



FIT Program (>10kW)

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 >10 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") (for example XXXXXXXXXXXXXXXXXXXXX)
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 Festival Hydro system. It is part of the overall (Distribution) Connection Agreement.

For generation size ≤ 10 kW, please fill out Form C ("Micro-Generation Connection Application Form")

IMPORTANT: All fields below are mandatory, except where noted. Incomplete applications may be returned by Festival Hydro Inc. ("Festival Hydro").

If you have any questions please e-mail Festival Hydro at FIT@festivalhydro.com or call 519-271-4700 (Ext. 241

Please return the completed form and supporting documents via the above email, with a hardcopy and related fees by mail to:

Festival Hydro Inc.
Attn: Engineering – FIT
187 Erie Street
PO Box 397
Stratford, ON
N5A 6T5

NOTE 1: Applicants are cautioned NOT to incur major expenses until Festival Hydro approves to connect the proposed generation facility.

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

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

4. 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

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			
E-mail			

Preferred method of communication with Festival Hydro: E-mail Telephone Mail

7. **Program Type:**

A. Net Metering

B. Net Metering to FIT Conversion

C. FIT

8. **Fuel Type:**

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

9. **Customer Status:**

Existing Festival Hydro Customer? Yes No

If yes, Festival Hydro Account Number: _____

Customer name registered in this Account: _____

Are you a GST registrant? Yes No

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

10. Connection to Festival Hydro 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 Festival Hydro distribution system.

Point of Common Coupling" or "PCC" or "Point of Supply" means the point where the Generator's facilities are to connect to Festival Hydro's distribution system.

The Point of Connection and the PCC may be the same, especially if the Generator's facilities lie along the existing Festival Hydro 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 Festival Hydro.

For illustration of the Point of Connection and the PCC, refer to Appendix A attached.

a. Proposed or existing Connection voltage to Festival Hydro's 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;

h. Does your project require to establish joint use on Festival Hydro poles? (i.e. generator's collector lines attached to Festival Hydro poles on municipal right or way? Yes No

i. If you answer "No" to "h" above is your project going to own Poles + wires on municipal right of way?

Yes No

Note:

Generators requiring line construction between the Generator's facilities and the Point of Connection should contact Festival Hydro to discuss potential ownership options, construction and co-ordination logistics for these facilities. Also those Generators whom may require attaching collector lines to Festival Hydro poles must also contact Festival Hydro to discuss potential to engage in Joint Use of utility assets. *Festival Hydro will consider owning and operating new lines if they are designed and constructed to Festival Hydro standard and are located on public road right-of-ways. This may change the PCC location. For details, please contact Festival Hydro at FIT@festivalhydro.com or call 519-271-4700 (Ext. 241).*

11. Generator's Facilities and New Line Map:

On a cut-out from the Festival Hydro DOM (distribution operating map) provide location of Generator's facilities with proposed line routings for connection to Festival Hydro 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 Festival Hydro's 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.

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 _____

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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, 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 _____ 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 Festival Hydro's 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

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- 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 Festival Hydro system): _____ A
- c. Maximum inrush current (referred to the nominal voltage at the connection point to Festival Hydro 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	_____	_____	_____

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, must be stamped by a Professional Engineer
- Payment in full including applicable taxes (by cheque or money order payable to "Festival Hydro Inc."). Additional charges may apply if the project location requires an assessment by Hydro One in addition to Festival Hydro.
- Single Line Diagram (SLD), must be stamped by a Professional Engineer

