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Rochester Gas and Electric Corporation  
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## GENERAL INFORMATION

### 14. DISTRIBUTED GENERATION INTERCONNECTION REQUIREMENTS (Cont'd)

**Reset Timer Test:** These tests shall also verify the inverter or power producing facility shall not automatically reconnect to the waveform generator until after five (5) minutes of continuous normal voltage and frequency. The manufacturer may supply a special production sample with the five-minute reset timer disabled to eliminate waiting time during type testing. At least three tests must be performed on a sample with a five-minute reset timer to verify the function and accuracy of the timer. The test will be considered a failure if, in any one of the tests, the inverter automatically reconnects to the utility system prior to the required five-minute time interval.

**Test 1:** With the generator and inverter output stabilized at 60 Hz and 100% of rated voltage (120 V rms) and the inverter output between 0.5 and 1.0 per unit power, ramp the generator voltage up to 111% of rated (133 V rms) at a rate no greater than 5 volts per second. Measure and record the frequency and voltage. The frequency must remain within 0.2 Hz of 60 Hz and the voltage may not exceed 114% of rated (137 V rms). The inverter must cease to export power within two seconds (120 cycles) of the first half-cycle reaching 111% of rated voltage (188 V) peak to neutral. Repeat the test with the inverter output below 0.1 per unit power.

**Test 2:** Insert a tapped transformer and a breaker between A phase of the generator and A phase of the inverter arranged such that when the breaker is opened or closed, A phase of the inverter receives half the voltage of the generator. With the generator and inverter output stabilized at 60 Hz and 99% of rated voltage (119 V rms) and the inverter output between 0.5 and 1.0 per unit power, operate the breaker so A phase of the inverter only receives 48% of rated voltage (58 V rms). Measure and record the frequency and voltage. The frequency must remain within 0.2 Hz of 60 Hz and the voltage may not drop below 46% of rated (55 V rms) on A phase of the inverter or below 92% of rated (110 V rms) on B or C phases of the inverter. The inverter must cease to export power within six cycles of when the first half cycle of voltage on A phase of the inverter drops below 49% of rated (83 V) peak to neutral. Repeat the test applying half voltage to B and C phases. And repeat the test for all phases with the inverter output below 0.1 per unit power.

**Test 3:** With the generator and inverter output stabilized at 60 Hz and 100% of rated voltage (120 V rms) and the inverter output between 0.5 and 1.0 per unit power, ramp the generator voltage down to 87% of rated (105 V rms) at a rate no greater than 5 volts per second. Measure and record the frequency and voltage. The frequency must remain within 0.2 Hz of 60 Hz and the voltage must not drop below 82% of rated (99 V rms). The inverter must cease to export power within two seconds (120 cycles) of the first half-cycle reaching 85% of rated voltage (145 V) peak to neutral. Repeat the test with the inverter output below 0.1 per unit power.

**Test 4:** Insert a tapped transformer and a breaker between A phase of the generator and A phase of the inverter arranged such that when the breaker is opened or closed, A phase of the inverter receives four-fifths the voltage of the generator. With the generator and inverter output stabilized at 60 Hz and 107% of rated voltage (128 V rms) and the inverter output between 0.5 and 1.0 per unit power, operate the breaker so that A phase of the inverter only receives 87% of rated voltage (105 V rms). Measure and record the frequency and voltage. The frequency must remain within 0.2 Hz of 60 Hz and the voltage may not drop below 82% of rated (99 V rms) on A phase of the inverter, or below 92% of rated (110 V rms) on B or C phases of the inverter. The inverter must cease to export power within two seconds (120 cycles) of when the first half cycle of voltage on A phase of the inverter drops below 85% of rated (145 V) peak to neutral. Repeat the test applying low voltage to B and C phases. And repeat the test for all phases with the inverter output below 0.1 per unit power.

**Test 5:** With the generator and inverter output stabilized at 60 Hz and 100% of rated voltage (120 V rms) and the inverter output between 0.5 and 1.0 per unit power, ramp the generator frequency up to 60.6 Hz at a rate no greater than 0.5 Hz/second. Measure and record the frequency and voltage. The voltage must remain between 96% (115 V rms) and 104% of rated (125 V rms) and the frequency must not exceed 60.8 Hz. The inverter must cease to export power within six cycles of the frequency exceeding 60.5 Hz (8.25 ms between zero crossings). Repeat the test with the inverter output below 0.1 per unit power.

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