

Richland Electric Cooperative

ELECTRIC SERVICE RULES – DISTRIBUTED GENERATION

800. SCOPE

This chapter includes distributed or Member-owned generation interconnected in parallel and operating with Cooperative's electric distribution system. This is not a standalone section but contains pertinent information relating to Distributed Generation (DG) installations for qualified electricians performing work on or installing DG. All Cooperative service rules apply.

For all Distributed Generation (DG) installations, please contact Cooperative at 608-647-3173 or by email to dg@rec.coop for PERMISSION TO INTERCONNECT

DG interconnection may be an option for single and three phase Members. Characteristics of Cooperative's electrical system vary by circuit. Not every size, voltage or type of generator can be interconnected at every location.

The Member shall supply Cooperative with the required electrical drawings and application for the proposed DG prior to installation. Cooperative may specify and require certain protective schemes based on the size, location and other factors of the generating unit proposed.

These service rules are subject to change from time to time. Prior to any installation the responsible party should contact Cooperative to confirm these rules reflect the latest revisions. All new installations shall comply with the latest revision of these rules prior to interconnection. Projects with prior application approval, but not yet installed at the time of any service rule change, will be required to comply with the latest revisions.

801. TECHNICAL INFORMATION

For technical information and requirements, applications, agreements and other additional resources.

Additional Guidelines, Requirements & Code:

- *National Electrical Code (NEC)*
- Wisconsin State Legislature (Wisconsin Administrative Code)
 - Chapter PSC 119 – Rules For Interconnecting Distributed Generation Facilities
- Underwriters Laboratories, UL 1703, UL 1741 and others
- IEC 61730

For additional information, contact Cooperative at 608-647-3173.

802. WIRING INSPECTIONS

- A. Member wiring installations shall meet the minimum requirements set forth by the State of Wisconsin and the local Authority Having Jurisdiction (AHJ). Cooperative shall receive written approval from the AHJ.
- B. For all commercial and new residential services, a Certificate of Electrical Inspection is required before Cooperative will schedule energizing the service or installing any interconnection metering.
- C. Cooperative reserves the right to inspect for compliance with its service rules but assumes no responsibility for inspection of the customer's installation. Any conditions found that are deemed to not comply with Cooperative service rules shall be corrected prior to energizing the service. If such conditions create the need for additional site visits the Cooperative may assess additional charges.
- D. If Cooperative personnel is on site and notices installation may be unsafe or non-compliant, Cooperative reserves the right to request an inspection prior to energizing customer, including on installations where the municipality only requires an Electrician's Affidavit.

803. METERING EQUIPMENT

- A. A bi-directional meter is required at all DG facilities to properly meter forward and reverse power flow. This may require a site visit by Cooperative metering personnel.
- B. Metering equipment may require replacement to accommodate DG metering. Such as, but not limited to:
 - 1. Round-ring sockets
 - 2. Rusted or damaged sockets or cabinets
 - 3. Sockets or cabinets with inadequate internal or external clearances
- C. Modifying or installing lugs in a meter socket, pedestal or metering transformer cabinet other than what is listed on the manufacturer's drawing associated with the UL Listing is not allowed.
- D. Metering equipment and disconnecting means shall be accessible to Cooperative personnel. Accessible means the equipment shall be capable of being reached/accessed for programming, reading, probing, inspection and service without climbing, removing obstacles, utilizing ladders, entering locked areas, etc. Equipment that is not readily accessible will be required to be made accessible by the Member before interconnection of DG will be allowed.

804. COOPERATIVE DISTRIBUTION SYSTEM

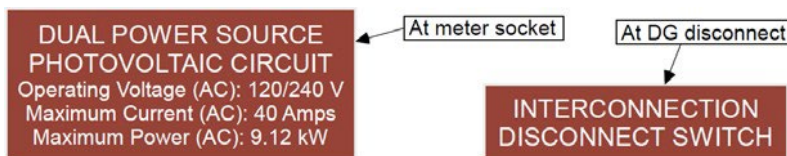
All modifications and additions to Cooperative’s electrical distribution system in order to accommodate distributed generation facilities will be at the Member’s expense.

