metering requirements are required. Minimally a 'smart' bi-directional meter (Utility Meter) is required to measure power not only in from, but also out to the distribution system. Metering of the actual DG equipment (Generation Meter) output is also required. Additional costs of purchasing, reading and maintaining appropriate metering is the responsibility of the customer. EMEPA may at their discretion waive such costs and associated fees. System's larger than 10 KW are required to be interval metered, while smaller systems may be metered on an interval basis.

4.2. Typical Installation

Typical DG Equipment is connected in the Customer owned electrical distribution panel as indicated in Figure 3. This connection allows the flow of electrical power to the Customer's load as well as EMEPA's electric distribution system. Electrical power may flow from EMEPA to the premise, from the premise to EMEPA or both concurrently. Any power produced by the DG system will reduce the power flow into and measured by the utility meter. This method is required in the EMEPA's South System and is optional in EMEPA's North System.

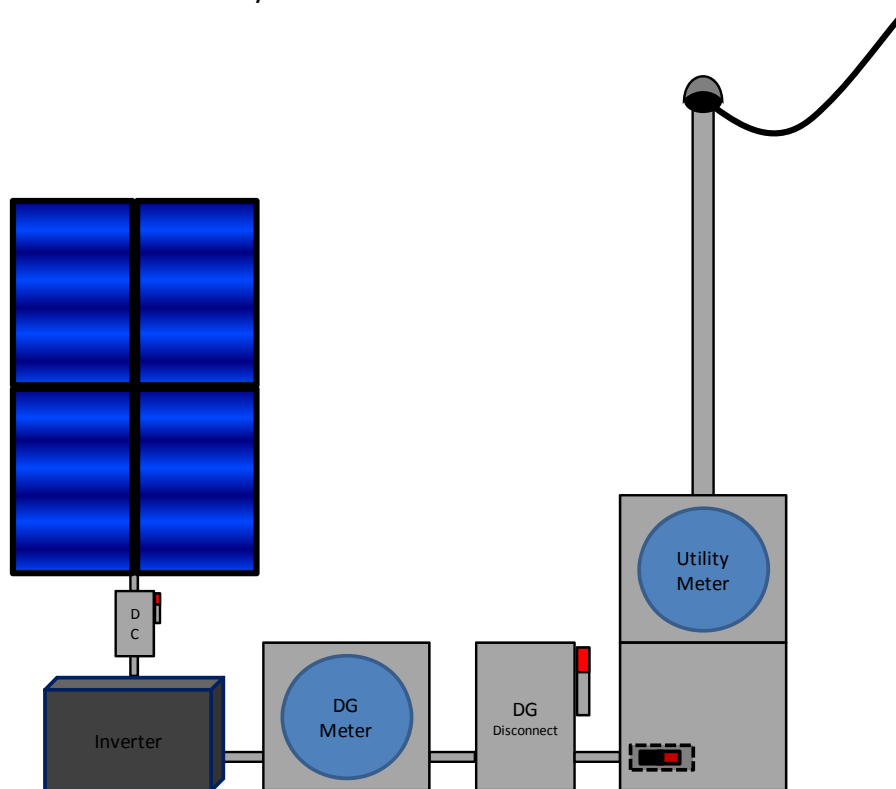


Figure 3. Typical Metering Installation Solar Example

4.3. TVA Generation Partners Program Preferred Installation

The TVA Generation Partners program purchases ALL power produced by the DG system. See Generation Partners Participation Agreement for details and applicable rates. EMEPA continues to meter and bill ALL power used by the Customer. Because of this unique arrangement, the typical metering installation above will require a complex meter reading process. Therefore, the metering arrangement indicated in Figure 4 simplifies this process for all parties involved.

