Application For Interconnection Requirements
Attachment A

Application Phase Requirements

1. Completed Application
2. Payment of Initial Review Fee
3. Selection of a single interconnection point
4. Single-line diagram of the customer's system showing all major electrical equipment from the generator to the point of interconnection with the IPL system, including generators, transformers, switchgear, switches, breakers, fuses, protection components, instrument transformers, auxiliary equipment, switching requirements, etc.
5. Site Plans showing the physical location of major equipment.
6. Relevant ratings of equipment. Transformer information should include capacity ratings, voltage ratings, winding arrangements, and impedance.
7. Protection system description including protection package, disconnecting means, synchronizing capabilities, etc.
8. For Certified* equipment, documentation confirming that a nationally recognized testing and certification laboratory has listed the equipment.
9. A description of how the generator system will be operated including all modes of operation including normal and abnormal conditions.
10. This interconnection request is for (identify one):
    - o A proposed new generating facility
      Provide Maximum MW/MVAR output
    - o A change in the existing capacity of a single generator
      Provide before MW/MVAR output
      Provide after MW/MVAR output
    - o Additional new generation at a site with existing generation
      Provide Existing MW/MVAR output
      Provide Additional MW/MVAR output
11. Proposed Commercial Operation Date
12. Proposed Interconnection Facilities In-Service Date

Impact Study Phase Requirements

1. General - All Generation Types
    - o Completed Application Phase Requirements
    - o Completed Impact Study Attachment A Information Listed Here
    - o Payment of Impact Study Fee
    - o Signed Original Impact and Facility Study Agreement
    - o Letter of Intent or Verification of Property Owner Consent
    - o State desired rate treatment based on IPL Rates Department feedback
    - o Description of how the installation will meet the requirements of IEEE Std. 1547 and UL 1741.
    - o Three line diagram of generator and auxiliary system package
    - o Control drawings for relays and breakers.

- If protective relays are used, settings applicable to the interconnection protection. If programmable relays are used, a description of how the relay is programmed to operate as applicable to interconnection protection.
- Current harmonic spectrum in accordance with IEEE Std 1547 and IEEE Std 519 at the output terminals of the total generator or inverter system package or at the low voltage side of the transformer that provides power to the facility from the IPL system. Provide the Individual and total current spectrum 100%, 75%, 50% and 25% output of the unit.
- Generator models and parameters for use in power flow and other simulation programs
- Indicate the intended use of power generated from the proposed facility, subject to all applicable regulatory approvals based on discussion with IPL Rates Department. Specify one of the following:
  Sale of power to IPL by Rate CGS
  Sale of power to IPL by Rate REP
  Net Metering
  Internal Usage Only
  Demand Response Resource
  Other with an Explanation

2. Inverter Generation
   - For inverters, the manufacturer name, model number and AC power rating and all other nameplate ratings. Operating manual or link to manufacturer's web site containing such manual.
   - Short circuit current from Inverter or Inverter isolation transformer and associated time of injection of fault current. Identify peak or momentary fault current injection and time duration.
   - Provide the power factor at 100%, 75%, 50% and 25% output of generator or inverter unit.
   - Provide equipment ratings including associated impedance information of intermediate equipment from the inverter output such as the line reactor, transformer, cabling, etc. to the low voltage side of the service transformer to IPL system.
3. Synchronous Generation
   - For Synchronous generators, manufacturer and model number and all other Nameplate ratings and impedance data.
   - Machine data (per unit)
     Synchronous Reactance Xd
     Transient Reactance X'd
     Subtransient Reactance X"d
     Negative Sequence X2
     Zero Sequence X0

Armature Winding Resistance R1, R2 and R0
- Machine Capability Curves

4. Induction Generation
   - For induction generators, manufacturer, model number and all other nameplate ratings and locked rotor current.
   - Machine data (per unit)
     Stator Reactance and Resistance
     Rotor Reactance and Resistance
     Magnetizing Reactance
     Short Circuit Reactance
     Grounding Method and Grounding Impedance
     Reactive Power Required at No Load
     Reactive Power Required at Full Load
     Locked Rotor Current
   - Additional Wind Generator Data Listed Below
     Type – Induction or Inverter
     Voltage and Frequency Dropout limits
     List of Adjustable Settings for Protective and Control Functions
5. Interconnection Transformer
   - Nameplate Ratings
     Capacity Self-Cooled/Maximum Nameplate KVA
     Winding Voltage (Low V/High V/Tertiary V)
     Winging Phase Relationship (Delta or Wye)
     Fixed Taps available/Present Tap Setting
     Automatic Tap Changer available Taps/Present Setting
   - Impedance
     Positive Z1 (% on self cooled kVA rating) and X/R
     Zero Z0 (% on self cooled kVA rating) and X/R

     Note: Applicable data sheets are required for multiple transformers and for multiple winging transformers

Facility Study Phase Requirements

1. Completed Impact Study Phase Requirements
2. Completed Facility Study Attachment A Information Listed Here
3. Payment of Facility Study Fee
4. Signed Original Impact and Facility Study Agreement
5. Submitted Necessary Permit Applications
6. Proof of Site Control
   Proof of site control consists of documentation demonstrating ownership, leasehold interest in, or right to develop a site for the purpose of constructing a generating facility.

Application For Interconnection Requirements
Attachment A

Interconnection Agreement Phase Requirements

1. Completed Impact Study and Facility Study Phase Requirements
2. Payment of Actual Impact Study and Facility Study Fees
3. Submitted Necessary Permit Applications
4. Proof of Site Control
5. Equipment Ordered
6. Requested Regulatory Approval
7. Proof of Insurance

Interconnection Agreement Signature Requirements

1. Payment of all Network Upgrade and Interconnection Costs