805. OPTIONAL STANDBY GENERATOR USED WITH DG

Where a Member operates both distributed generation and an optional standby generator, the standby generator shall be installed in accordance with the connection and transfer switch requirements of other service rules of the Cooperative. Member should contact the Cooperative to obtain specific requirements for these types of installations and such requirements may be site specific.

806. LABELING REQUIREMENTS

- A. It is the responsibility of the Member to comply with any and all labels required by the *NEC* or other jurisdictional codes and requirements.
- B. Member shall provide and install a “Dual Power Source” placard at the meter socket indicating the operating voltage, maximum current and maximum power of the solar PV system that is installed. Member shall provide an “Interconnection Disconnect Switch” label at the DG disconnect. Example labels shown below:



- C. Permanent labeling is required; Labeling shall be rigid engraved plastic, engraved self-sticking brass or engraved self-sticking aluminum.
- D. Labeling shall use a minimum of ¼ inch block lettering.

807. POINT OF INTERCONNECTION

- A. Preferred Methods
 1. Meter socket with factory installed dual lugs or manufacturer approved multi-lug kit installed, 320A meter socket is preferred.
 2. DG connected via properly sized sub-breaker downstream from the main in service panel
 3. Meter socket with Main for Alternative Energy
 4. Attached to metering transformer cabinet with available lugs

- B.** Not Permitted when connecting DG on the line side of Member's service entrance overcurrent protective device (Breaker/Fuse).
 - 1. Splices
 - 2. Split bolts
 - 3. Tap connectors
 - 4. Insulation piercing connectors
 - 5. Installing more cables than lugs are designed to handle
 - 6. Modifying or installing lugs on any equipment on the line side of the overcurrent protective device, other than what is listed on the manufacturer's drawing associated with the UL Listing.
 - 7. Any other modifications to meter sockets or metering transformer cabinets

808. INTERCONNECTION DISCONNECT SWITCH (DISCONNECTION DEVICE) REQUIREMENTS

- A.** A device capable of disconnecting DG facilities from the electrical distribution system shall be installed at every DG site.

The disconnection device should be located within 10 feet of the Cooperative's electric meter. Disconnection device shall be located in an accessible location. If the disconnection device cannot be located within 10 feet of the Cooperatives electric meter, with specific permission from the Cooperative, a permanent placard shall be installed on the meter socket indicating the location of the interconnection disconnect switch and distance in feet from the meter to the disconnection device. Placards are not a suitable replacement for the disconnect switch not being visible from the meter location. The back side of a field-built structure, such as an equipment backboard, or around the corner of a building is not considered to be visible from the electric meter.

- B.** Disconnection device shall be mounted at a height where the bottom of the enclosure is not less than 30 inches and the top of enclosure is not higher than 72 inches. In the event that the disconnect device enclosure is more than 42 inches in height the handle to operate the device shall be located at 48 inches.
- C.** Disconnection device shall open with a visual break, be able to be locked open, be capable of disconnecting and de-energizing distributed generation and shall conform to technical guidelines and state requirements. All single throw disconnect switches shall be connected such that their blades are de-energized when the switch is in the open position.

- D. The disconnection device should disconnect DG only and should not disconnect any load except with prior permission from the Cooperative and a signed amendment to the interconnection agreement. The amendment to the DG Interconnection Agreement will indemnify the Cooperative for any damages caused because of the Cooperative utilizing a disconnect which also disconnects any load.
- E. Any DG connection on the line side of the main service disconnect(s) shall have a service entrance rated disconnect switch with overcurrent protection.
- F. The DG facility shall only be interconnected with a single metered service. Members who have special metering for the purposes of utilizing additional rate schedules should verify that no meters are serving as subtractive/deductive (REC Dual-Fuel, Electric Thermal Storage, EV Charging Programs, etc.). No DG facility may interconnect to a metered service with subtractive/deductive metering installed and the Member will be required to modify their system to either remove the subtractive/deductive metering and unsubscribe from such programs or to modify the metering to establish parallel metering. Also the Member is NOT allowed to feed DG from one building's electrical system into another buildings electrical system when the two buildings are fed from separate metered electrical services.
- G. Farm Services utilizing a Site-Isolating Device
DG interconnections shall not be allowed on the line side of the site-isolating device as defined by NEC 547.9.
- H. Remote Buildings fed from main service panel or sub-panel
 1. For facilities with multiple buildings where the DG is installed on a remote building, within the line of sight from the utility electric meter. A permanent placard shall be installed on the meter socket indicating the location of the interconnection disconnect switch and distance in feet from the meter to the disconnection device.
 2. Main disconnection device for remote building may be used as the disconnection device at the meter. However, a separate DG only disconnect is recommended on the exterior of the remote building at the DG location. If this method is utilized the member will be required to execute an amendment to the DG Interconnection Agreement which indemnifies the Cooperative for any damages caused because of the Cooperative utilizing the main service of the remote building as DG disconnect.