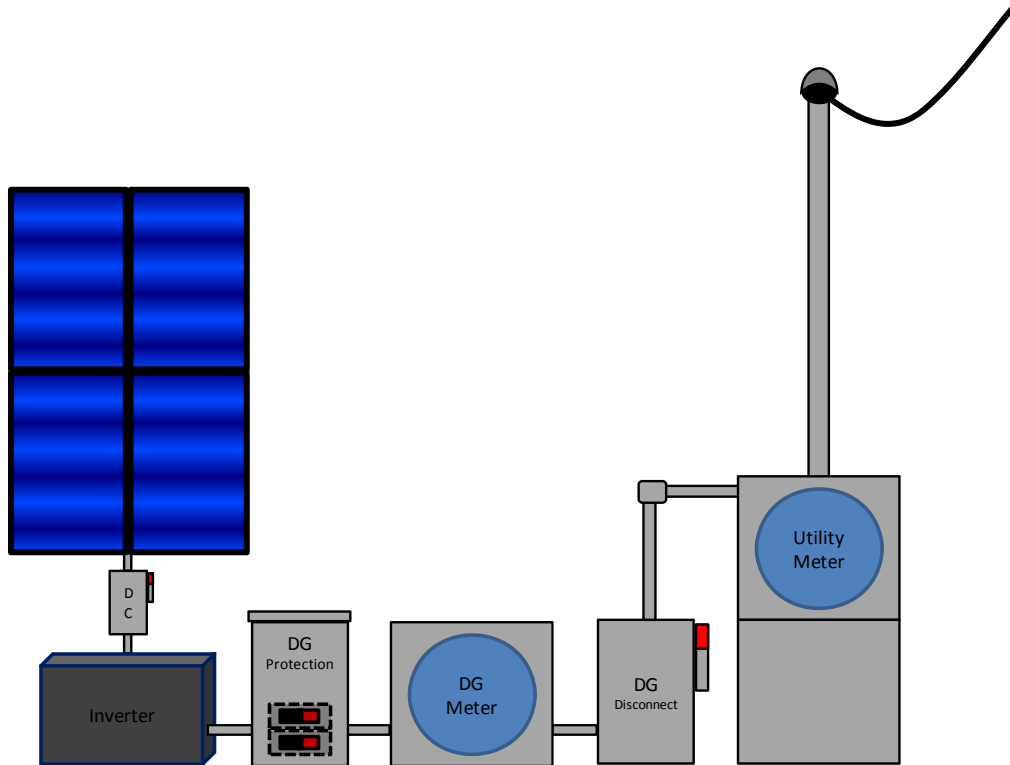


Figure 4. Preferred Generation Partners Installation Solar Example.

4.4. Automated Meter Reading and Processing

Automated and remote monitoring and reading of DG system meters is required for certain incentives, and EMEPA reserves the right to remotely and automatically read and monitor both utility and generation meters.

5. System Certification and Testing

5.1. Additional DG testing

If upon connecting to the electric distribution system a system emergency develops, safety issues arise, or the quality of service to other members deteriorates, EMEPA may perform additional inspections or tests of the DG Owner's interconnection protection systems.

5.2. Installation of a Component DG system

A Component DG system is defined as a DG system consisting of individual components that were not factory tested as a complete Pre-Packaged DG system. Certification by a Mississippi Registered Professional Engineer (PE) shall be required for all Component DG systems. The PE shall certify that the technical requirements of this document and the Interconnection Agreement have been met, and shall submit a report to EMEPA for review of the test data required to meet the applicable standards as defined in Section 1.6 and 5.4. The PE shall allow for EMEPA representatives to be present during commissioning tests. The PE shall develop a written procedure for periodic interconnection testing procedures agreed to by the DG owner and EMEPA, as well as a maintenance plan and log that the DG owner shall maintain and make available to EMEPA upon request.

5.3. Installation of a Pre-Packaged DG system

A Pre-Packaged DG system is defined as a DG system that is factory tested as a complete unit and is commercially available as a pre-packaged DG system satisfying the requirements of IEEE Standard 1547 and inverter requirements contained in UL 1741 and are stamped by a licensed engineer as such. An EMEPA approved NABCEP certified technician or factory-certified technician may perform or directly supervise commissioning tests for a Pre-Packaged system. EMEPA reserves the right to require a PE to certify that the facilities. The approved technician must provide written procedure for periodic interconnection testing procedures agreed to by the DG owner and EMEPA, as well as a maintenance plan and log that the DG owner shall maintain and make available to EMEPA upon request.

