FORM B
Connection Impact Assessment (CIA) Application
Distribution System

This Application Form is for Generators applying for Connection Impact Assessment ("CIA") and for Generators with a project size >12 kW.
This Application Form is required for:

- **New Generators applying for Connection Impact Assessment ("CIA")**
- **New Generators applying for revision 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.**
- **Existing Generators to verify information related to current connection to the Essex Powerlines system. It is part of the overall (Distribution) Connection Agreement.**

IMPORTANT: **All fields below are mandatory, except where noted. Incomplete applications may be returned by Essex Powerlines (EPL)**

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

Essex Powerlines	**Bruce Bratt**
2730 Highway #3	519-737-9811 X131
Oldcastle, Ontario	fax 519-737-7064
N0R 1L0	bbratt@essexpowerlines.ca

NOTE 1: **Applicants are cautioned NOT to incur major expenses until Essex Powerlines approves to connect the proposed generation facility.**

NOTE 2: **All technical submissions (CIA, single line diagrams, etc.) must be signed and sealed by a licensed Ontario Professional Engineer (P.Eng.).**

Section A – Administrative Information

Date: _____ (dd / mm / yyyy)

Application Type: ☐ New CIA Application ☐ CIA Revision/Rework

1. **Original CIA Project ID# (if applicable):** _____
   Project Name: _____
2. **Ontario Power Authority (OPA) Feed-In Tariff (FIT) Contract Number:** _____
3. **Ontario Corporate Number** _____ **or Business Identification Number** _____

Section B – Project Information

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

5. **Project Size:**

Number of Units	_____	
Nameplate Rating of Each Unit	_____ kW	
Generator connecting on	☐ single phase	☐ three phase
Existing Total Nameplate Capacity	_____ kW	
Proposed Total Nameplate Capacity	_____ kW	

6. **Project Location:** Address _____
City / Town / Township _____
Lot Number(s) _____
Concession Number(s) _____

7. **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			
E-mail			

Preferred method of communication with Essex Powerlines: ☐ E-mail ☐ Telephone ☐ Mail ☐ Fax

8. **Customer Status:**

Existing Essex Powerlines Customer? ☐ Yes ☐ No

If yes, Essex Powerlines Account Number: _____

Customer name registered in this Account: _____

Are you a HST registrant? ☐ Yes ☐ No

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

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

☐ Wind Turbine ☐ Hydraulic Turbine ☐ Steam Turbine ☐ Solar/ Photovoltaic
☐ Diesel Engine ☐ Gas Turbine ☐ Fuel Cell ☐ Biomass
☐ Co-generation/CHP (Combined Heat & Power) ☐ Bio-diesel
☐ Other (Please Specify) _____

Section C – Project Connection Information

10. **Connection to Essex Powerlines Distribution System:**

- *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 Essex Powerlines distribution system.*
- ***Point of Common Coupling**" or "**PCC**" or "**Point of Supply**" means the point where the Generator's facilities are to connect to Essex Powerlines distribution system.*
- *The **Point of Connection** and the **PCC** may be the same, especially if the Generator's facilities lie along the existing Essex Powerlines 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 Essex Powerlines.*

a. Proposed or existing Connection voltage to Essex Powerlines distribution system: _____ kV

b. Station: _____
c. Feeder: _____

d. GPS coordinates of the following:
(Please give GPS co-ordinates in following format: Longitude, Latitude - Degree Decimal Format:
* e.g. 49.392, -75.570)
Point of Connection: _____
PCC: _____
Generator facilities: _____

e. Distance from the Point of Connection to the PCC _____ km

f. 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 (i.e., from PCC to interface transformer(s)):
_____ km;
Conductor size: _____

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

Note:
Generators requiring line construction between the Generator's facilities and the Point of Connection should contact Essex Powerlines
For details, please contact one of Essex Powerlines contacts listed on Page 1.

11. Generator's Facilities and New Line Map:

On a cut-out from Google Earth or another available mapping source provide location of Generator's facilities with proposed line routings for connection to Essex Powerlines 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. _____

12. Single Line Diagram ("SLD"):

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

SLD Drawing Number: ____, Rev. ____

13. Protection Philosophy:

- Provide a document describing the protection philosophy for detecting and clearing:

- Internal faults within the EG facility;
- External phase and ground faults (in Essex Powerlines distribution system);
- Certain abnormal system conditions such as over / under voltage, over / under frequency, open phase(s);
- Islanding

Document Number:

- Include a tripping matrix or similar information in the document.