809. BATTERY ENERGY STORAGE SYSTEMS

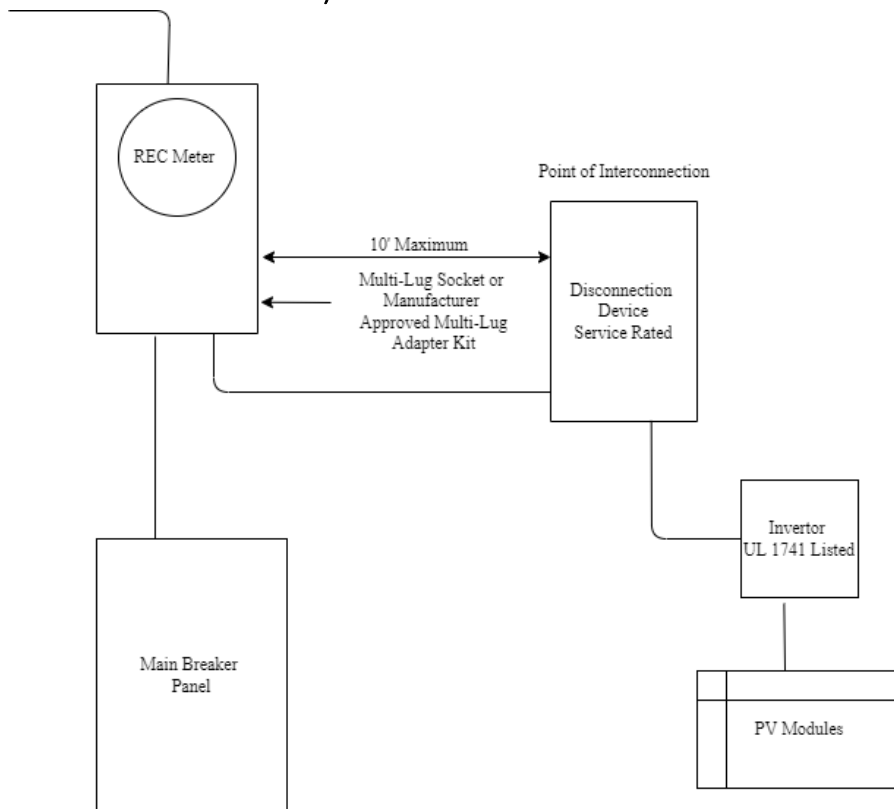
- A. Battery energy storage systems shall use UL 1741 utility-interactive inverters. Energy storage system transfer devices are subject to the same requirements as standby generation systems.

DRAWINGS

Sample one-line diagrams are shown in 810 – 817; consult Cooperative for any installations not covered in these diagrams.

