

Form B
Connection Impact Assessment (CIA) Application



This Application Form is for Generators applying for Connection Impact Assessment (“CIA”) and for Generators with a project size >10 kW, including:

- New Generators applying for Connection Impact Assessment (“CIA”)
- Generators applying for revisions to their original Connection Impact Assessment (“CIA”)
- Generators applying for Connection Impact Assessment (“CIA”) after rescinding a previous CIA. Note: Please include your previous CIA Project ID # below.
- Generators to verify information related to current connection to the Lakefront Utilities system. It is part of the overall Distribution Connection Agreement.

For technical details, refer to Distributed Generation Technical Interconnection Requirements Interconnects at Voltages 50kV and Below at

<http://www.hydroone.com/Generators/Pages/TechnicalRequirements.aspx>

Please return the completed form, fees and other required documents by mail to:

Lakefront Utility Services Inc.
Attn: Technical Services
Generation Connection Application
207 Division Street
Cobourg, Ontario K9A 3P6

If you have any questions please e-mail technicalservices@lusi.on.ca.

Notes:

- 1) Applicants are cautioned NOT to incur major expenses until Lakefront Utilities approves to connect the proposed generation facility
- 2) All technical submissions (Form B, single line diagrams, etc.) must be signed and sealed by a licensed Ontario Profession Engineer (P.Eng.).
- 3) All fields below are mandatory, except where noted. Incomplete applications shall be returned by Lakefront Utilities.

Date: _____ (dd/mm/yyyy)

Application Type: New CIA Application CIA Revision/Rework (Please summarize below)

1. Original CIA Project ID# (if applicable): _____ Project Name: _____

2. Ontario Power Authority (OPA) Feed-IN Tariff (FIT) Contract Number: _____

3. Proposed In-Service Date: _____ (dd/mm/yyyy)

4. **Project Size:**

Number of Units _____

Nameplate Rating of Each Unit _____ kW

Generator Connection on single phase three phases

Proposed Total Nameplate Capacity _____ kW

5. **Project Location:** Address _____

City / Town / Township _____

Lot Number(s) _____

Concession Number(s) _____

6. **Project Information:**

Choose a Single Point of Contact: Owner Consultant

	Generator (Mandatory)	Owner (Mandatory)	Consultant (Optional)
Company/Person			
Contact Person			
Mailing Address Line 1			
Mailing Address Line 2			
Telephone			
Cell			
Fax			
Email			

Preferred method of communication with Lakefront Utilities Inc: Email Telephone Mail Fax

7. **Customer Status:**

Existing Lakefront Utilities Inc. Customer? Yes No

If yes, Lakefront Utilities INC 10-digit Account Number: _____

Customer name registered in this Account _____

Are you a GST registrant? Yes No

If yes, provide your GST registration number: _____ - _____ RT _____

8. **Fuel / Renewable Energy Type:**

Biomass Solar Water Wind

Diesel Engine Gas Turbine

Other (Please Specify) _____

9. **Generator's Facilities and New Line Map:**

- In the Following items, "**Point of Connection**" means the point where the new Generator's connection assets or new line expansion assets will be connected to the existing Lakefront Utilities Inc. distribution system.
- "**Point of Common Coupling**" or "**PCC**" or "**Point of Supply**" means the point where the Generator's facilities are to connect to Lakefront Utilities Inc's distribution system.
- The **Point of Connection** and the **PCC** may be the same, especially if the Generator's facilities lie along the existing Lakefront Utilities Inc. distribution system; or the **PCC** may be located somewhere between the **Point of Connection** and the Generator's facilities if new line will be owned by Lakefront Utilities Inc. For illustration of the **Point of Connection** and the **PCC**, refer to Appendix A attached

On a cut out from the Lakefront Utilities Inc. DOM (distribution operating map) provide location of Generator's facilities with proposed line routings for connection to Lakefront Utilities Inc. distribution system. It should identify the Point of Connection, the PCC, and the location (i.e. on private property or public road right-of-ways) of new lines between the Generator's facilities and the Point of Connection.

