

Agralite Electric Cooperative

Procedure: Eligible DG Systems Rated Less Than 40 kW

I. Introduction

To interconnect a Generation System with Agralite Electric Cooperative (Agralite or AEC), there are several steps that must be followed. This document outlines those steps for eligible systems rated less than 40 kW. At any point in the process, if there are questions, please contact Agralite's DG Coordinator.

This document has been prepared to explain the process to interconnect a specific type and size of generation system with Agralite. The criterion used to determine whether or not your Generation System is covered by this document is outlined in the definition of an Eligible DG System Rated Less Than 40 kW. If your system 1) is rated at 40 kW or more; 2) does not qualify under PURPA rules and regulations; or 3) does not use a Grid Tie Inverter or an Interconnection Relay, then this document does not fully cover the procedure for interconnecting your system. If that is the case please refer to the Agralite document titled "Procedure: DG Systems."

This Procedure does not discuss the associated interconnection Technical Requirements, which are covered in Agralite's document titled "Requirements: Eligible DG Systems Rated Less Than 40 kW." Please refer to that document for Technical Requirements and additional explanation of the terms utilized in this document.

This Agralite document ("Procedure: Eligible DG Systems Rated Less Than 40 kW") and Agralite's full version of this document ("Procedure: DG Systems") are based on and closely follows the process outlined in the state document titled "State of Minnesota Interconnection Process for Distributed Generation Systems."

II. General Information

A. Definitions

1. Applicant (or Member) is defined as the person or entity, whom is requesting the interconnection of the Generation System with Agralite and has overall responsibility for ensuring that the Generation System is designed, operated and maintained in compliance with the Technical Requirements.
2. Area EPS is an electric power system (EPS) that serves Local EPS's. Note- Typically an Area EPS has primary access to public rights-of-way, priority crossing of property boundaries, etc. Agralite is an Area EPS.
3. Cooperative – Agralite Electric Cooperative (Agralite or AEC)
4. Dedicated Facilities is the equipment that is installed due to the interconnection of the Generation System and not required to serve other Agralite Members.
5. Distributed Generation (DG) for this document is defined as generation typically built within close proximity to the generating Member's load where the primary purpose of the generation is to offset energy use. DG includes, but may not be limited to the following:
 - a. small scale generators such as photovoltaic (PV), fuel cells, small wind turbines;
 - b. micro-turbines or reciprocating engines fueled by renewable fuels such as landfill gas or methane gas from digesters;
 - c. any qualifying facility (QF) under the Public Utility Regulatory Policies Act of 1978 (PURPA)
6. DG Coordinator the person or persons designated by Agralite to provide a single point of coordination with the Member for the generation interconnection process.
7. Distribution System is the Agralite facilities which are not part of the Area EPS Transmission System or any Generation System.
8. Eligible DG System Rated Less Than 40 kW – For this document a DG System shall meet all of the following criteria and requirements in order to be considered an Eligible DG System Rated Less Than 40 kW.
 - a. Qualifies under PURPA rules and regulations as a Qualifying Facility
 - b. Total Nameplate Capacity is less than 40 kW
 - a. Protection scheme utilizes a Grid Tie Inverter or an Interconnection Relay
9. Extended Parallel means the Generation System is designed to remain connected with Agralite's Distribution System for an extended period of time.
10. Generation is any device producing electrical energy, i.e.: rotating generators driven by wind, steam turbines, internal combustion engines, hydraulic turbines, solar, fuel cells, etc.; or any other electric producing device, including energy storage technologies.
11. Generation System is the interconnected generator(s), controls, relays, switches, breakers, transformers, inverters and associated wiring and cables, up to the Point of Common Coupling.
12. Grid Tie Inverter is a device that converts DC electricity to AC electricity and has been specially designed and constructed to safely interconnect with an Area EPS. For this document, a Grid Tie Inverter is also designed and tested to meet the requirements of IEEE

1547 and ANSI 929 standards and has been certified with a UL 1741 label.

