Distribution generator interconnections screening study application

This application form is a fillable PDF. We prefer that you submit your completed application form and all required documents as one combined PDF, however if you need to submit these documents separately, please make sure each PDF is clearly labeled. We need to have all the required information before we can start your screening study.

Distribution generator interconnection process milestones	
What date was your Basic Distribution System Information Request completed? mm-dd-yyyy	

You can visit our **webpage** for an overview of the interconnection process and more details about interconnection requirements. If you have any questions, please contact your BC Hydro Interconnections Manager or email **Distribution.Generators@bchydro.com**.

If you are planning to sell power to BC Hydro, you should also contact the Standing Offer Program (SOP). This program encourages the development of clean or renewable power projects of no more than 15 MW throughout British Columbia. Please visit the SOP **webpage** where you can review the program and requirements.

1. Interconnection customer information	
Project name	
Company name	
Mailing address	

Project contacts			
Role	Owner/developer	Consultant	Engineer
Name			
Company			
Phone			
Email			

2. Project information			
Generating station location			
Latitude (deg min sec)		Longitude (deg min sec)	
Nearest town or city			

Proposed Point of Interconnection (POI)			
Latitude (deg min sec)		Longitude (deg min sec)	
Address (optional)			

Project Milestones	
Target in-service date mm-dd-yyyy	

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☐ Project Information Attachment 2.1 Single Line Diagram (SLD)		
Drawing number	Revision number	Date mm-dd-yyyy

You need to include a single line diagram (SLD) of your proposed project with this application. Your SLD should include

- Your project title, date and revision number, site address and the name of person and/or firm that prepared the drawing
- Differentiation between new and existing equipment (cloud or dividing line)
- All switches, breakers, and relays must have distinct identifiers or names
- Point of connection to the BC Hydro distribution system
- Service entrance equipment
- BC Hydro revenue meter and, if applicable, revenue metering instrument transformers
- All electrical equipment between the Service Entrance and the generator (switches, breakers, cables, etc.) with voltage levels and equipment ratings as well as the cable/overhead line configuration (for example, 3c #336.4 kcmil ACSR, 1/0 AWG ACSR neutral overhead line)

☐ Project Information Attachment 2.2 Protection Single Line (Metering and Relaying) Diagram		
Drawing number	Revision number	Date mm-dd-yyyy

You need to include a Protection Single Line (Metering and Relaying) Diagram with your application. This diagram should show all the protective relaying, metering, major control and telecommunications interface to tie in the generator, transformer and plant protection. This diagram should also provide the CT & VT ratios and accuracy classes.

This information may be already included in your Single Line Diagram (SLD) or Attachment 2.1. If this information is already included in your SLD, please enter N/A in the Date, Revision number and number fields.

3. Generator information

Basic generator information

What is your maximum injection to the BC Hydro power system? (MW)	

A distribution generator must have a nameplate capacity not to exceed 15 MW. If your project has multiple generating units, the aggregate nameplate capacity of all of the generators must not exceed 15 MW.

What is your generator's energy source?	Choose one
If your energy source doesn't match any selections in the drop down menu above, please specify.	
What is the total generation (MW) of all generators at your site? (Existing and new.)	
What is the total number of generators at your site? (Existing and new.)	
Does this site currently have electric service from BC Hydro? If Yes, answer below.	

BC Hydro Meter #		BC Hydro Account #	

What is the peak load at the site (for the service with the proposed generator(s))?	kW	
	kvar	
What is the minimum load at your site when the generators are running?	kW	
	kvar	

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Specific generator type section instructions

On the next few pages, this application has different sections for induction, inverter–based and synchronous generators. You only need to fill out the appropriate section for your generator type.

If your proposed project has more than one generator, then you will need to fill out a multiple sections of the appropriate generator type, one for each generator.

If your proposed project has a doubly fed induction generator or another type of generator not covered in this application form, please contact your project's BC Hydro Interconnections Manager for specific instructions.

Induction generator

Induction generator information			
Unit Designation (name or ID#)			Ind 1
Manufacturer (optional)			Ind 2
Model (optional)			Ind 3
Rated kVA			Ind 4
Rated kW			Ind 5
Rated kV			Ind 6
Rated continuous current (A)			Ind 7
Rated Power Factor	lagging (over–excited) O.xx		Ind 8
	leading (under–excited) O.xx		Ind 9
Rated Efficiency (%)			Ind 10
Rated Speed (rpm)			Ind 11
Rated Frequency (Hz)			Ind 12
Subtransient Impedance X_d" (pu)			Ind 13
Inertia Constant of Generator H_G (MW–sec / MVA) (optional)			Ind 14
Generator Moment of Inertia J_G or WR^2_G (kg•m^2) (optional)			Ind 15
Inertia of all rotating mass (optional)	H (MW s / MVA)		Ind 16
	J (kg•m^2)		Ind 17
Power Factor Correction Capacitor Size (kvar) (if applicable)			Ind 18
Power Factor Correction Capacitor Voltage (V) (if applicable)			Ind 19

