

PSC NO: 2 ELECTRICITY
COMPANY: MASSENA ELECTRIC DEPARTMENT
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2. Inverters

Direct current generation can only be installed in parallel with the utility's system using a synchronous inverter. The design shall be such as to disconnect this synchronous inverter upon a utility system interruption.

It is recommended that equipment be selected from the "Certified Equipment" list maintained by the PSC. Interconnected Distributed Generating systems utilizing equipment not listed in the "Certified Equipment" list must meet all functional requirements of IEEE Std 1547 and be protected by utility grade relays (as defined in these requirements) using settings approved by the utility and verified in the field. The field verification test must demonstrate that the equipment meets the voltage and frequency requirements detailed in this section.

Synchronization or re-synchronization of an inverter to the utility system shall not result in a voltage deviation that exceeds the requirements contained in the Power Quality section of this tariff. Only inverters designed to operate in parallel with the utility system shall be utilized for that purpose.

A line inverter can be used to isolate the customer from the utility system provided it can be demonstrated that the inverter isolates the customer from the utility system safely and reliably.

3. Minimum Protective Function Requirements

Protective system requirements for distributed generation facilities result from an assessment of many factors, including but not limited to:

- Type and size of the distributed generation facility
- Voltage level of the interconnection
- Location of the distributed generation facility on the circuit
- Distribution transformer
- Distribution system configuration
- Available fault current
- Load that can remain connected to the distributed generation facility under isolated conditions
- Amount of existing distributed generation on the local distribution system.

As a result, protection requirements can not be standardized according to any single criteria. Minimum protective function requirements shall be as detailed in the table below. ANSI C37.2, Electric Power System Device Function Numbers, are listed with each function.

| Synchronous Generators | Induction Generators | Inverters |
|--|--|--|
| Over/Under Voltage (Function 27/59) | Over/Under Voltage (Function 27/59) | Over/Under Voltage (Function 27/59) |
| Over/Under Frequency (Function 81O/81U) | Over/Under Frequency (Function 81O/81U) | Over/Under Frequency (Function 81O/81U) |
| | | Anti-Islanding Protection |

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