13. Interconnection Customer is the party or parties who will own/operate the Generation System and are responsible for meeting the requirements of the agreements and Technical Requirements. This could be the Generation System applicant, installer, owner, designer, or operator.
14. Interconnection Relay is a protection device that detects Area EPS supply problems and automatically disconnects the DG System from the Area EPS. For this document, an Interconnection Relay is also programmed, designed and tested to meet the requirements of IEEE 1547.
15. Local EPS is an electric power system (EPS) contained entirely within a single premises or group of premises.
16. Nameplate Capacity is the total nameplate capacity rating of all the Generation included in the Generation System. For this definition the maximum rated kW capacity on the generator's or power producing equipment's nameplate shall be used. The nameplate shall be in compliance with National Electric Code 445.11.
17. Point of Common Coupling is the point where the Local EPS is connected to an Area EPS.
18. Public Utilities Regulatory Policies Act – 1978 (PURPA) is a US federal law enacted in 1978 which was intended to encourage more energy-efficient and environmentally friendly commercial energy production. PURPA defined a new class of energy producer called a Qualifying Facility.
19. Qualifying Facilities (QFs) are either small-scale producers of commercial energy who normally self-generate energy for their own needs but may have occasional or frequent surplus energy, or incidental producers who happen to generate usable electric energy as a byproduct of other activities. A Qualifying Facility satisfies the conditions established in Code of Federal Regulations, title 18, section 292.101(b)(1), (1981), as applied when interpreted in accordance with the amendments to Code of Federal Regulations, title 18, sections 292.201 to 292.207 adopted through Federal Register, volume 46, pages 33025-33027, (1981).
20. Technical Requirements refers to the set of requirements outlined in the Agralite document titled "Requirements: DG Systems." There is a more concise subset of the Technical Requirements provided for smaller generation systems meeting certain criterion titled "Requirements: Eligible DG Systems Rated Less Than 40 kW." Both of the aforementioned documents are based on and incorporate all the requirements found in the state document titled "State of Minnesota Distributed Generation Interconnection Requirements."

B. DG Coordinator

For questions regarding this Procedure or any other questions regarding generation installation in general, please contact the DG Coordinator at Agralite. The DG Coordinator may not be able to directly answer or resolve all of the issues involved in the review and implementation of the interconnection process and standards, but shall be available to provide coordination assistance with the Applicant. Contact information for Agralite's DG Coordinator is listed below.

James Pachan
Manager of Member Services
Agralite Electric Cooperative
320 East Highway 12
PO Box 228
Benson, MN 56215
(320) 843-4150
jpachan@agralite.com

C. Insurance

In connection with the performance of their duties and obligations, the Interconnection Customer shall maintain, during the term of the Interconnection Agreement, general liability insurance, from a qualified insurance agency with a B+ or better rating by "Best" and with a combined single limit of not less than three hundred thousand (\$300,000) for each occurrence if the Nameplate Capacity of the Generation System is less than 40 kW.

D. Dispute Resolution

The following is the dispute resolution procedure to be followed for problems that occur with the implementation of this process.

1. Each Party agrees to attempt to resolve all disputes arising hereunder promptly, equitably, and in a good faith manner.
2. In the event a dispute arises under this procedure, and if it cannot be resolved by the Parties within thirty (30) days after written notice of the dispute to the other Party, the Parties shall submit the dispute to mediation by a mutually acceptable mediator, in a mutually convenient location in the State of Minnesota. The Parties agree to participate in good faith in the mediation for a period of ninety (90) days. If the parties are not successful in resolving their disputes through mediation, then the Parties may refer the dispute for resolution to the Minnesota Public Utilities Commission, which shall maintain continuing jurisdiction over this process.

III. Process for Interconnection

A. Step 1: Application (By Member)

Once a decision has been made by the Member, that they would like to interconnect a DG System with Agralite, the Member shall supply Agralite with the following:

1. Completed DG Interconnection Application ("Application Form: DG Systems Rated Less than 40 kW"). Application Forms must be submitted not less than 30 days, nor more than one year prior to the proposed date of interconnection. The following shall be attached to or noted on the Application Form:
 - a. One-line diagram
 - b. Site plan of the proposed installation
 - c. Proposed schedule of the installation
2. Payment of the \$100 application fee. This application fee is to contribute to Agralite's labor costs for administration, review of the design concept and engineering screening for the proposed DG System interconnection.

B. Step 2: Review of Application (By Agralite)

Within 15 business days of receipt of all the information listed in Step 1, Agralite's DG Coordinator shall respond to the Member with the information listed below. If the information required in Step 1 is not complete, the Member will be notified within 10 business days of what is missing and no further review will be completed until the missing information is submitted. The 15 day clock will restart with the new submittal.

1. Agralite will inform the Member as to whether the DG Interconnection request has been approved or rejected.
 - a. Rejection – Agralite shall supply the reasons, with supporting information, for rejection of the proposed interconnection.
 - b. Approval - An approved Application is valid for 6 months from the date of the approval. The DG Coordinator may extend this time if requested by the Member.
2. Agralite will provide comments to the Member pertaining to the interconnection timeline submitted in the application.
3. Agralite will inform the Member of whether or not a distribution engineering study is required. This study, if required, will be completed by Agralite or their representative. The maximum distribution engineering study cost is \$500.

