Project Name:

Project Address:

Connection Impact Assessment Application (CIA)
For connection to the LDC distribution grid

This document is to be completed by the proponent interested in connecting a generator to the LDC distribution grid. This form, the Connection Impact Assessment (CIA) Application, forms an agreement between LDC and the Generator for completion of a CIA associated with connecting a generator to the LDC distribution grid. As per the Conditions of Service, the CIA Application will also become part of the required servicing (electrical installation, maintenance and operating) agreements between LDC and the proponent. Through this process, LDC will be the proponent's contact with the transmission system provider (e.g. Hydro One Networks Inc.) and, if necessary, the provincial market operator the Independent Electricity System Operator (IESO).

For guidance on completing this form, please refer to the corresponding instructions. For the technical requirements associated with the connection of your generator, refer to the relevant LDC standards, referenced in the instructions at www.LDC.com

IMPORTANT: All the fields below are mandatory, except where noted. Incomplete applications will be returned.

If you have any questions please e-mail info@LDC.com or call 999-999-9999

Payment of the required fees must be received by LDC before the Connection Impact Assessment (CIA) process begins.

LDC ADDRESS:

Note: Proponents are advised NOT to incur any expenses associated with the proposed project until LDC provides written approval by means of an "Offer-to-Connect" and has jointly signed the Connection Cost Recovery Agreement (CCRA).

Requirement 1: All technical submissions (Form B, single line diagrams, protection schemes, etc.) must be signed and sealed by a professional engineer licensed in the province of Ontario.

Requirement 2: The proponent will pay for the CIA according to the LDC Schedule

- „
- „
- „

Application (Re)Submission Date _____
(YYYY/MM/DD)

Application Type ❑ New CIA Application ❑ CIA Revision/Rework ❑ CIA for Incremental Generation

1. **Original CIA Project ID Number** *(if applicable)* _____

   Project Name (Generation Facility Name) _____

   Proponent Name (Generator) _____

2. **Project intent** *(operational characteristics)*

   ❑ IESO Power Purchase Agreement ❑ Load Displacement / Net Metering ❑ Injection ❑ Other:_____

   Contract Number *(if applicable)* _____

3. **IESO Reference Number and Date** (if applicable) _____
   (YYYY/MM/DD)

4. **Proposed In-Service Date** _____
   (YYYY/MM/DD)

5. **DER Facility Capacity Rating**

   a) Total rating of the DER Facility (sum of all generation output = i + ii) (kW) _____

      i. Existing total DER output capacity (kW) _____

      ii. Proposed total additional DER output capacity (kW) _____

   b) DER connecting on: ❑ Single phase ❑ Three phase

6. **Project Location** Street Address _____

   City/Town/Township _____

   Lot Number(s) _____

   Concession Number(s) _____

   Global Positioning System (GPS) co-ordinates _____

7. **Project Information** *Choose a single point of contact*

	❑ DER Owner	❑ Host Customer	❑ Consultant
Company / Person			
Contact person			
Mailing address			
Telephone			
Cell phone			
Fax			
Email			

Preferred method of contact: ❑ Email ❑ Phone ❑ Mail ❑ Fax

8. DER Type

❑ Synchronous ❑ Induction ❑ Inverter based ❑ Other (please specify): _____

9. Resource Technology

a) Existing generation *(if incremental project)* ❑ NOT APPLICABLE

❑ Wind turbine
❑ Solar/Photovoltaic
❑ Hydraulic turbine
❑ Diesel engine
❑ Steam turbine
❑ Gas turbine
❑ Fuel cell
❑ Co-generation/CHP *(Combined heat & power)*
❑ Biomass
❑ Anaerobic digester
❑ Bio-diesel
❑ Other _____

b) New generation ❑ NOT APPLICABLE

❑ Wind turbine
❑ Solar/Photovoltaic
❑ Fuel cell
❑ Co-generation/CHP
❑ Hydraulic turbine
❑ Diesel engine
❑ Biomass *(Combined*
❑ Steam turbine
❑ Gas turbine
❑ Bio-diesel *heat & power)*

10. Customer Information

a) Host Customer account information Is the host customer an existing LDC customer? ❑ Yes ❑ No

