



Connection Impact Assessment Application

This form is for generators applying for Connection Impact Assessment (CIA) and for generators with a project size >10 kW.

Please return the completed form by email, mail or fax to:

Entegrus Powerlines Inc. (EPI)
 135 Edward Street
 St. Thomas, ON N5P 4A8
FAX: 519-631-2243
Email: customerservice@entegrus.com

NOTES:

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

Application Date: _____

1. Project Name: _____

2. Feed-In Tariff (FIT) Reference Number: _____

3. Proposed In-Service Date: _____

4. Project Size: _____ kW

5. Project Location: _____

Postal Code: _____

6. Project Information:

	Generator <i>(Mandatory)</i>	Owner <i>(Mandatory)</i>	Consultant <i>(Optional)</i>
Company/Person			
Contact Person			
Mailing Address Line 1			
Mailing Address Line 2			
Telephone			
Cell			
Fax			
E-mail			

7. Customer Status:

- Existing EPI Customer? Yes No
- If yes, EPI Account Number: _____
- Customer name registered in this Account: _____
- Are you a HST registrant? Yes No
- If yes, provide your HST registration number: _____ - _____ RT _____

8. Fuel / Renewable Energy Type:

- Biomass Solar Water Wind
- Diesel Engine Gas Turbine Other _____

9. Mode of Operation:

- Sale of Power 24 hour
- Load Displacement
- Base Load Peak Period Only
- Emergency Backup
- Will Emergency Backup generator be synchronized to EPI's system at any time?
 - Yes No
- Other _____

10. Single Line Diagram (SLD):

Provide a SLD of the Generator's facilities including the Point of Common Coupling (PCC), the point where the Generator's facilities are to connect to EPI's distribution system. This drawing shall include, but not be limited to:

- Electrical equipment at Generator's facilities, their principal ratings, impedances, winding configurations, neutral grounding methods, etc.
- Protective relaying, synchronizing and revenue metering arrangements. The device numbers should be in accordance with those adopted in the ANSI / IEEE Standard C37.2 – 1979: IEEE Standard Electrical Power System Device Function Numbers.

The SLD shall include the following, as applicable:

- Disconnecting device at the connection point with EPI's distribution system
- Load break switches
- Fuses and Circuit breakers
- Interface step-up transformer
- Intermediate transformer(s)
- CTs and VTs (quantity, location, connection, ratio)
- Generators (rotating / static)
- Power factor correction capacitors and their switching arrangements (particularly for induction units)
- Motors
- Power cables
- Surge arresters and any other relevant electrical equipment.

SLD Drawing Number: _____, Rev. _____

11. Connection to EPI Distribution System: (to be completed by EPI)

- Proposed or existing connection voltage to EPI's distribution system: _____ kV
- Station Name: _____
- Feeder Name: _____
- Feeder Max Load (Ampere): _____
- Feeder Min Load (Ampere): _____
- Total number of Generators on the feeder:
Number of units _____ Total Capacity _____ kW _____ kVA

12. Provide Impact Assessment of the Generator's facility

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 EPI's distribution system)
 - Certain abnormal system conditions such as over/under voltage, over/under frequency, open phase
 - Islanding
- Document Number: _____ Rev: _____

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

14. Connection and Operation Information:

- Synchronizing and paralleling scheme/procedure _____ Doc./Dwg. No _____
- The generator is designed with auto-connection scheme Yes No

15. Generator Characteristics:

- Number of generating unit(s): _____
- Manufacturer/Type or Model No: _____
- Rated capacity of each unit: _____ kW _____ kVA

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

- Type of generating unit:
 Synchronous Induction Static Power Converters (SPC) Other _____
- Rated frequency Hz _____ Hz
- Number of phases: One Three

For Synchronous Units:

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

For Induction Units:

- Nominal machine voltage: _____ kV
- Unsaturated reactances on: _____ kVA base _____ kV base
 - Direct axis subtransient reactance, X_d'' _____ p.u.
 - Direct axis transient reactance, X_d' _____ p.u.
- 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

For SPC / Inverter type units:

- Terminal voltage V: _____ V
- Line - interactive type (i.e. intended for parallel operation with electric utility) Yes No
- Power factor _____ p.u.
- Battery backup provided Yes No
- Maximum fault current for terminal faults _____ A
- Standards according to which built _____
- Provide Manufacturer's technical brochure and specification sheet Doc. No. _____

16. Interface Step-Up Transformer Characteristics:

- Transformer ownership: Customer EPI
- Transformer rating: _____ kVA
- Nominal voltage of high voltage winding: _____ kV
- Nominal voltage of low voltage winding: _____ kV
- Transformer type: Single phase Three phase
- % Impedances: _____ %Z

- 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: _____ p.u. X: _____ p.u.
- 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 EPI's distribution system and 'Low Voltage' refers to the generation or any other intermediate voltage.

17. Intermediate Transformer Characteristics (If applicable):

- Transformer ownership: Customer EPI
- Transformer rating: _____ kVA
- Nominal voltage of high voltage winding: _____ kV
- Nominal voltage of low voltage winding: _____ kV
- Transformer type: Single phase Three phase

- % Impedance: _____%Z
- 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: _____p.u. X: _____p.u.
- 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 EPI's distribution system and 'Low Voltage' refers to the generation or any other intermediate voltage.

18. Load information:

- Maximum load of the facility _____kVA _____kW
- Maximum load current (nominal voltage at the connection point to EPI system) _____A
- Maximum inrush current (nominal voltage at the connection point to EPI system) _____A

19. Expected Monthly Generation, Consumption and Output from Generator facility:

Expected	Total Generation (a)		Total Internal Consumption (b)		Total Output (To EPI's distribution System) (a-b)*	
	kWh	Peak kw	kWh	Peak kW	kWh	Peak kWh
January						
February						
March						
April						
May						
June						
July						
August						
September						
October						
November						
December						

*This value would be negatives when the generators are not in operation or when the internal consumption exceeds generation.

Attached Documents:

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

Attached Drawings:

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