The following screening criteria will be used by Agralite to identify which DG Systems will require a distribution engineering study.

- a. DG System does not exceed 15% of the annual peak load for the line section it will interconnect with. A line section is defined as a section of line on Agralite's Distribution System between two sectionalizing devices.
 - b. DG System does not contribute more than 10% to the distribution circuit's maximum fault current at the point of interconnection with Agralite's Distribution System.
 - c. The proposed DG System total Nameplate Capacity, in aggregate with other generation on the distribution circuit, will not cause any distribution protective devices and equipment to exceed 85% of the short circuit interrupting capability.
 - d. If the proposed DG System is to be interconnected on a single-phase shared secondary, the aggregate generation Nameplate Capacity on the shared secondary, including the proposed generation, does not exceed 20kW.
4. Agralite will provide the Member with cost estimates and a payment schedule for required Agralite work, including, but not limited to:
 - a. Distribution engineering study (if applicable)
 - b. Labor costs related to the final design review
 - c. Labor & expense costs for attending meetings
 - d. Required Dedicated Facilities and other Agralite Distribution System modification(s)
 - e. Final testing costs
 5. Agralite will provide the Member with an Interconnection Agreement ("Schedule D: DG Interconnection Agreement for Systems Rated Less than 40 kW")

C. **Step 3: Final Go-No Go Decision (By Member)**

In this step, the Member shall have the opportunity to indicate whether or not they want to proceed with the proposed generation interconnection. If the decision is NOT to proceed, the Member will notify Agralite's DG Coordinator so that other generation interconnections in the queue are not adversely impacted.

Should the Member decide to proceed, the following shall be supplied to Agralite.

1. Applicable up-front payment required by Agralite, per payment schedule, provided in Step 2

2. Signed and completed Interconnection Agreement (“Schedule D: DG Interconnection Agreement for Systems Rated Less than 40 kW”)
3. Proof of insurance as described in Section II.C (above)
4. Final proposed timeline, incorporating Agralite’s comments provided in Step 2
5. Detailed information on the proposed equipment, if required by Agralite in Step 2, including wiring diagrams, equipment manufacturers, models and types

D. **Step 4: Order Equipment and Construction (By Agralite / Member)**

The following activities shall be completed during this step.

1. By the Member:
 - a. Ordering of DG System equipment
 - b. Installing DG System
 - c. Filing required State of Minnesota electrical inspection forms (give a copy to Agralite Electric Cooperative)
 - d. Inspecting and functional testing DG System components
2. By Agralite personnel:
 - a. Ordering necessary Agralite equipment
 - b. Installing and testing any Agralite facilities, line extensions, etc.
 - c. Assisting Member with interconnection installation coordination issues
 - d. Providing review and input for testing process

E. **Step 5: On-Line Commissioning Test (By Agralite / Member)**

Due to equipment lead times and construction, a significant amount of time may take place between the execution of Step 4 and Step 5. During this time the construction of the facilities are completed.

The functionality of the DG System shall be verified by Agralite personnel via a site inspection and an on-line commissioning test (anti-island test).

1. By the Member:
 - a. The Member provides a letter or report to Agralite’s DG Coordinator which states the following:
 - 1) All Member owned DG System equipment has been installed.
 - 2) All contractor preliminary testing has been completed.
 - 3) The DG System has been built in accordance with and meets all interconnection requirements as outlined in Agralite’s document titled “Requirements: Eligible DG Systems Rated Less Than 40 kW.”
 - 4) The DG System has been inspected and signed off by a Minnesota State Electrical Inspector.
 - 5) The Member will indicate a proposed date that the DG System will be ready to be energized and tested by Agralite personnel.

- b. The Member, if not completed in a previous step, must provide Agralite with the following:
 - 1) Signed Interconnection Agreement
 - 2) An Inspection Affidavit signed by a Minnesota State Electrical Inspector
 - 3) Proof of insurance as described in Section II.C (above)
- 2. By Agralite personnel:
 - a. Upon receiving the required documentation Agralite's DG Coordinator will schedule a time with the Member for Agralite personnel to complete the site inspection and anti-island test.
 - b. Upon the DG System satisfactorily passing the site inspection and anti-island test the DG Coordinator will provide the Member with the anti-island test results and written authorization for the DG System to operate in parallel with Agralite's Distribution System.