LDC account number _____

Name as shown on LDC account _____

b) Generator HST registration number (*if applicable*) _____

11. Location and Site Plan *(Remove-in the list of attached documents?)*

Drawing/sketch No. _____ Rev. _____

12. Connection to LDC's Distribution System

Stretch (*add more as needed)*	**Cable / Conductor Type** *(i.e., Al, Cu; number of wires/ phases)*	**Cable / Conductor size** *(i.e., #4, or 250kcmil)*	**Length** *(meters)*	**Impedance**	**Comment**
Demarcation Point to Generator fused disconnect					
Generator fused disconnect to generation meter					
Generation meter to generator disconnect					
Generator disconnect to					
Intermediate Transformer *(if applicable)*					
Intermediate Transformer to inverter					
Generator disconnect to inverter					

13. Single Line Diagram (SLD)

SLD Drawing No.__Rev._____

SDL must be stamped by a Professional Engineer Licensed in Ontario

(Remove-in the list of attached documents?)

14. Protection Scheme, Tripping Matrix and Equipment Setting (*Remove?)*

Provide a document describing the protection scheme for detecting and clearing the situations listed in the instructions.

Equipment specification sheets, document number(s):	Protection scheme, tripping matrix and equipment setting document number(s):

15. Characteristics of Existing Generators ❑ NOT APPLICABLE

Number of generating unit(s):	Manufacturer, type and/or model no.:
Rated capacity of each unit kW: kVA:	
Rated frequency (Hz):	Generator phases:_____single ____three
Rotating machine type: ❑ synchronous ❑ induction ❑ other ❑ not applicable	

Limits of range of reactive power	**At the machine output**		**At the point of common coupling**	
Lagging (over-excited)	kVAR	PF (%)	kVAR	PF (%)
Leading (under-excited)	kVAR	PF (%)	kVAR	PF (%)

Starting inrush current_____pu (multiple of full load current)

Nominal machine voltage_____kV	Unsaturated reactance on a: kVA base_____; kV base _____

For synchronous units	**For induction units**
Min. power limit for stable operation_____kW	Direct axis sub-transient reactance, X''d_____pu
Direct axis sub-transient reactance, X''d_____pu	Direct axis transient reactance, X'd_____pu
Direct axis transient reactance, X'd_____pu	Total PF correction installed_____kVAR
Direct axis synchronous reactance, Xd_____pu	Number of regulating steps _____
Zero sequence reactance, X0_____pu	PF correction switched per step_____kVAR
Provide a plot of generator capability curve (MW output vs MVAR) Drawing No._____Rev._____	Are PF correction capacitors automatically switched off when generator breaker opens: ❑ Yes ❑ No

Existing generating unit sheet number_____of _____

For inverter based units	Manufacturer, Model No. and Qty:

Single or three phase unit: _____	If three phase, is it three or four wire? _____
Max. continuous output power_____kW	Nominal output voltage_____V
Nominal output current_____A	Maximum output fault current_____A
Peak inverter efficiency_____%	CEC efficiency_____%
Night-time power consumption_____W	Input protection (reverse flow): _____

Certified or tested to: ❑ IEEE 1547; ❑ UL 1741; ❑ CSA22.2 No 107.1;

❑ Other _____

Existing inverter unit sheet number_____of _____

16. Characteristics of New Generators ❑ NOT APPLICABLE

Number of generating unit(s):			Manufacturer, type and/or model no.:	
Rated capacity of each unit kW: kVA:				
Rated frequency (Hz):			Generator phases:_____single ____three	
Rotating machine type: ❑ synchronous ❑ induction ❑ other ❑ not applicable				
Limits of range of reactive power	**At the machine output**		**At the point of common coupling**	
Lagging (over-excited)	kVAR	PF (%)	kVAR	PF (%)
Leading (under-excited)	kVAR	PF (%)	kVAR	PF (%)
Starting inrush current_____pu (multiple of full load current)				
Nominal machine voltage_____kV			Unsaturated reactance on a: kVA base_____; kV base _____	
For synchronous units			**For induction units**	
Min. power limit for stable operation_____kW			Direct axis sub-transient reactance, X''d_____pu	
Direct axis sub-transient reactance, X''d_____pu			Direct axis transient reactance, X'd_____pu	
Direct axis transient reactance, X'd_____pu			Total PF correction installed_____kVAR	
Direct axis synchronous reactance, Xd_____pu			Number of regulating steps _____	
Zero sequence reactance, X0_____pu			PF correction switched per step_____kVAR	
Provide a plot of generator capability curve (MW output vs MVAR) Drawing No._____Rev._____			Are PF correction capacitors automatically switched off when generator breaker opens: ❑ Yes ❑ No	
New generating unit sheet number_____of _____				
For inverter based units	Manufacturer, Model No. and Qty:			
Single or three phase unit: _____			If three phase, is it three or four wire? _____	
Max. continuous output power_____kW			Nominal output voltage_____V	
Nominal output current_____A			Maximum output fault current_____A	
Peak inverter efficiency_____%			CEC efficiency_____%	
Night-time power consumption_____W			Input protection (reverse flow): _____	
Certified or tested to: ❑ IEEE 1547; ❑ UL 1741; ❑ CSA22.2; ❑ Other _____				
New inverter unit sheet number_____of _____				