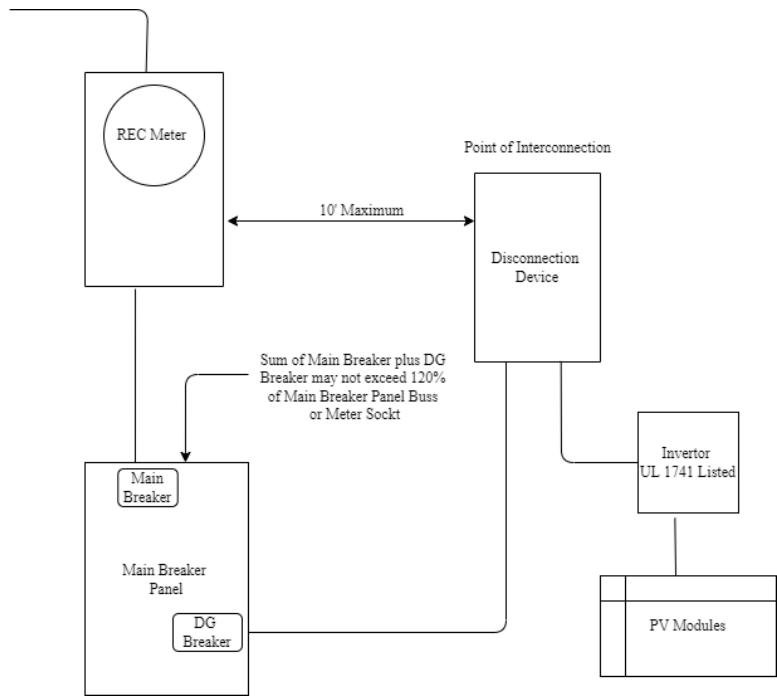
Informational Note: Cooperative meter and service lateral or drop are furnished and installed by Cooperative, all other equipment shown is furnished and installed by Member.

810. 1-PHASE/3-PHASE SELF-CONTAINED, MULTI-LUG SOCKET OR MULTI-LUG ADAPTER
(PREFERRED INSTALLATION)



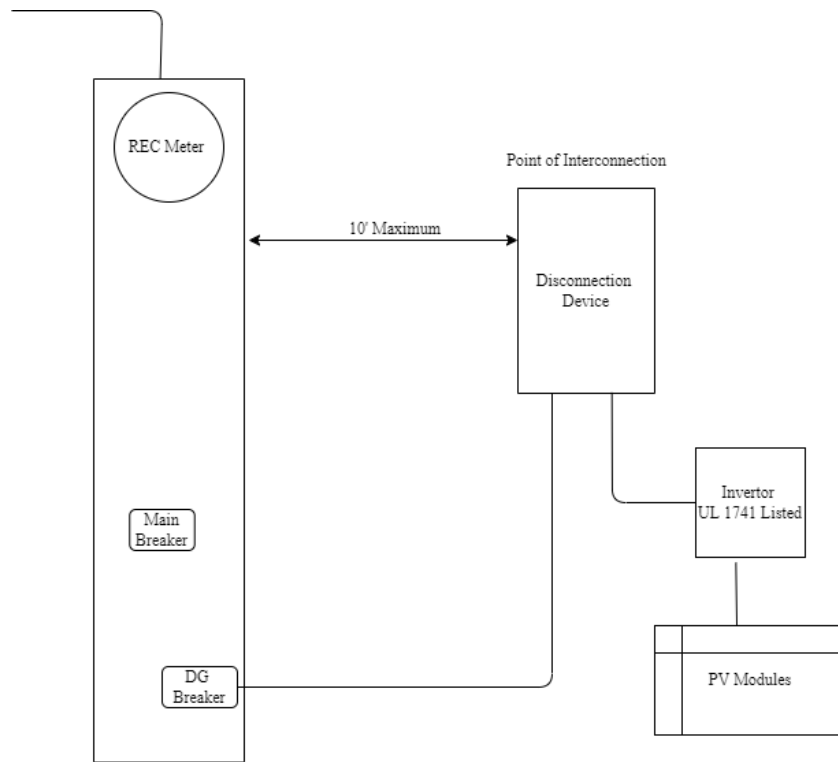
- A) Sum of Main Breaker rating plus DG Breaker rating shall not total more than 120% of Meter Enclosure Busbar rating
- B) Four/Five wire system, and/or appropriate bonding must be installed in accordance with applicable WI SPS 316 and NEC

811. 1-PHASE/3-PHASE, SELF-CONTAINED, SINGLE LUG METER SOCKET



- A) Sum of Main Breaker rating plus DG Breaker rating shall not total more than 120% of Meter Enclosure /Panel Main Busbar rating
- B) Four/Five wire system, and/or appropriate bonding must be installed in accordance with applicable WI SPS 316 and NEC

