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**New York State Photovoltaic Interconnection Standards
for Residential Solar Electric Power Producing
Facilities of 10 kW or Less**

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(Revised: December 1999)**

Technical Requirements For Interconnecting Residential Photovoltaic Power Producing
Facilities 10 kW or Less, Single Phase, 600 Volts or Less, in Parallel With a Utility System

1. Design Requirements
 - A. The power producing facility shall be tested by a nationally recognized testing laboratory and conform to all applicable local, state and federal building codes and National Standards and any authorities having jurisdiction.
 - B. The power producing facility shall have an automatic switching device operated by over and under voltage protection and over and under frequency protection:
 - 1) The power producing facility shall automatically disconnect from the utility system within six cycles if the voltage falls below 60 volts (nominal 120 volt base) at the inverter interface point.
 - 2) The power producing facility shall automatically disconnect from the utility system within two seconds if the voltage rises above 132 volts or falls below 104 volts (nominal 120 volt base) at the inverter interface point.
 - 3) The power producing facility shall automatically disconnect from the utility system within two cycles if the voltage rises above 180 volts (nominal 120 volt base) at the inverter interface point.
 - 4) The power producing facility automatically shall disconnect from the utility system within six cycles if the frequency rises above 60.5 Hertz or falls below 59.3 Hertz at the inverter interface point.
 - 5) Following a power producing facility disconnect as a result of a voltage or frequency excursion as stated in Section (1)(B)(1-4) above, the power producing facility shall remain disconnected until the utility service voltage has recovered to utility acceptable voltage and frequency limits for a minimum of five minutes.
 - 6) The above set points shall not be changed or modified by the power producing facility owner or representative.
 - 7) All devices or systems used for voltage and frequency measurement and automatic disconnection shall be type tested by the manufacturer for both static and dynamic performance. Type testing requirements for photovoltaics may be found in the New York Standardized Interconnection Requirements for New Distributed Generators 300 Kilovolt-Amperes or Less, Connected in Parallel with Radial Distribution Lines under "Test Requirements, Type Testing." Proof of proper performance shall be in the

form of a certified test report. At the time of production, design and performance must meet or exceed requirements of ANSI/IEEE Standards C37.90.1 and 929. If the power producing facility does not comply with these requirements, utility grade protective relays, approved by the utility, are required.

2. Manual Disconnect Device

- A. The power producing facility shall be capable of being isolated from the utility system by means of an external, manual, visible load break, disconnecting switch installed by the owner of the power producing facility, electrically located between the power producing facility and the utility system.
- B. The disconnect switch shall be located within 10 feet of the external electric service meter.
- C. The disconnect switch shall be readily accessible for operation by utility personnel at all times and be capable of being padlocked only in the open position. Operation of this switch is at the sole discretion of the utility without prior notice.
- D. The disconnect switch shall be clearly marked, "Generator Disconnect Switch" with permanent 3/8 inch letters or larger.

3. Dedicated Distribution Transformer

- A. The connecting utility reserves the right to require that the power producing facility connects to the utility's system through a dedicated distribution transformer if the utility decides that the transformer is necessary to ensure conformance with utility safe work practices, to enhance service restoration operations or to prevent detrimental effects to other utility customers.

4. Network Application

- A. The utility reserves the right to exclude the power producing facility from connection to secondary network utility systems.

5. Power Producing Facility Performance

- A. The electrical output of the power producing facility shall meet the latest IEEE Standard 519 and ANSI C84.1 at the time of placement into service.

6. Testing and Maintenance

- A. Upon initial parallel operation of the photovoltaic system, or any time a photovoltaic system adjustment or revision is made, a system functional test demonstrating compliance with Section (1)(B)(1-5) above is required, including written certification of compliance with all of the terms of this Appendix, by a licensed or qualified installation contractor acceptable to the utility. This test is a system acceptance test demonstrating to utility personnel that the photovoltaic system controls are operational and disconnect from the utility when the utility voltage and frequency parameters are outside of the limits described in Section (1)(B)(1-5) above. Built-in software testing routines may be used to verify, on demand, correct operation of the photovoltaic system controls. The software testing routines shall be production verified and tested.
- B. The connecting utility reserves the right to require the power producing facility owner to operationally test the photovoltaic system controls. The utility will either witness the test or will require written certification by a licensed or qualified installation contractor acceptable to the utility.