WE ENERGIES WORK PROCEDURE

Work Procedure	MANUAL SECTION: 021 Distribution Engineering – Technical – Part 3	
	Work Procedures Dept.: Call 262-574-6045	DOCUMENT NO.: 021-011.80
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ASSOCIATED DOCUMENTS: Wisconsin Administrative Code Rules, Chapter PSC 119, Rules for interconnecting distributed generation facilities		
SUBJECT: Customer-owned Generation Commissioning – Inverter Based		

SCOPE

This document provides guidance and required actions in regards to commissioning customer-owned, renewable energy projects that utilize an inverter. These systems shall be interconnected with the electric distribution system. Examples of inverter based customer owned generation are as follows: Solar, battery, wind, biogas or other inverter based prime mover systems.

GENERAL

All customer-owned generation systems with a capacity of 15 megawatts (MW) or less, must comply with Wisconsin Administrative Code Rules, Chapter PSC 119 Rules for interconnecting distributed generation facilities. This work procedure applies to residential or small commercial systems 20kW or less. The customer and installer are responsible for following the interconnection rules of the Public Service Commission of Wisconsin (PSCW) and for meeting all We Energies tariff requirements.

In general, all customer-owned generation equipment installations shall be evaluated and tested for proper operation, interconnection and metering per current We Energies requirements. Customer-owned generation systems shall include, but not limited to, solar photovoltaic, wind and biogas.

To ensure consistent results, application engineering personnel shall perform both anti-islanding and grid-reconnection commissioning tests for all customer-owned generation systems interconnected with the We Energies electric distribution system. These tests verify the customer-owned generation automatically disconnects from the utility system upon loss of voltage, and waits to reconnect once the utility system is stable. Testing for systems significantly larger (greater than 20 kW) or more complicated systems shall be coordinated between the application and protection engineering groups.

PROCEDURE

1. INVERTER BASED CUSTOMER-OWNED GENERATION SYSTEM TESTING

1.1. After notification that an installation is complete, field application engineering shall perform the anti-islanding and grid-reconnection tests to verify protective equipment settings and proper system operation.

1.2. Verify all equipment (e.g. photovoltaic panels, inverter, utility disconnect switch, etc.) matches the one-line diagram submitted with the customer-owned generation application.

1.3. We Energies meter

1.3.1. Verify meter(s) is(are) installed in the customer-owned genertion meter socket(s).

1.4. Utility required customer-owned generation disconnect

1.4.1. Verify the disconnect switch is located in a readily accessible location.

1.4.2. Verify the disconnect switch blades are in the open position.

1.5. Measurements

1.5.1. Installer shall turn on the customer-owned generation system inverter(s).

1.5.2. Determine an appropriate location to measure voltage and backfeed from the customer-owned generation system. (A typical location is the load side of the disconnect switch.)

1.5.2.1. Measure proper voltage on the line side of the customer-owned generation system.

1.5.2.2. Measure voltage on the load side of the customer-owned generation disconnect switch. Voltage shall be zero (0) V.

1.5.3. Close disconnect switch.

1.5.3.1. Measure current on load side of the utility disconnect switch. Current shall be 0 (zero) A*.

*Note: Some inverter systems will not have zero amperes of current due to parasitic losses opf the inverter(s).

1.5.4. The customer-owned generation inverter(s) shall wait a minimum of five (5) minutes (300 seconds) before interconnection with the utility system is established.

1.5.4.1. Measure current on load side of the disconnect switch. Depending on atmospheric conditions, the current should be greater than 0 (zero) A*.

*Note: The current should be greater than previously measured in step 1.5.3.1. If it is not, the system will need to be retested once atmospheric conditions improve.

1.5.5. Open disconnect switch.

1.5.5.1. Measure voltage on the load side of the customer-owned generation disconnect switch. Voltage shall be zero (0) V within approximately 2 seconds after disconnection.

2. TESTING APPROVAL/REJECTION

2.1. Approval or rejection of interconnection shall be given to the customer and installer.

2.2. If approved, a written statement of final acceptance is provided. If the system fails testing, the installer shall take take corrective action to fix the system. Afterwich, the system shall be retested for proper operation.

3. INTERCONNECTION AGREEMENT

3.1. After the customer receives the interconnection approval, a distributed generation interconnection agreement must be signed.