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Inverter-based generator

Inverter information			
Unit Designation (name or ID#)			Inv 1
Manufacturer (optional)			Inv 2
Model (optional)			Inv 3
Rated A/C output kVA			Inv 4
Rated A/C output kW			Inv 5
Rated A/C output kV			Inv 6
Number of phases (1-phase or 3-phase)			Inv 7
Rated A/C output Current (Amps)			Inv 8
Rated Power Factor (%)	lagging (over-excited) O.xx		Inv 9
	leading (under-excited) O.xx		Inv 10
Rated Efficiency (%)			Inv 11
Rated Frequency (Hz)			Inv 12
Fault Contribution	100% (rated) power generation by the inverter		Inv 13
	At a level of rated power below 50% (40%, 25%, etc.)		Inv 14
Is your Inverter Certified to CSA C22.2 No 107.1? (Yes or No)			Inv 15

Number of Inverters Total Inverter Capacity Calculation			
Number of inverters	Capacity		Total inverter capacity
x	kW	=	

Does your project use storage technology? (Yes or no)		Inv 16

If your project will use storage technology, please answer all the questions below.

Energy storage capacity (kWh)		Inv 17
Peak charging power (kW)		Inv 18
Peak discharge power (kW)		Inv 19
Battery Type (Li-Ion, Lead Acid, Flow, etc.)		Inv 20

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Synchronous generator

Synchronous generator information			
Unit Designation (name or ID#)			S1
Manufacturer (optional)			S2
Model (optional)			S3
Rated kVA			S4
Rated kW			S5
Rated Power Factor	lagging (over-excited) 0.xx		S6
	leading (under-excited) 0.xx		S7
Rated kV			S8
Rated Amperes			S9
Number of Phases			S10
Number of Poles (optional)			S11
Rated Speed (rpm) (optional)			S12
Rated Frequency (Hz)			S13
Amortisseur (damper) windings (connected, not connected or not installed) (optional)			S14
Connection (delta or wye)			S15
Type of Grounding (ungrounded, resistive, reactive or solidly grounded)			S16
Grounding Impedance (ohms)			S17
Inertia Constant of Generator H_G (MW-sec / MVA) (optional)			S18
Generator Moment of Inertia J_G or WR_2^G (kg•m^2) (optional)			S19
Inertia constant of turbine + generator (provide proposed data) H_{GT} (MW-sec/MVA) (optional)			S20
Turbine + Generator Moment of Inertia J_G or WR^2_G (kg•m^2) (optional)			S21

Impedances in per-unit (unless specified) on the machine base kV and base MVA		
Base kVA		S21
D-axis synchronous reactance (unsaturated) X_{di} (pu)		S22
D-axis transient reactance (unsaturated) X'_{di} (pu)		S23
D-axis sub-transient reactance (unsaturated) X''_{di} (pu)		S24
Q-axis synchronous reactance (unsaturated) X_{qi} (pu) (optional)		S25
Q-axis transient reactance (unsaturated) X'_{qi} (pu) (optional)		S26
Q-axis sub-transient reactance (unsaturated) X''_{qi} (pu) (optional)		S27
Negative sequence reactance (unsaturated) X_{2i} (pu) (optional)		S28
Zero sequence reactance (unsaturated) X_{Oi} (pu) (optional)		S29
Leakage reactance (unsaturated) X_{lm} (pu) (optional)		S30
Zero sequence resistance R_O (pu) (optional)		S31
Negative sequence resistance R_2 (pu) (optional)		S32

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4. Transformer (Generator Step Up) information			
Step–up transformer capacity (kVA)			4.1
Step–up transformer voltages (kV)	H.V.		4.2
	L.V.		4.3
Step–up transformer configuration (delta, wye grounded, etc.)	H.V. winding		4.4
	L.V. winding		4.5
Step–up transformer impedances (specified in % of transformer base)	Z		4.6
	X/R		4.7
H.V. Neutral grounding impedance (ohms)[1]	R		4.8
	X		4.9
L.V. Neutral grounding impedance (ohms)	R		4.10
	X		4.11

Note 1: Typically BC Hydro chooses the H.V. neutral grounding impedance values. However please feel free to let us know your preference.

5. Line information	Line segment 1	Line segment 2	Line segment 3	
Line Length (km)				5.1
Number of conductors per phase (1, 2, 3, etc.)				5.2
Phase Conductor Size (please indicate kcmil, AWG or mm)				5.3
Neutral Conductor Size (please indicate kcmil, AWG or mm)				5.4

Conductor impedances (optional)				
Positive Sequence Resistance R1 (ohms)				5.4
Zero Sequence Resistance R0 (ohms)				5.5
Positive Sequence Reactance X1 (ohms)				5.6
Zero Sequence Reactance X0 (ohms)				5.7
Positive Sequence Charging Y1 (µMHO)				5.8
Zero Sequence Charging Y0 (µMHO)				5.9

6. Declaration	
I declare that the data submitted herein meets the requirements of this document.	
Signature	
Print name and title	Date mm–dd–yyyy