

# DER SINGLE LINE DIAGRAM CHECKLIST

## SMALL, MID-SIZED GENERATION (>12KW AND <10MW)



This document is provided as a tool for proponents applying for the connection of distributed energy resources (DER) to the Lakeland Power Distribution Ltd. (LPDL) distribution system. Additional items may be required that are not outlined in this document.

### 1. Title Block

- Legal name of facility owner
- Facility address or location
- Project purpose
- LPDL Project ID
- Revision history

### 2. Distribution System Information

- Station Name (Transformer Station, Distribution Station or Municipal Station)
- Feeder designation and voltage
- Distribution switch upstream of the PCC
- Transformer ID (LPDL owned), size, voltage, type, etc.
- Distribution system expansion information

### 3. Customer Facility

- Point of Common Coupling
- Main switch (customer owned) at PCC, size, type, manufacture make/model, LPDL designation
- Main fuse rating, manufacturer make/model, type
- Transformer (customer owned), ID, rating, type, winding configuration, grounding, etc.
- Provide the length(s), ownership and size(s) of line(s) from PCC to the main switch/breaker
- Provide details of main breaker, size, rating
- Provide details of the switch gear, rating and large loads
- Revenue metering, primary/secondary, CT/PT number and location, remote metering cabinet location
- Fault indicators with directional functionality as required

### 4. Generation Facility

- LDC operating designation of the generation facility (assigned by LPDL in the construction phase)
- Point of Connection (POC)
- Generator isolation switch:
  - Switch ID, (assigned by LPDL in the construction phase)
  - Voltage/current rating, type of switch, etc.
  - Visible break (includes inspection window to verify contacts position)
  - Accessible to LPDL staff
- Generator metering (revenue grade), state the ANSI/CSA CT accuracy class information
- Generator(s) interconnection transformer
  - ID, rating, type, winding configuration grounding, etc.
  - Manufacturer make/model, voltages

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### 5. Generator(s) New/Existing

- Generator isolation switch, ID, rating, location (accessible and operable by LPDL)
- Generator connections to the interface transformer
- Generator nomenclature of each unit
- Nameplate capacity of individual units (kVA/MVA or kW/MW)
- Indicate all individual generators connected (FIT, emergency backup, non-exporting etc.)
- Power factor, connection type (Wye, Delta, etc.)
- Generation type (wind, solar, emergency backup, etc.)
- Generator type (inverter, induction, synchronous)
- Generator protection devices, ID, rating, etc.

### 6. Protection Devices

- Relay device ID, manufacturer make/model
- IEEE/ANSI protection elements for all devices
- Flow of information signals

### 7. Teleportation and Communications

- Teleportation equipment, manufacture, make/model, etc.
- Flow of information signals

### 8. Generation Monitoring

- Monitoring equipment, manufacture make/model, etc.
- Device type (modem, power quality meter, data concentrator, etc.)
- Flow of information signals

### 9. LPDL Technical Interconnection Requirements

- All designs to comply with:
  - LPDL requirements and standards
  - Ontario Electrical Safety Code
  - Canadian Standards Association
  - All applicable rules, codes and requirements
- The generation facility must comply with LPDL's DER Technical Interconnection Requirements
- The generation facility must comply with host distributor (Hydro one) DER Technical Interconnection Requirements

### 10. Other General Information

- Single Line Diagrams must be stamped and signed by a Registered Professional Engineer in the Province of Ontario
- All information must be legible and of a reasonably sized font for ease of reading