

MGE Distributed Generation (DG) Interconnection Requirements Quick Reference Guide

This document is designed to provide a quick reference guide to the most common MGE requirements specific to each of the four distributed generation (DG) size categories defined in PSC 119. This guide is not designed to be all-inclusive.

For a more detailed description of the application and interconnection process, please refer to PSC 119 along with the following MGE guides:

- [*Chapter PSC 119, RULES FOR INTERCONNECTING DISTRIBUTED GENERATION FACILITIES*](#)
- [*Customer-Owned Generation*](#)
- [*Connecting to Our Electric Grid*](#)
- [*Electrical Contractors Handbook*](#)

If you have questions about the application or installation process, rates or systems, please contact us.

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Quick Reference Guide for Solar DG Interconnection

Category 1: <= 20 kW AC

1. All WI PSC 119 requirements apply.
2. The customer is required to furnish and install an external interconnection disconnect switch that opens with a visual break, is accessible at all times, is located within 10' of the electric service entrance, electric meters, or transformer, location shall be pre-approved by MGE Engineering. The disconnect switch shall be capable of being locked in the open position to facilitate safe and reliable operation of MGE's electric distribution system.
 - a. The disconnect switch shall be provided with a placard that reads "MGE UTILITY DISCONNECT." The label shall adhere to the label requirements for Meters and Meter Equipment found in the Electrical Contractors Handbook, accessible from the MGE website. These requirements are in addition to the labeling requirements per PSC 119.
3. Altered, rusted, damaged, or otherwise modified equipment is not approved for use. Modifications are allowed only when the modifications do not void the UL listing or modify the cabinet beyond the manufacturer's approved means. Written confirmation from the manufacturer documenting their approval may be requested by MGE Engineering.

- a. Existing metering equipment may require replacement to accommodate bi-directional or distributed generation metering. This includes, but is not limited to, the meter socket and current transformer (CT cabinet). Approved manufacturers and models are found in the Electrical Contractors Handbook.
 - b. Meter sockets which cannot accommodate bi-directional meters must be replaced with a new meter socket.
 - c. CT cabinets that do not have bar type CTs must be replaced. All tap locations shall adhere to NEC requirements, terminals or tap locations with more than one conductor shall be listed for this use by the equipment manufacturer.
 - d. All interconnection locations shall adhere to NEC requirements. Terminals or tap locations with more than one conductor shall be listed for this use by the equipment manufacturer.
 - e. The customer must provide MGE Engineering with manufacturer's cutsheets of all proposed new equipment for review and approval as part of the application process.
4. **MGE Downtown Area Network only:**
- a. Limit the output of the proposed DG to less than 1/15 of the minimum daytime building load to prevent any export to the Network system (de-minimus approach).
 - b. At the customer's expense, MGE will furnish and install a Minimum Import Relay (MIR) protection scheme to prevent any export to the Network system.

Category 2: > 20 kW – 200 kW AC

- 1. All Category 1 requirements apply – see above.
- 2. An Application Review Fee. The Application Review will determine if an Engineering Review is required.
- 3. An Engineering Review Fee. An Engineering Review may be required to determine the suitability of the installation and the need for a distribution system impact study. The customer is responsible for costs associated with distribution system upgrades identified in the engineering review, including:
 - a. A “wye-wye” distribution transformer is required for an installation 50kW and greater. The customer is responsible for the cost associated with replacing the existing transformer with a wye-wye transformer.
 - b. Other upgrades as identified.
- 4. Distribution System Study Fee. A Distribution System Study may be required to determine if a distribution system upgrade is needed to accommodate the proposed DG facility and to determine the cost of any such upgrade. The customer is responsible for costs associated with upgrades identified.

Category 3: > 200 kW - 1 MW AC

- 1. All Category 2 requirements apply – see above.
- 2. For interconnections within this category, monitoring of the gross DG output is required. The customer is responsible for costs associated with the installation of the equipment listed in subsection a and b below. The customer shall provide adequate space for all equipment listed. The equipment needed to accomplish this will be determined by the Engineering Review and take the form of one of the following options:

- a. MGE will furnish and install an advanced metering infrastructure (AMI) Meter, potential transformers (PTs) and current transformers (CTs).
 - i. The customer will furnish and install the meter socket equipment.
 - b. Remote Control Equipment capable of monitoring and disconnecting the DG facility from the distribution system, including:
 - i. MGE will furnish and install remote terminal unit (RTU) control equipment.
 - ii. The customer will furnish and install a 24 V DC shunt trip DG breaker, with a minimum of 2 auxiliary contacts for MGE use, owned and maintained by the customer.
 - c. The customer will furnish and install suitable PT cabinet and CT cabinet for both options listed above. Contact MGE Engineering for requirements.
3. A Distribution System Impact Study may be required to determine if a distribution system upgrade is needed to accommodate the proposed DG facility and the cost of any such upgrade. The customer is responsible for the cost of the study as well as costs associated with any upgrades identified. Below is a list of common distribution system upgrades:
- a. Direct Transfer Trip (DTT) system.
 - b. Grounding transformer.
 - c. Substation and Transmission system improvements.
 - d. Other modifications as determined by the study.

Category 4: > 1 MW – 15 MW AC

1. All Category 3 Requirements apply.
2. Contact MGE for additional requirements.

The following requirements apply to ALL categories listed above:

1. MGE will contact the transmission provider, American Transmission Company, to complete a Load Interconnection Request Form (LIRF) if the aggregate generation at the Transmission-Distribution interconnection surpasses 1 MW. The customer may be responsible for LIRF-related costs associated with distribution or transmission system upgrades identified in the engineering review or distribution study.
2. When the normal utility circuit is unavailable due to planned maintenance or unplanned outages, the DG may be disconnected from MGE's electric distribution system (via SCADA telemetry command or operation of the external disconnect) for such time until the normal circuit is available.
3. For Enhanced Electric Reliability System (EERS) or automatic transfer switch (ATS) customers only, the DG will be required to come offline in the event of an ATS operation (from normal utility circuit to alternate utility circuit) – see Category 3, Section 2 for RTU Control Equipment requirements.
 - a. Exception: Customers who wish to interconnect the DG to the alternate circuit may be able to do so if the customer is willing to incur the costs of an additional distribution system impact study as well as the costs of any resulting distribution system modifications resulting from said study.