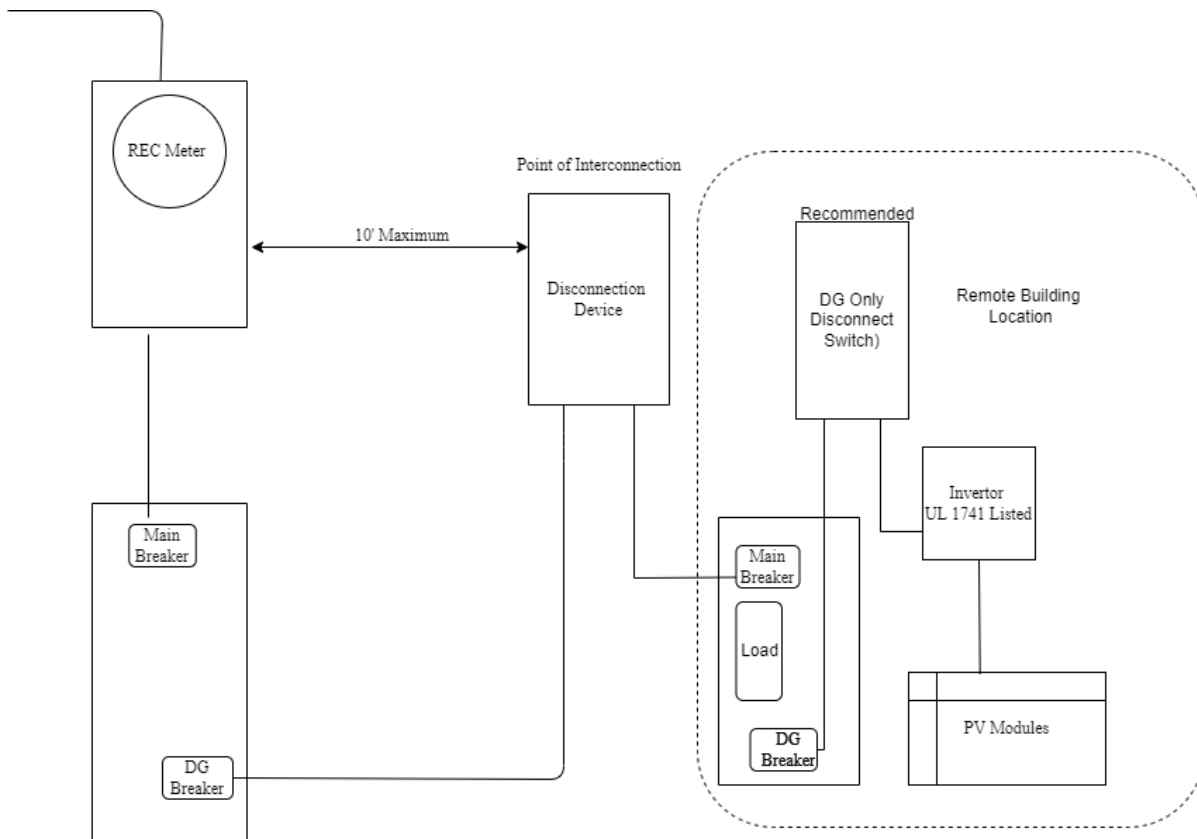
812. 1-PHASE/3-PHASE, SELF-CONTAINED, APPROVED ALTERNATE ENERGY METER SOCKET, 200 AMP MAIN, 60-70 AMP DG BREAKER



- A) Sum of Main Breaker rating plus DG Breaker rating shall not total more than 120% of Meter Enclosure /Panel Main Busbar rating
- B) Four/Five wire system, and/or appropriate bonding must be installed in accordance with applicable WI SPS 316 and NEC