5.4. Commissioning Tests

Commissioning tests shall be performed in accordance with the latest version of IEEE Standard 1547 section 5.4. Care should be taken to verify that IEEE 1547 sections 5.1.1 and 5.1.2 will be conducted as a part of the on-site commissioning tests if they were not conducted at the factory on every interconnection system (not just a sample rate).

Proof of factory testing on the actual system (by serial number or other methods) being installed will be required.

Written test procedures are required for all commissioning tests. Usually the equipment manufacturing or system integrator(s) will provide these test procedures. These test procedures shall be approved by DG owner and EMEPA.

All tests requirements identified in IEEE 1547 shall be conducted on the on-site system if unit factory testing data is not available. Tests shall be repeated on site under the following conditions.

- Functional software or firmware changes.
- Hardware component field modification, replacement or repair using parts different from the tested configuration.
- Protection settings have been changed after testing
- Protection functions have been adjusted after initial commissioning

5.5. Final Inspection

EMEPA shall perform a final on-site inspection of the facilities to ensure proper operation and interaction with the electric grid.

5.6. Periodic Interconnection Tests and Maintenance

Periodic interconnection tests shall be performed in accordance with the latest version of IEEE 1547. Reports from periodic testing of the protective functions of the interconnection and/or a log for battery inspection shall be maintained according to the manufactures recommendations. Such documentation shall be available to EMEPA upon request.

6. Additional Considerations

6.1. Normal Operations

6.1.1. Safety

Considerations related to the normal operations of the proposed DG Equipment are identified in the Interconnection Agreement. This agreement addresses very important operating and safety considerations. Failure to follow and adhere to the Interconnection Agreement is a violation of that contract and can result in damage to the Customers equipment, injury and death. The DG owner should read and understand in detail the Interconnection Agreement before proceeding with pursuing the installation of DG Equipment. The DG owner is responsible for the safe and effective operation and maintenance of the facilities. The DG owner must provide access to facilities during normal business hours and all emergency situations. A lockable, disconnect and a visible open must be readily accessible and operable by authorized personnel at all times.

6.1.2. Maintenance

DG systems require periodic maintenance and testing. The Interconnection Agreement addresses the requirement to perform such maintenance and testing and associated documentation. The DG owner (or applicant) must demonstrate that the facilities will be capably developed, constructed and operated, maintained and repaired.

6.1.3. Availability

All renewable energy products rely on some source of energy such as sunlight or wind. Obviously the system cannot product electricity when the energy source is not available. What is often not explained by vendors is that most interconnected distributed generation systems do not operate when grid power is not available because of safety considerations and the requirement to disconnect from the grid during an outage. Additional equipment and/or batteries can be purchased so the system can operate during outages, however such additions add expense and complexity to a system. These systems generally require additional wiring to critical circuits within the home and transfer switches, much like those used to connect traditional emergency or standby generators.

6.2. Financial Considerations

Any DG system is considerably expensive to install and purchase. There are many incentive programs available through various federal, state and wholesale supplier programs. Many incentives are often in the form of credits rather than capital that can be used directly to offset costs. The Customer should educate themselves of the details related to the various incentive programs. Not all incentives may be applicable. The payback or return on investment on a DG system varies considerably based on a number of factors such as interest rates, incentives, available 'fuel' such as wind or sunlight and the lifecycle of equipment. The Customer should ensure that they understand all of the costs associated and payback related to the system they are considering.

Attachment 1 -- Application for Interconnection of Distributed Generation

Tier 1(10 kW or less)

This Application is considered complete when it provides all applicable and correct information required below.

