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 Qulliq Energy Corporation
 Société d'énergie Qulliq
 Qulliq Alruyaktuqtunik Ikumatjutiit

Connection Impact Assessment (CIA) Application

This Application Form is for proponents applying for Connection Impact Assessment (“CIA”) and for proponent with a project size >15 kW, including:

- **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 Qulliq Energy Corporation system. It is part of the overall Distribution Connection Agreement.

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

Qulliq Energy corporation.
 Attn: Engineering Department
 Generation Connection Application
 243 Umiaq Crescent, PO Box 250
 Iqaluit, NU.
 X0A 0H0

If you have any questions, please e-mail Qulliq Energy corporation at RenewableEnergy@qec.nu.ca.

NOTES:

- 1) Applicants are cautioned NOT to incur major expenses until Qulliq Energy Corporation approves connection of the proposed generation facility.
- 2) All technical submissions (Connection Impact Assessment Application, single line diagrams, etc.) must be signed and sealed by a licensed NAPEG Professional Engineer (P.Eng.).
- 3) All fields below are mandatory, except where noted. Incomplete applications shall be returned by Qulliq Energy Corporation.

Date: _____ (dd / mm / yyyy)

Application Type: New CIA Application CIA Revision/Rework

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

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

3. Project Size: Nameplate Capacity _____kW



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4. Project Location: Address _____
 City / Town / Township _____
 Lot Number(s) _____
 Block Number(s) _____
 Plan Number(s) _____

5. Project Information:
 Choose a Single Point of Contact: Owner Consultant

Information	Owner (same as Generator)	Consultant
Company/Person		
Contact Person		
Mailing Address Line 1		
Mailing Address Line 2		
Telephone		
Cell		
Fax		
E-mail		

Preferred method of communication with QEC: E-mail Telephone Mail Fax

7. Customer Status:

Existing Qulliq Energy Corporation. Customer? Yes No

If yes, Qulliq Energy Corporation. 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 Hydro Wind

Diesel Engine Gas Turbine

Other (Please Specify) _____

9. Connection to Qulliq Energy Corporation. Distribution System:

- a. Proposed or existing Connection voltage to QEC distribution system: _____ kV
- b. Power Plant / Station: _____
- c. Feeder: _____
- d. GPS coordinates of the following:



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(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 on the high-side of interface transformer(s): _____ km;

Conductor size: _____

g. Connection Figure (As per Appendix A)

A-1 A-2 A-3

h. 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 _____ MVA;

NOTES:

- If this project requires line expansion work between the **Point of Connection** and **PCC**, Qulliq Energy Corporation 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 Qulliq Energy Corporation, as well as **Contestable** work (i.e., new construction/green-field) that can be performed by the Generator/their contractor **or QEC**. (Both **Uncontestable** work and **Contestable** work require Qulliq Energy Corporation design & engineering.)

10. Single Line Diagram ("SLD"):

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

Drawing Number: _____, Rev. _____

11. 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 _____ kVA
 If unit outputs are different, please fill in additional sheets to provide the information.
 Rated frequency: _____ Hz

Type:
 Synchronous Induction Inverter Other (Please Specify) _____
 (If the 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:
 i. Lagging (over-excited): _____ kVAR power factor _____
 ii. Leading (under-excited) _____ kVAR power factor _____
 Limits of range of reactive power at the PCC:
 iii. Lagging (over-excited): _____ kVAR power factor _____
 iv. 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 reactance on: _____ kVA base _____ kV base
 Direct axis sub-transient 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 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

12. Interface Step-Up Transformer Characteristics:

a. Transformer ownership: Customer / QEC
 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: _____ pu
 g. High voltage winding connection: delta star



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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: delta star
 Grounding method of star connected low voltage winding neutral:
 Solid Ungrounded Impedance: R: _____ ohms X: _____ ohms

13. Intermediate Transformer Characteristics (if applicable):

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

14. Load information:

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

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			



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SUBMISSION CHECKLIST

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

- Payment in full including applicable taxes (by cheque payable to “Qulliq Energy Corporation.”)
- Signed Study Agreement (original signature is required)
- Single Line Diagram (SLD) of the Generator’s facilities, must be stamped by a NAPEG Professional Engineer
- Distribution System Map
- Load Displacement Generation Facility’s load and generation schedules (if applicable)
- Load Displacement Generation Facility’s mode of operation (if applicable)
- Energy Storage Facility operating strategy description and parameters (if applicable)
- Emergency Backup Generation Facility’s mode of operation (if applicable)
- Declaration of Siting Restrictions (for wind and solar projects)

SECTION Q: CIA APPLICATION FEE CHECKLIST

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

- Applicable CIA Fee
Please enter the amount indicated for Connection Impact Assessment. +HST
- Third party Customer Impact Assessment (CIA) Fee (if applicable)

A third party CIA is also required if the total nameplate generation of the project is connecting directly to power plant main bus or to feeder.