813. 1-PHASE/3-PHASE, SELF-CONTAINED, SINGLE UG METER WITH DG AT REMOTE BUILDING > 30' FROM METER

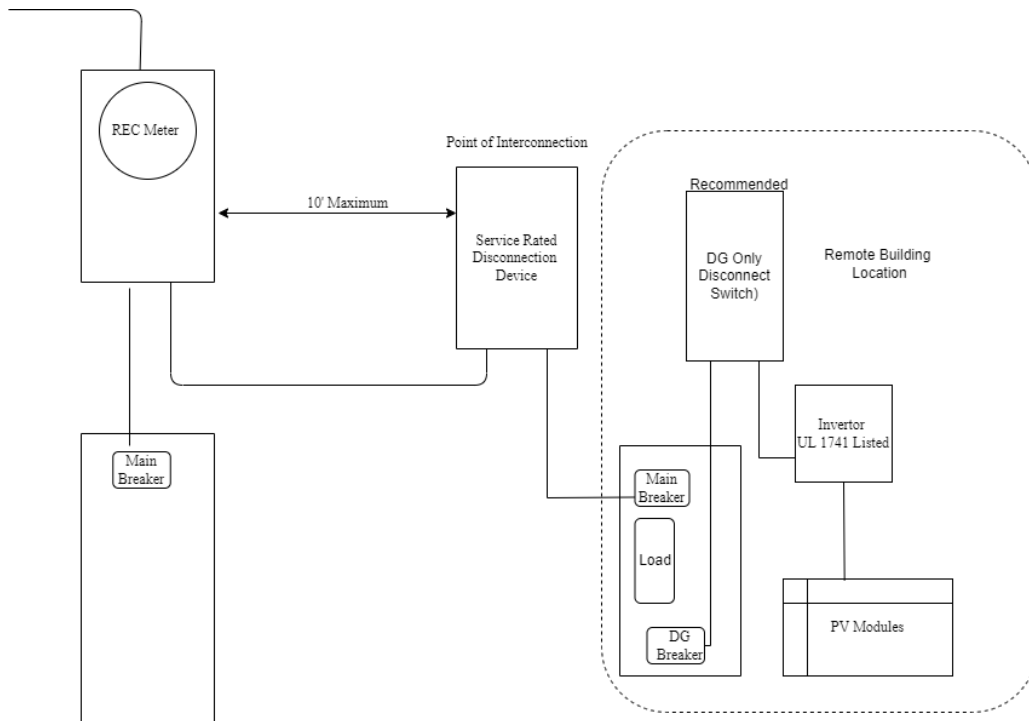
INTERCONNECTION AGREEMENT AMENDMENT REQUIRED TO UTILIZE THIS METHOD



- A) Sum of Main Breaker rating plus DG Breaker rating shall not total more than 120% of Meter Enclosure /Panel Main Busbar rating
- B) Four/Five wire system, and/or appropriate bonding must be installed in accordance with applicable WI SPS 316 and NEC

814. 1-PHASE/3-PHASE, SELF-CONTAINED, DUAL LUG METER OR APPROVED MULTI-LUG ADAPTER KIT W/ DG @ REMOTE BUILDING > 30' FROM METER