Customer

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone (Day): _____ (Evening): _____

Fax: _____ E-Mail Address: _____

Electric Service Account Number _____

Owner of Building if different than customer _____

Contact (if different from Customer)

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone (Day): _____ (Evening): _____

Fax: _____ E-Mail Address: _____

Owner of System (if different than customer)

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone (Day): _____ (Evening): _____

Fax: _____ E-Mail Address: _____

System Design/Engineer

Company: _____
Mailing Address: _____
City: _____ County: _____ State: _____ Zip Code: _____
Phone Number: _____ Representative: _____
Email Address: _____ Fax Number: _____
PE License _____ State _____

Electrical Contractor (as applicable)

Company: _____
Mailing Address: _____
City: _____ County: _____ State: _____ Zip Code: _____
Phone Number: _____ Representative: _____
Email Address: _____ Fax Number: _____
Contractor's License # _____ City/County/State _____

Generating Facility Information

Location (if different from above): _____
Vendor: _____
Account Number: _____
Inverter Manufacturer: _____ Model _____
Nameplate Rating: _____ (kW) _____ (kVA) _____ (AC Volts) Single Phase _____ Three Phase _____
System Design Capacity: _____ (kW) _____ (kVA)
Energy Source: Solar Wind Hydro Other (describe) _____

Attach support information to show testing and listing by a Nationally Recognized Laboratory for compliance with the codes and standards outlined in 1.4.1 – 1.4.4 for the proposed system.

Estimated Installation Date: _____ Estimated In-Service Date: _____

List components of the Small Generating Facility equipment package that are currently certified:

Equipment Type	Certifying Entity
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____

ADDITIONAL INFORMATION – Single Line Diagram

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, batteries, number and location of PV Panels, etc.) specifications, test reports, etc., and any other applicable drawings or documents necessary for the proper design of the interconnection. Also describe the address or grid coordinates of the facility.

Permission to Interconnect

Customer must not operate their generating facility in parallel with EMEPA’s system until they receive written authorization for parallel operation from EMEPA. Unauthorized parallel operation could result in injury to persons and /or damage to equipment and/or property for which the customer may be liable.

Interconnection Customer Signature

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

Signed: _____

Title: _____ Date: _____

Attachment 2 -- Application for Interconnection of Distributed Generation

Tier 2 (Greater than 10 kW and less than or equal to 100 kW) & Tier 3 (Greater than 100 kW and less than 1 MW)

This application should be completed and returned to EMEPA representative in order to begin processing the request.

PART 1

CUSTOMER INFORMATION

Name: _____

Mailing Address: _____

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

Phone Number: _____ Representative: _____

Email Address: _____ Electric Service Account Number _____

Fax Number: _____

PROJECT DESIGN/ENGINEERING (as applicable)

Company: _____

Mailing Address: _____

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

Phone Number: _____ Representative: _____

Email Address: _____ Fax Number: _____

PE License _____ State _____

ELECTRICAL CONTRACTOR (as applicable)

Company: _____

Mailing Address: _____

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

Phone Number: _____ Representative: _____

Email Address: _____ Fax Number: _____

Contractor's License # _____ City/County/State _____

TYPE OF GENERATOR (as applicable)

Photovoltaic _____ Wind _____ Other _____

ESTIMATED LOAD AND GENERATOR RATING INFORMATION

The following information is necessary to help properly design EMEPA customer interconnection.

Total Site Load _____ (Highest kW Demand Last 12 Months)

Residential _____ Commercial _____ Industrial _____

System Rating _____ (kW) Annual Estimated Generation _____ (kWh)

PART 2

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

SYNCHRONOUS GENERATOR DATA

Identification per Single Line Drawing: _____

Total number of units with listed specifications on site: _____

Manufacturer: _____

Type: _____ Date of manufacture: _____

Serial Number (each): _____

Phases: Single Three R.P.M.: _____ Frequency (Hz): _____

Rated Output (for one unit): _____ Kilowatt _____ Kilovolt-Ampere

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

Field Volts: _____ Field Amps: _____ Motoring power (kW): _____

Synchronous Reactance (Xd): _____ % on _____ KVA base

Transient Reactance (X'd): _____ % on _____ KVA base

Negative Sequence Reactance (Xs): _____ % on _____ KVA base Sequence

Reactance (Xo): _____ % on _____ KVA base

Neutral Grounding Resistor Size (if applicable): _____

I_2^2t or K (heating time constant): _____

Additional information: _____

INDUCTION GENERATOR DATA

Rotor Resistance (Rr): _____ ohms Stator Resistance (Rs): _____ ohms

Rotor Reactance (Xr): _____ ohms Stator Reactance (Xs): _____ ohms

Magnetizing Reactance (Xm): _____ ohms Short Circuit Reactance (Xd''): _____ ohms