Note: EG shall install utility grade relays for the interface protection. The protection design shall incorporate facilities for testing and calibrating the relays by secondary injection.

Section D – Generation Characteristics

14. 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:

10. Number of generating unit(s): _____
11. Manufacturer / Type or Model No: _____ / _____
12. Rated capacity of each unit: _____ kW _____ kVA
13. If unit outputs are different, please fill in additional sheets to provide the information.
14. Rated frequency: _____ Hz
15. Rotating Machine Type: ☐ Synchronous ☐ Induction ☐ Other (Please Specify) _____
16. Generator connecting on: ☐ single phase ☐ three phase
17. Limits of range of reactive power at the machine output:
18. Lagging (over-excited) _____ kVAR power factor _____
19. Leading (under-excited) _____ kVAR power factor _____
20. Limits of range of reactive power at the PCC:
21. Lagging (over-excited) _____ kVAR power factor _____
22. Leading (under-excited) _____ kVAR power factor _____
23. Starting inrush current: _____ pu (multiple of full load current)
24. 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, Xd'' _____ pu
Direct axis transient reactance, Xd' _____ pu
Direct axis synchronous reactance, Xd _____ pu
Zero sequence reactance, X0 _____ 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 reactance's on: _____ kVA base _____ kV base
Direct axis sub transient reactance, Xd'' _____ pu
Direct axis transient reactance, Xd' _____ pu
iii. Total power factor correction installed: _____ kVAR
- Number of regulating steps _____
- Power factor correction switched per step _____ kVAR
- Power factor correction capacitors are automatically switched off when generator breaker opens

☐ Yes ☐ No

15. Interface Step-Up Transformer Characteristics:

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
R _____ pu, X _____ pu

g. High voltage winding connection: ☐ delta ☐ star
Grounding method of star connected high voltage winding neutral:
☐ Solid ☐ Ungrounded ☐ Impedance: R _____ ohms X _____ ohms

h. Low voltage winding connection: ☐ delta ☐ star
Grounding method of star connected low voltage winding neutral:
☐ Solid ☐ Ungrounded ☐ Impedance: R _____ ohms X _____ ohms

NOTE: The term 'High Voltage' refers to the connection voltage to Essex Powerlines distribution system and 'Low Voltage' refers to the generation or any other intermediate voltage.

16. Intermediate Transformer Characteristics (optional):
☐ No intermediate transformer (if chosen, parts a. to h. below are ***optional)***

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
R _____ pu X _____ pu

g. High voltage winding connection: ☐ delta ☐ star
Grounding method of star connected high voltage winding neutral:
☐ Solid ☐ Ungrounded ☐ Impedance: R _____ ohms X _____ ohms

h. Low voltage winding connection: ☐ delta ☐ star
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.

17. Load information:

a. Maximum load of the facility: _____ kVA _____ kW
b. Maximum load current (referred to the nominal voltage at the connection point to Essex Powerlines system): _____ A
c. Maximum inrush current (referred to the nominal voltage at the connection point to Essex Powerlines system): _____ A

Attached Documents:

Item No.	Description	Reference No.	No. of Pages
1			
2			
3			
4			
5			

Attached Drawings:

Item No.	Description	Reference No.	No. of Pages
1			
2			
3			
4			
5			

Section E – CHECKLIST

Please ensure the following items are completed prior to submission. Your application will not be processed if any part is omitted or incomplete:

- ☐ Completed CIA Form
- ☐ Payment in full including applicable taxes (by cheque or money order payable to "Essex Powerlines.")
  Please note that when there is an upstream LDC an additional charge will be required for costs associated with this LDC's CIA.
- ☐ Signed Study Agreement
- ☐ Single Line Diagram (SLD) of the Generator's facilities, must be stamped by a Professional Engineer

By submitting a Connection Impact Assessment (CIA) Application, the Proponent authorizes the collection by Essex Powerlines (EPL), of the information set out in the CIA and otherwise collected in accordance with the terms hereof, the terms of Essex Powerlines Conditions of Service, Essex Powerlines 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 Essex Powerlines distribution system.