GENERAL INFORMATION

9. Distributed Generation Interconnection Requirements (Cont'd.)

F. II. Interconnection Requirements for New Distributed Generators 300 kVA or Less, or Farm Waste Generators of 400 kW or Less, Connected to Radial Distribution Lines (Cont'd.)

b. Three-Phase Inverters and Relays (Cont'd.)

The tests shall include:

Non-Volatile Memory Test: Prior to waveform testing, all batteries shall be disconnected or removed for a minimum of ten (10) minutes. If the system requires no battery, then the device shall be disconnected from its source of power for a minimum of ten (10) minutes. This test is to verify the system has a non-volatile memory and that the protection settings are not lost. A test shall also be performed to determine that failure of any battery used in the power conversion and control process will result in an automatic shutdown.

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 NYSEG 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.