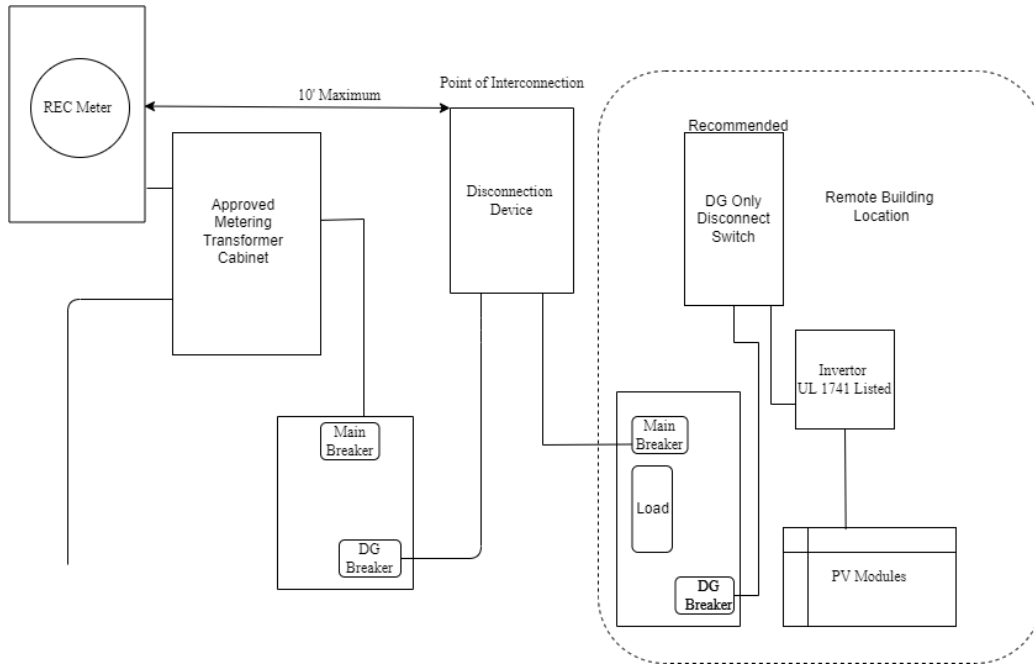
INTERCONNECTION AGREEMENT AMENDMENT REQUIRED TO UTILIZE THIS METHOD



- A) Sum of Main Breaker rating plus DG Disconnect Fuse shall not total more than 120% of Meter Enclosure Busbar rating
- B) Four/Five wire system, and/or appropriate bonding must be installed in accordance with applicable WI SPS 316 and NEC

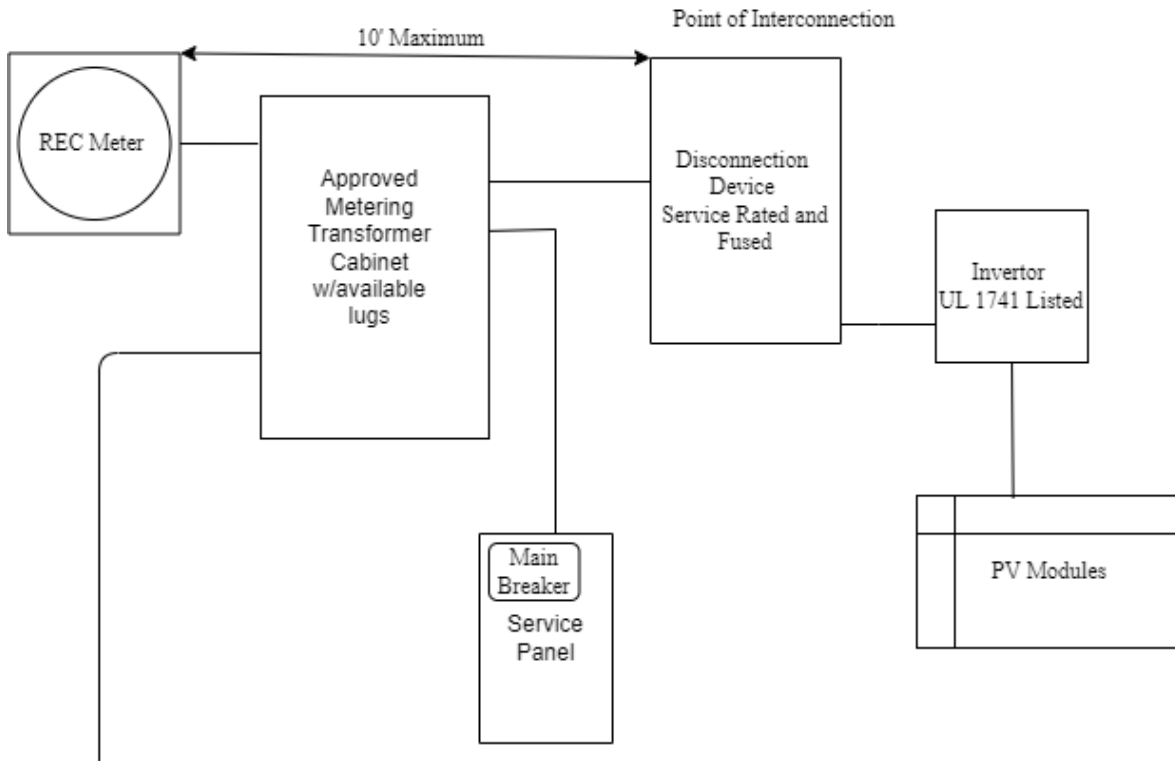
815. 1-PHASE/3-PHASE, METERING TRANSFORMER CABINET (Without Available Lugs In Metering Transformer Cabinet)- REMOTE BUILDING