Appendix A: Illustrations of PCC and Point of Connection

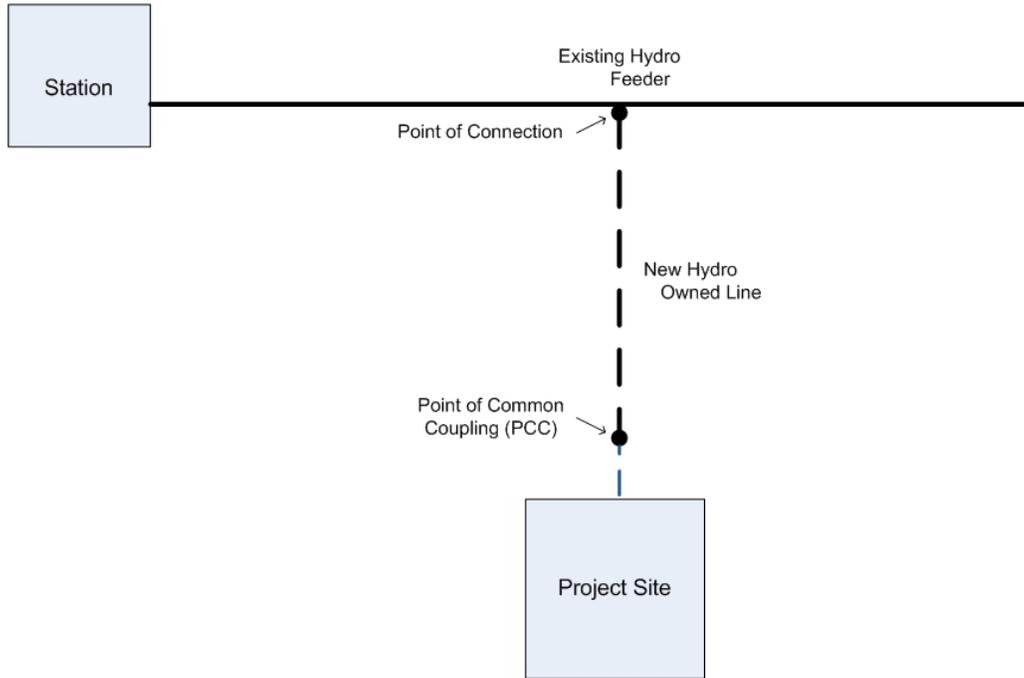


Figure A-1: Festival Hydro Owns Entire Tap Line

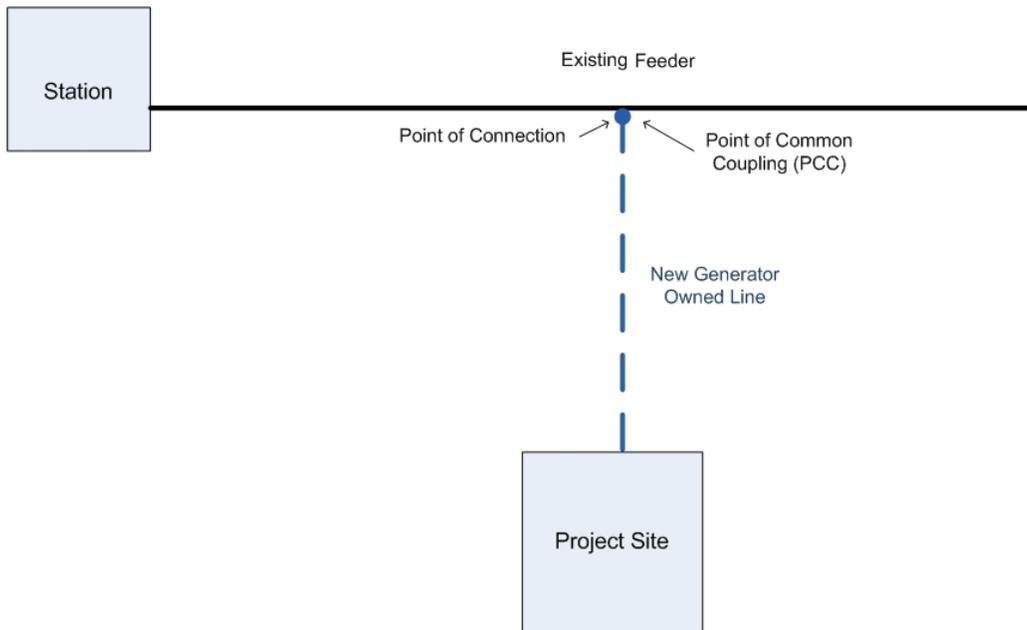


Figure A-2: Generator Owns Entire Tap Line

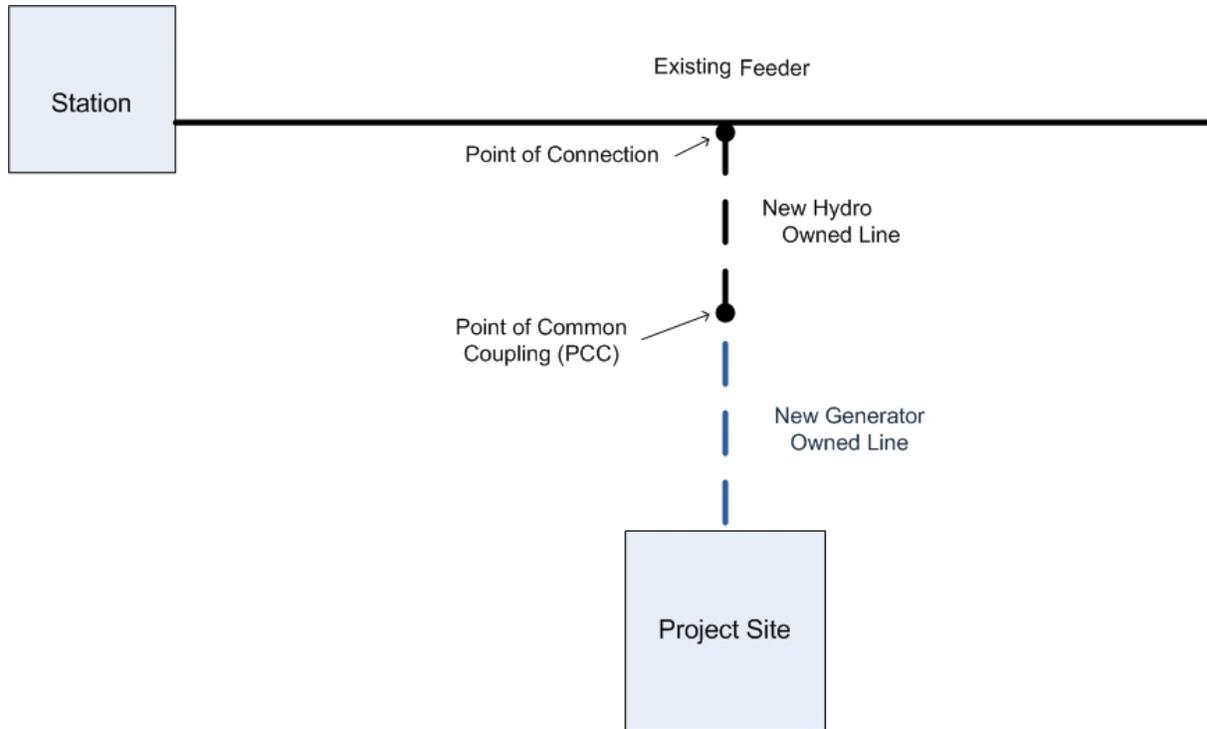
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Figure A-3: Festival Hydro Owns a Portion and Generator Owns a Portion of Tap Line

By submitting a Form B, the Proponent authorizes the collection by Festival Hydro Inc. (“Festival Hydro”) 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 Festival Hydro’s Conditions of Service, Festival Hydro’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 Festival Hydro’s distribution system.