Drawing / Sketch No. _____, Rev. _____

10. **Connection to Lakefront Utilities Inc. Distribution System (if known):**

- Proposed or existing Connection voltage to Lakefront Utilities Inc.'s distribution system: _____ kV
- Station: _____
- Feeder: _____
- Distance from the Point of Connection to the PCC _____ km
- Generator's Collector Lines or Tap Line Facilities

If the Generator's facilities include collector lines or a tap line on the Generator's side of the PCC, provide the following:

Distance and conductor size of tap line on the Generator's side of the PCC, or equivalent distance for Generator's collector lines on the high-side of interface transformer(s):

_____ km;
Conductor size: _____

- Fault contribution from Generator's facilities, with the fault location at the PCC:
 - Three-phase generators: 3-phase short circuit _____ MVA;
 - Single-phase generators: 1-phase short circuit _____

NOTES:

- If this project requires line expansion work between the **Point of Connection** and **PCC**, Lakefront Utilities Inc. will provide a cost estimate to construct any line located on public road right-of-way. The cost estimate will include a breakdown of **Uncontestable** work (i.e., overbuild to existing line) that can only be performed by Lakefront Utilities Inc., as well as **Contestable** work (i.e., new construction/green-field) that can be performed by the Generator/their contractor **or** Lakefront Utilities Inc. (Both **uncontestable** work and **contestable** work require that Lakefront Utilities Inc. design and engineer. Lakefront Utilities Inc. will become the owner.)
- For Generator-owned line, the Generator may choose to apply for installation of the line on existing Lakefront Utilities Inc.- owned poles. This is known as an application for Joint Use (JU) of poles. If the



application is accepted, Lakefront Utilities Inc. will provide the Generator with information on initial connection costs, annual pole-space rental and emergency service (ES) fees, and required JU and ES Agreements

11. Single Line Diagram (“SLD”):

Provide a SLD of the Generator’s facilities including the PCC.

SLD Drawing Number: _____. Rev. _____

12. Generator Characteristics

a. Characteristics of Existing Generators

If Generator’s facilities include existing generators, provide details as an attached document.

b. Characteristics of New Generators:

NOTE:

Please provide the manufacturer’s technical data (electrical) for the generator or inverter.

Number of generating unit(s): _____

Manufacturer / Type or Model No: _____ / _____

Rated capacity of each unit: _____ kW

If unit outputs are different, please fill in additional sheets to provide the information.

Rated frequency:

Rotating Machine Type:

- Synchronous Induction Inverter Other (Please Specify) _____

(If machine type is “other”, please provide values equivalent to a Synchronous or Induction type Generator)

Generator connecting on: single phase three phase

Limits of range of reactive power at the machine output:

- o Lagging (over-excited): _____ kVAR power factor _____
- o Leading (under-excited): _____ kVAR power factor _____

Limits of range of reactive power at the PCC:

- o Lagging (over-excited): _____ kVAR power factor _____
- o Leading (under-excited): _____ kVAR power factor _____

Starting inrush current: _____ pu (multiple of full load current)

Generator terminal connection: delta star

Neutral grounding method of star connected generator:

- Solid Ungrounded Impedance: R_____ohms X_____ohms

For Synchronous Units:

- i. Nominal machine voltage: _____ kV
- ii. Minimum power limit for stable operation _____ kW
- iii. Unsaturated reactances on: _____ kVA base _____ kV base
- Direct axis subtransient reactance, X_d'' _____ pu
- Direct axis transient reactance, X_d' _____ pu
- Direct axis synchronous reactance, X_d _____ pu Zero
- sequence reactance, X_0 _____ pu
- iv. Provide a plot of generator capability curve
(MW output vs MVAR)
- Document Number: _____, Rev. _____

For Induction Units:

- i. Nominal machine voltage: _____ kV
- ii. Unsaturated reactances on: _____ kVA base _____ kV base
- Direct axis subtransient reactance, X_d'' _____ pu
- Direct axis transient reactance, X_d' _____ pu
- iii. Total power factor correction installed: _____ kVAR
- Number of regulating steps _____
 - Power factor correction switched per step _____
 - Power factor correction capacitors are automatically switched off when
generator breaker opens yes no

13. Interface Step-Up Transformer Characteristics:

- a. Transformer Ownership: Customer / Lakefront Utilities
- b. Transformer rating: _____ kVA
- c. Nominal voltage of high voltage winding: _____ kV
- d. Nominal voltage of low voltage winding: _____ kV
- e. Transformer type: single phase three phase
- f. Impedances on: _____ kVA base _____ kV base
R: _____ pu, X: _____ ohms
- g. High voltage winding connection: delta star
- Grounding method of star connected high voltage winding neutral:
- Solid Ungrounded Impedance R: _____ ohms X: _____ ohms
- Nameplate rating and impedance values of High Voltage Grounding Transformer (If applicable):
Voltage: _____ V Rating: _____ kVA R: _____ pu X: _____ pu

h. Low voltage winding connection:

Grounding method of star connected low voltage winding neutral:

Solid Ungrounded Impedance R: _____ ohms X: _____ ohms

NOTES:

- At the Generator's expense, and, if requested, Lakefront Utilities Inc. may provide transformation up to a maximum of 501 KVA three-phase, as described in the Lakefront Utilities Inc. Conditions of Service (Section 3.5, item C.4)
- The term "High Voltage" refers to the connection voltage to Lakefront Utilities Inc's distribution system and "Low Voltage" refers to the generation or any other intermediate voltage

14. Intermediate Transformer Characteristics (if application):

- a. Transformer rating: _____ kVA
- b. Nominal voltage of high voltage winding _____ kV
- c. Nominal voltage of low voltage winding: _____ kV
- d. Transformer type: single phase three phase
- e. Impedances on: _____ kVA base _____ kV base
- f. High voltage winding connection:
Grounding method of star connected high voltage winding neutral:
 Solid Ungrounded Impedance R: _____ ohms X: _____ ohms
- g. Low voltage winding connection:
Grounding method of star connected low voltage winding neutral:
 Solid Ungrounded Impedance R: _____ ohms X: _____ ohms

NOTE: The term "High Voltage" refers to the intermediate voltage that is input to the interface step-up transformer and the "Low Voltage" refers to the generation voltage

15. Load information:

- a. Maximum load of the facility: _____ kVA _____ kW
- b. Maximum load current (referred to the nominal voltage _____ A
at the connection point to Lakefront Utilities Inc. system)
- c. Maximum inrush current to loads (referred to the nominal voltage _____ A
at the connection point to Lakefront Utilities Inc. system)

Attached Documents:

Item No.	Description	Document No.	No. of Pages
1			
2			
3			

Attached Drawings:

Item No.	Description	Document No.	No. of Pages
1			
2			
3			

CHECKLIST

Please ensure the following items are completed prior to submission. The application shall be returned if incomplete:

- Completed form stamped by a Professional Engineer
- Payment in full including applicable taxes (by cheque or money order payable to "Lakefront Utilities Inc.").
- Signed Study Agreement
- Single Line Diagram (SLD) of the Generator's facilities, must be stamped by a Professional Engineer

NOTE:

By submitting a Form B, the Proponent authorizes the collection by Lakefront Utilities Inc. of any agreements and any information pertaining to agreements made between the Proponent and the Ontario Power Authority from the Ontario Power Authority, the information set out in the Form B and otherwise collected in accordance with the terms hereof, the terms of Lakefront Utilities Inc.'s Conditions of Service, Lakefront Utilities Inc's Privacy Policy and the requirements of the Distribution System Code and the use of such information for the purposes of the connection of the generation facility to Lakefront Utilities Inc.'s distribution system.