Design letter: _____ Frame Size: _____

Exciting Current: _____ Temp Rise (deg C°): _____

Reactive Power Required: _____ Vars (no load), _____

Vars (full load) Additional information: _____

PRIME MOVER (Complete all applicable items)

Identification per Single Line Diagram _____ Unit Number: _____

Type: _____

Manufacturer: _____

Serial Number: _____ Date of manufacture: _____

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

Energy Source (hydro, wind, etc.) _____

INVERTER DATA (if applicable)

Manufacturer: _____ Model: _____

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

Inverter Type (ferroresonant, step, pulse-width modulation, etc): _____

Single or Three Phase _____ Type commutation: forced _____ line _____

Harmonic Distortion: Maximum Single Harmonic (%) _____ Maximum Total Harmonic (%) _____

POWER CIRCUIT BREAKER (if applicable)

Manufacturer: _____ Model: _____

Rated Voltage (kilovolts): _____ Rated ampacity (Amperes) _____

Interrupting rating (Amperes): _____ BIL Rating: _____

Interrupting medium / insulating medium (ex. Vacuum, gas, oil) _____ / _____

Control Voltage (Closing): _____ (Volts) AC DC

Control Voltage (Tripping): _____ (Volts) AC DC Battery Charged Capacitor

Close energy: Spring Motor Hydraulic Pneumatic Other: _____

Trip energy: Spring Motor Hydraulic Pneumatic Other: _____

Bushing Current Transformers: _____ (Max. ratio) Relay Accuracy Class: _____

Multi ratio? No Yes: (Available taps) _____

Description of Control System _____

ADDITIONAL INFORMATION – Single Line Diagram

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, batteries, number and location of PV Panels, etc.) specifications, test reports, etc., and any other applicable drawings or documents necessary for the proper design of the interconnection. Also describe the address or grid coordinates of the facility.

Permission to Interconnect

Customer must not operate their generating facility in parallel with EMEPA’s system until they receive written authorization for parallel operation from EMEPA. Unauthorized parallel operation could result in injury to persons and /or damage to equipment and/or property for which the customer may be liable.

The customer agrees to provide EMEPA with any additional information required to complete the interconnection.

Applicant

Date

EMEPA CONTACT FOR APPLICATION SUBMISSION AND FOR MORE INFORMATION:

Contact: Matt Sampley

Title: Design Engineer

Address: PO Box 5517

Meridian, MS 39302

Phone: 601-581-8720

Fax: 601-581-8725

E-mail: patwilliams@emepa.com

Attachment 3 - Certificate of Completion

Interconnection Customer: _____

Contact Person: _____

Address: _____

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

City: _____ State: _____ Zip Code: _____

Telephone (Day): _____ (Evening): _____

Fax: _____ E-Mail Address: _____

Electrician:

Name: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Telephone (Day): _____ (Evening): _____

Fax: _____ E-Mail 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):

Print Name: _____ Date: _____

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:

East Mississippi Electric Power Association
Attn: Matt Sampley
P.O. Box 5517
Meridian, MS 39302
601-581-8789

Attachment 4 - Fee Schedule

EMEPA reserves the right to waive any of the fees indicated below. Typical service visits such as meter reading checks, disconnects, etc., subject to standard service rates and fees. TVA Generation Partners program provides various credits to the fees schedules below. These credits are not available for South System customers.