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NOTE:

By submitting a Connection Impact Assessment Application, the Proponent authorizes the collection by Qulliq Energy Corporation, of any agreements and any information pertaining to agreements made between the Proponent and

_____ , the information set out in the Connection Impact Assessment Application and otherwise collected in accordance with the terms hereof, the terms of Qulliq Energy Corporation Conditions of Service, 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 Qulliq Energy Corporation distribution system.



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▶ **APPENDIX A - FIGURES & DIAGRAMS**

Figure A1: Generator Owns Entire Tap Line

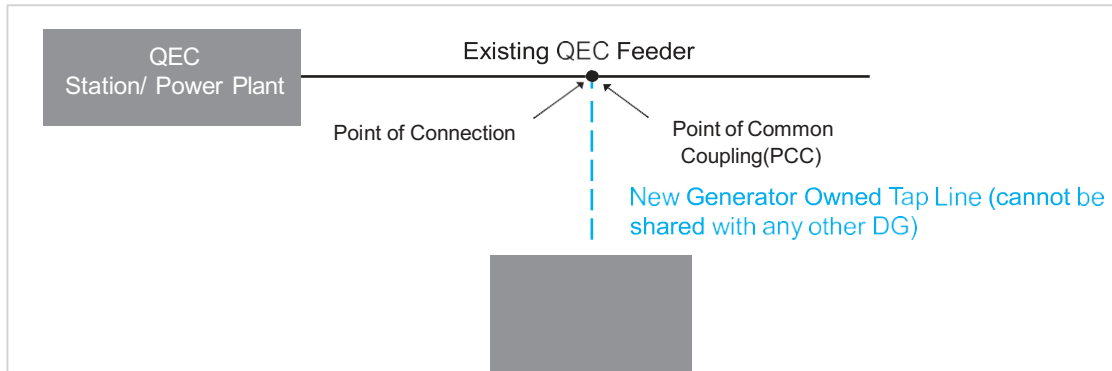
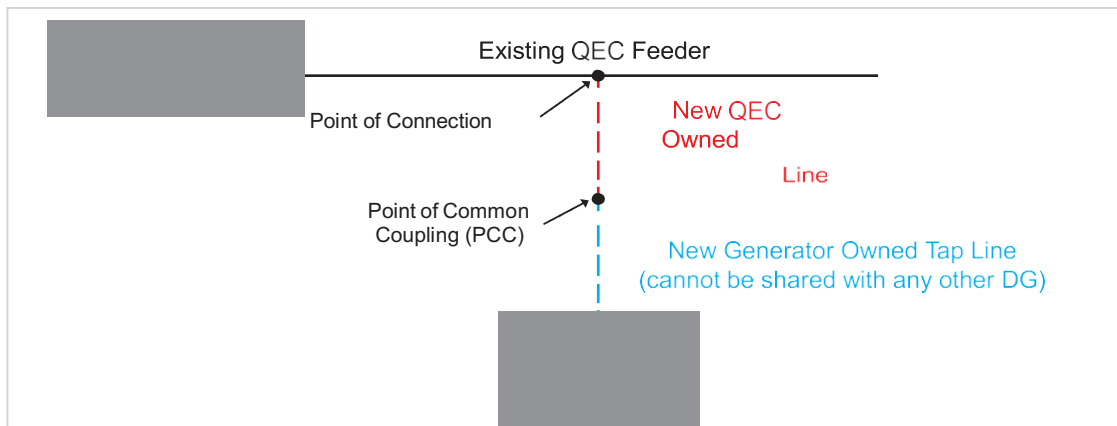


Figure A2: QEC Owns a Portion and Generator Owns a Portion of Tap Line



APPENDIX B - MINIMUM CONTROL STRATEGY INFORMATION FOR ENERGY STORAGE FACILITIES

If project includes energy storage?

Number of units:

Energy Storage Unit Size:

Total Energy Storage Size(kWh):

Inverter Size (enter zero if inverter shared with generation unit(s)):