Appendix A: Illustrations of PCC and Point of Connection

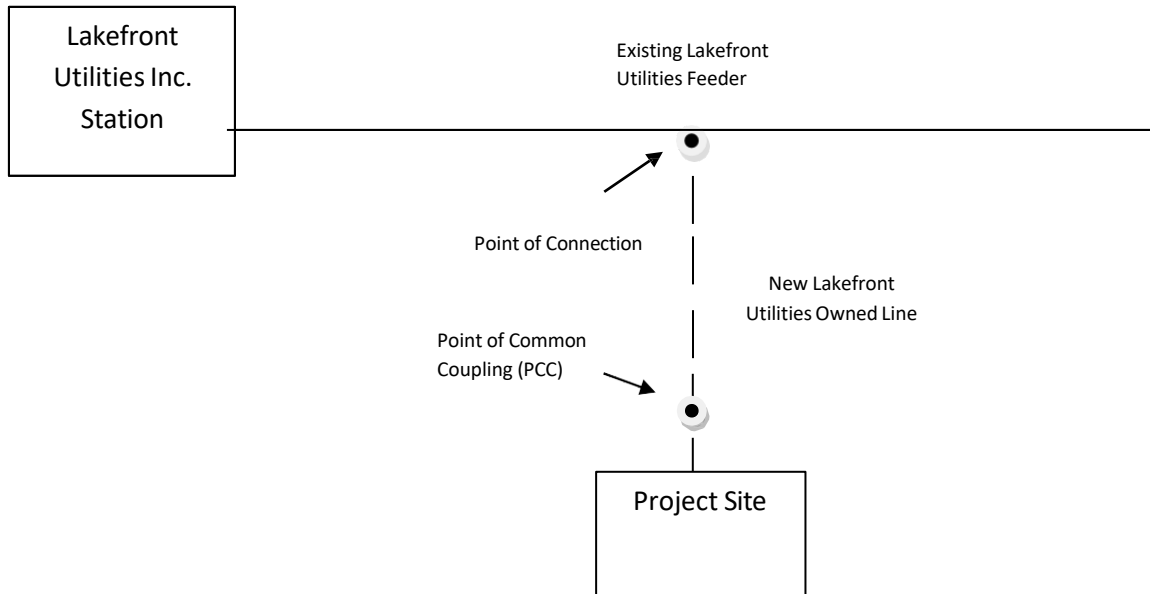


Figure A-1: Lakefront Utilities Owns Entire Tap Line

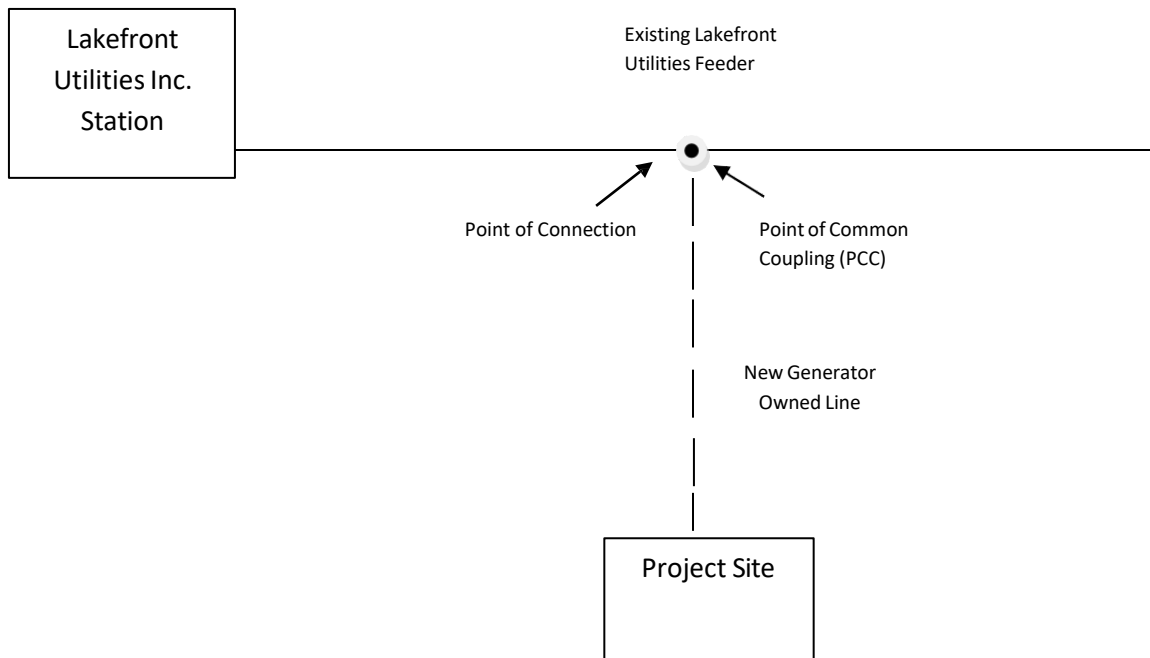