17. Interface Step-Up Transformer Characteristics *(if customer owned)* ❑ NOT APPLICABLE

Transformer nomenclature: _____	Transformer rating(kVA): _____	
Nominal high voltagewinding (kV): _____	Nominal low voltage winding(kV): _____	
Number of transformers: _____	Number of phases: _____	
Impedance on_____kVA base _____ kV base	R_____pu X_____pu	Z% _____

Side	High Voltage	Low Voltage
Winding connection:		
Grounding method:		
If impedance (ohms):	R X	R X

18. Intermediate Transformer Characteristics ❑ NOT APPLICABLE

Transformer nomenclature: _____	Transformer rating(kVA): _____	
Nominal high voltagewinding (kV): _____	Nominal low voltage winding(kV): _____	
Number of transformers: _____	Number of phases: _____	
Impedance on:_____kVA base _____ kV base	R_____pu X_____pu	Z% _____

Side	High Voltage	Low Voltage
Winding connection:		
Grounding method:		
If impedance (ohms):	R X	R X
Loss of phase protection:	Manufacturer: _____	Model No.: _____

19. Load Information *(if new, expanded or renovated facility)* ❑ NOT APPLICABLE ❑ NOT KNOWN

Maximum facility load:	_____ kVA_____kW
Maximum load current *(referred to the nominal voltage at the connection point to LDC system):*	_____ A
Maximum inrush current *(referred to the nominal voltage at the connection point to LDC system):*	_____ A

20. Attached Documents

Item Number	Description	Reference Number	Number of Pages
1	Equipment specifications		
2	Protection scheme, tripping matrix and equipment setting		
3	Loss of phase protection (product sheet), if applicable		
4	Right of Access documents		
5			
6			
7			

21. Attached Drawings

Item Number	Description	Reference Number	Number of Pages
1	Location and site plan		
2	Single Line Diagram (SLD)		
3			
4			
5			

22. LDC Checklist

FOR OFFICE USE ONLY:

❑ Received	Date: _____ (YYY/MM/DD)
❑ Incomplete returned	Date: _____ (YYY/MM/DD)
❑ Complete	Date: _____ (YYY/MM/DD)
❑ Application ID assigned	ID: _____

Appendix A: Distribution System Connection Information

Project Name:
Project Address:

The following information is provided by the LDC and therefore is not subject to a professional engineer signature or sealing.

1. Connection to Hydro Ottawa's Distribution System

LDC's distribution system voltage that the generation facility will connect to (kV)

	First Station	High Voltage Distribution Station
Name		
Buss		
Feeder		

Date information provided by the LDC: _____
(YYYY/MM/DD)

16. Interface Step-Up Transformer Characteristics

Transformer nomenclature: _____	Transformer rating (kVA): _____
Nominal high voltage winding (kV): _____	Nominal low voltage winding (kV): _____
Number of transformers: _____	Number of phases: _____
Impedance on _____ kVA base _____ kV base	R _____ pu Z% _____ X _____ pu

Side	High Voltage	Low Voltage
Winding connection:		
Grounding method:		
If impedance (ohms):	R X	R X

Date information provided by the LDC: _____
(YYYY/MM/DD)

18. Load Information

Maximum facility load:	_____ kVA _____ kW
Maximum load current: *(referred to the nominal voltage at the connection point to the Distribution System)*	_____ A
Maximum inrush current *(referred to the nominal voltage at the connection point to the Distribution System)*	_____ A

Date information provided by the LDC: _____
(YYYY/MM/DD)

Appendix A continued

Miscellaneous Comments

Information on primary metering, delta primary distribution, excess transformation at a supply point, etc.