Distributed Generation Application Processing Fee	\$100
Fast Track Processing Fee	No charge
Minimum Engineering Review	\$100
Engineering Study Rates— <i>project specific</i>	
Engineering Fees	\$125/Hr
Drafting	\$50/Hr
Clerical	\$25/Hr
Installation Inspection - <i>per occurrence</i>	\$100
Bi-directional Load Interval Demand Meters	\$500
Monthly DG Connection Fee	\$10

Attachment 5 – North System Participation Agreement

See TVA Generation Partners Participation Agreement

Attachment 6 – South System Participation Agreement

Purchase Power Agreement For Purchase of Excess Electric Energy from Qualified Distributed Resources

This Purchase Agreement (“Purchase Agreement”) is made and entered into this ____ day of _____, 20____, between _____, herein after referred to as “DG Owner” and East Mississippi Electric Power Association (“EMEPA”), organized under the laws of the state of Mississippi, hereinafter sometimes referred to individually and collectively as “Party” or “Parties.” In consideration of the mutual covenants set forth herein, the Parties agree as follows:

- 1. Interconnection of Facilities** – Prior to the purchase of excess electric energy from the DG Owner, an Agreement for Interconnection and Parallel Operation (“Agreement”) shall be executed between the Parties. DG Owner shall satisfy all terms and conditions of the Agreement.
- 2. Monthly Connection Fee** – DG Owner shall pay a monthly DG Connection Fee as indicated in Attachment 4 Fee Schedule that will be added to the customers normal bill for service. This fee is to cover administrative, metering and other expenses related to serving interconnected distributed generation. Fees are subject to change.
- 3. DG Energy Purchase Rate** – EMEPA shall pay the DG Owner for all metered excess energy delivered to the electric facilities (System) of EMEPA from the DG facilities of the DG Owner in accordance with the Distributed Generation Rate.
- 4. Metering** – Metering suitable for measuring excess electric energy delivered to the electrical facilities of EMEPA shall be provided in accordance with the Agreement.
- 5. Reading of Meter** – EMEPA shall read the meter monthly and record the excess energy delivered to the facilities of EMEPA from the DG facilities to the DG Owner.
- 6. Determination of Delivered Energy** – Delivery of Energy (KWh) shall be normally measured energy at the residential meter for systems less than 10 KW. Larger systems or none traditional systems may require measurement at the high side of the distribution transformer or adjusted to the high side of the transformer.
- 7. Payment for Excess Electric Energy** - Statements covering credits for Delivered Energy shall be rendered by EMEPA by the due date of the normal residential bill. The Statement will be accompanied by a check for the amount due if the DG Owner credit for energy delivered exceeds \$50. A Monthly credit of \$50.00 or less will be accumulated and paid when the total amount due DG Owner exceeds \$50.00.

Regardless of the accumulated amount due DG Owner for sales of excess electric energy to EMEPA by December 31 of each year this agreement is in effect, EMEPA shall pay the amount due DG Owner for sales of such excess electric energy by the 30th day of June in the subsequent year.

- 8. Curtailment** – EMEPA reserves the right to curtail energy purchase from the DG Owner when:
- a. EMEPA or its wholesale suppliers has a system emergency and purchases would or could contribute to such an emergency, or
 - b. EMEPA or its wholesale suppliers has been directed by the regional Reliability Coordinator that the purchase of energy from the DG Owner must be curtailed because of a system emergency or for other reliability reasons.

The customer will be notified of each curtailment.

- 9. Assignment**– At any time during the term of this Purchase Agreement, the DG Owner may assign this Purchase Agreement to a corporation, an entity with limited liability or an individual (the “Assignee”) to whom the DG Owner transfers ownership of the Facilities; provided that the DG Owner obtains the written consent of EMEPA in advance of assignment. Consent of EMEPA will be based on a determination that the Assignee is financially and technically capable to assume ownership and/or operation of the Facilities. The company or individual to which this Purchase 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 Purchase Agreement. EMEPA may also assign the Purchase Agreement to another entity with the written approval of the DG Owner.