INTERCONNECTION AGREEMENT AMENDMENT REQUIRED TO UTILIZE THIS METHOD



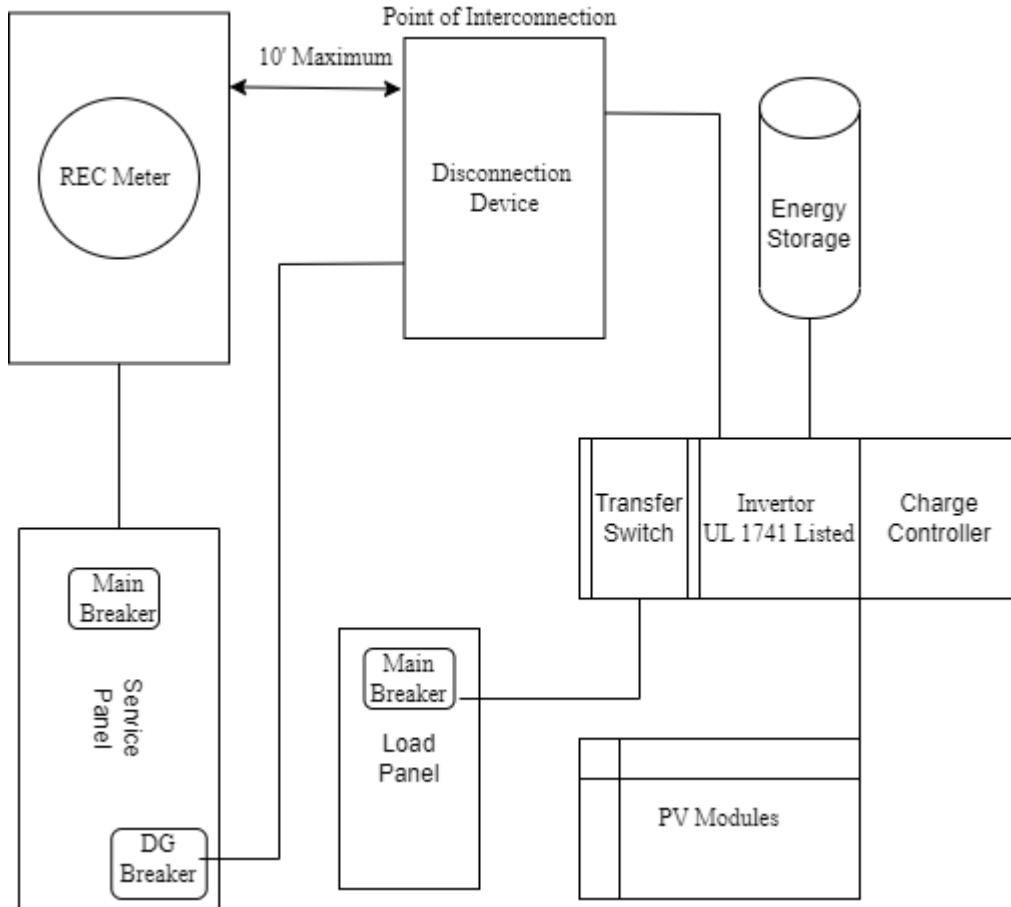
- A) Sum of Main Breaker rating plus DG Disconnect Fuse shall not total more than 120% of Metering Transformer Cabinet Busbar Rating—Must coordinate with Cooperative to ensure proper CT/VT Sizing.
- B) Four/Five wire system, and/or appropriate bonding must be installed in accordance with applicable WI SPS 316 and NEC

816. 1-PHASE/3-PHASE, METERING TRANSFORMER CABINET,
WITH AVAILABLE LUGS IN METERING TRANSFORMER CABINET



- A) Sum of Main Breaker rating plus DG Disconnect Fuse shall not total more than 120% of Metering Transformer Cabinet Busbar Rating—Must coordinate with Cooperative to ensure proper CT/VT Sizing
- B) Four/Five wire system, and/or appropriate bonding must be installed in accordance with applicable WI SPS 316 and NEC

817. 1-PHASE/3-PHASE, SELF-CONTAINED, SINGLE LUG
 + BATTERY STORAGE SYSTEM LOAD PANEL



- A) Sum of Main Breaker rating plus DG Disconnect Fuse shall not total more than 120% of Service Panel Busbar Rating
- B) Four/Five wire system, and/or appropriate bonding must be installed in accordance with applicable WI SPS 316 and NEC