Figure A-2: Generator Owns Entire Tap Line

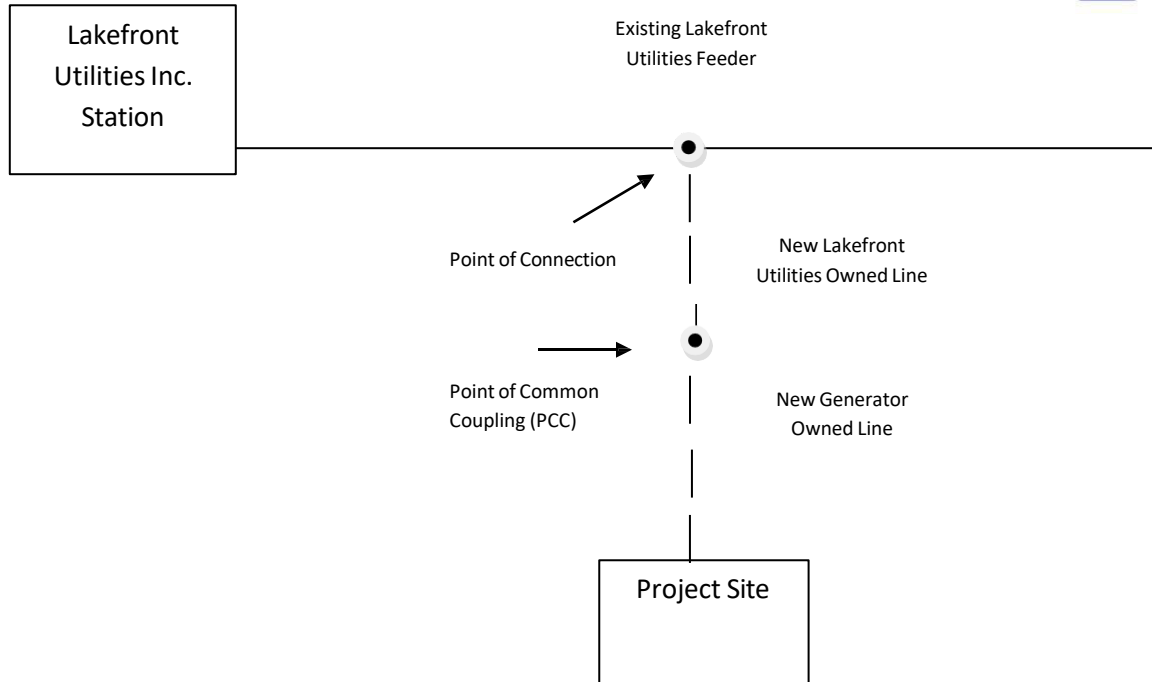


Figure A-3: Lakefront Utilities Owns a Portion and Generator Owns a Portion of Tap Line