- 10. Governing Law** - This Purchase Agreement shall be governed and construed in accordance with the laws of the State of Mississippi.

- 11. Effective Term and Termination Rights** – This Agreement becomes effective when executed by the Parties (“Effective Date”) and shall continue in effect for an initial term ending on December 31st in the same year as the Effective Date unless otherwise terminated in accordance with the provision of this Agreement. This Agreement shall be automatically renewed and the term extended for additional one year periods unless terminated in accordance with this Agreement. This Agreement may be terminated as follows: (a) Any Party may terminate this Agreement at any time by giving the other Parties at least sixty (60) days’ written notice; (b) Distributor and/or its wholesale Suppliers may terminate upon failure by the DG Owner to energize DG equipment within six (6) months after completion of the interconnection; (c) any Party may terminate by giving the other Parties at least

thirty (30) days prior written notice that the defaulting Party is in default of any of the terms and conditions of the Agreements or the Rules or any rate schedule, tariff, regulation, contract or policy of the Distributor and/or its Wholesale Suppliers, so long as the notice specifies the basis for termination and there is opportunity to cure the default; (d) Distributor and/or its Wholesale Suppliers may terminate by giving DG Owner at least sixty (60) days notice in the event that there is a material change in an applicable law, or any requirement of EMEPA's Wholesale Suppliers or of any transmission utility, independent system operator, regional transmission organization or reliability organization having responsibility for the operation of any part of the system.

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

_____ (DG Owner)

By: _____

Title: _____

Date: _____

East Mississippi Electric Power Association

By: _____

Title: _____

Date: _____

Attachment 7 – Distributed Generation Purchase Rate

East Mississippi Electric Power Association

(herein referred to as "Distributor")

Schedule DG-1

South System Renewable Generation Purchase – March 2010

Availability

This rate shall apply only to electric service to a single-family dwelling (including its appurtenances if served through the same meter), where the major use of electricity is for domestic purposes such as heating, cooling, lighting, household appliances, and the personal comfort and convenience of those residing therein.

Character of Service

Alternating current, single-phase, 60 hertz. Power shall be purchased at a service voltage available in the vicinity or agreed to by Distributor. Multi-phase service shall be purchased in accordance with Distributor's standard policy.

Base Charges

Connection Fee: \$10.00 Per Month

Energy Credit:
All excess kWh 4.5879 Cents Per kWh per month

Minimum Monthly Bill

The Connection Fee charge constitutes the minimum monthly fee for all customers participating under this rate schedule except those customers for which a higher minimum bill is required under Distributor's standard policy because of special circumstances affecting Distributor's cost of rendering service.

Tax Clause

Billing under this rate shall be subject to the Mississippi state and municipal sales taxes and any new or additional taxes imposed upon the utility by any governmental authority after the effective date of this schedule.

Temporary Service

Temporary service shall be supplied in accordance with the foregoing rate except that the member shall pay in addition to the foregoing charges the total cost of connecting and disconnecting service less the value of material returned to stock. A deposit, in advance, may be required of the full amount of the estimated bill for service, including the cost of connection and disconnection.

Payment

Bills under this rate schedule will be rendered monthly. Any amount of bill unpaid after due date specified on bill may be subject to additional charges under Distributor's standard policy.

Payments

Statements covering credits for Delivered Energy shall be rendered by EMEPA by the due date of the normal residential bill. The Statement will be accompanied by a check for the amount due if the DG Owner credit for energy delivered exceeds \$50. A Monthly credit of \$50.00 or less will be accumulated and paid when the total amount due DG Owner exceeds \$50.00. Regardless of the accumulated amount due DG Owner for sales of excess electric energy to EMEPA by December 31 of each year this agreement is in effect, EMEPA shall pay the amount due DG Owner for sales of such excess electric energy by the 30th day of June in the subsequent year.

Single-Point Delivery

The charges under this rate schedule are based upon the supply of service through a single delivery and metering point, and a single voltage.

Service is subject to Rules and Regulations of Distributor.

Service is subject to Rules and Regulations of Distributor.