



Considerations Related to Connecting Solar Generating Facilities to the Electrical Grid

March 2011

LIPA Interconnect Guide for 300 kva and Above to Distribution System



- LIPA's Distribution system voltages are nominally 4.5kv and 13.2kv. The solar system must maintain voltage within +/-5%.
- The equipment must be disconnected within 0.16 seconds for a frequency of 60.5 Hz or more and within 1.0 second for a frequency of less than 58.0 Hz.
- SGF connected to the Distribution system via a non-dedicated feeder is limited to 3 MVA per circuit.
- Any single harmonic shall not exceed 3% of the fundamental frequency.

Interconnection Complications Experienced



- Inverter manufacturers could not guarantee SGF could disconnect from the LIPA system within the 8 cycles required by the interconnect guide.
- This resulted in LIPA requiring a delta (SGF side) / wye-grounded (LIPA side) step up transformer to be utilized.

Interconnection Complications Experienced (Continued)



- If the generator is not grounded during the period it is isolated with the phase to ground fault, the neutral can shift resulting in overvoltage on the two remaining unfaulted phases. This overvoltage can reach 173% of normal and will damage LIPA phase to ground connected load or equipment isolated with the generator.

Other Installation Considerations

- Siting
 - ✓ Single site (large land mass needed)
 - ✓ or multiple sites (multiple leases, interconnect points, construction forces)
 - ✓ Ground based, roof top (weight issues) or car port
- Tracking versus Non-tracking
- Regulator concerns (i.e. FAA)
- Type of circuit in location of proposed installation
 - ✓ Underground
 - ✓ Distance from PCC (Power Control Center)