

## About This Declaration

- This declaration form is for emergency backup generators whose sole purpose is to supply facility loads when utility power supply is not available.
- Declaring a generator as solely emergency backup can reduce requirements for SCADA monitoring, settlement charges and a connection agreement.
- This form is NOT for generators that may be used for load displacement including global adjustment curtailment and peak shaving.

## Important Notes

- Send a copy of this form to [DxGenerationPlanning@elexiconenergy.com](mailto:DxGenerationPlanning@elexiconenergy.com)
- Along with this form, the customer shall provide a single line diagram (SLD) of the generating facility including the Interface Point / PCC to Elexicon Energy distribution system. As well the equipment shall adhere to the requirements listed on page 3.
- This Declaration Form and the associated SLD must be signed and sealed by a licensed Ontario Professional Engineer (P.Eng.).

## Generator Information

<b>Project Location</b>	Address	
	City / Town / Township	
	Postal Code	
<b>Nameplate Capacity</b>	kW	
<b>Project Type</b>	(e.g. Diesel Engine)	
<b>Facility Owner</b>		
<b>Generator Owner</b>		

## Project Details

<b>Transition Type</b>	Closed (“make before break”)      Open (“break before make”)
<b>Transition Time (ms)</b>	(length of time generator remains parallel to the grid)



## Closed Transition Switching Requirements

### 1. GENERATORS PARALLELING FOR 6 CYCLES OR LESS (CLOSED TRANSITION SWITCHING)<sup>1</sup>

- i) DG Facilities paralleling for 6 cycles or less shall have the following protections:
  - a) Under-voltage protection to ensure that the generator is not capable of energizing Elexicon Energy's Distribution System if it is de-energized; and
  - b) A 6 cycle timer to ensure that the DG Facility will not parallel with Elexicon Energy's Distribution System for more than 6 cycles.
- ii) Synchronization facilities, where required, must follow the requirements specified below.

### 2. SYNCHRONIZATION

- i) Any DG Facility that is capable of generating its own voltage while disconnected from Elexicon Energy's Distribution System shall require proper synchronization facilities before connection is permitted.
- ii) Interconnection shall be prevented if the DG and Elexicon Energy's Distribution System is operating outside the limits specified in Item (iii) below.
- iii) Synchronous generators, self-excited induction generators or inverter-based generators that produce fundamental voltage before the paralleling device is closed shall only parallel with Elexicon Energy's Distribution System when the frequency, voltage, and phase angle differences are within the ranges given below in Table 1 (CSA 22.3 No.9 Table 18) at the moment of synchronization.

Table 1: Resynchronization Requirements

Aggregate Rating of Generators (kVA)	Frequency Difference ( $\Delta f$ , Hz)	Voltage Difference ( $\Delta V$ , %)	Phase Angle Difference ( $\Delta \Phi$ , °)
0-500	0.3	10	20
>500 – 1500	0.2	5	15
>1500	0.1	3	10

\*Source: IEEE 1547

- iv) For synchronous generators, an approved automatic synchronization device shall be required if the plant is unattended (IEEE device number 25) to ensure that the DG Facility will not connect to an energized feeder out of synchronism.
- v) Induction generators and inverter-based generators that do not produce fundamental voltage before the paralleling device is closed, and double-fed generators whose excitation is precisely controlled by power electronics to produce a voltage with magnitude, phase angle, and frequency that match those of the distribution system may not require synchronization facilities.
- vi) Any proposed synchronizing scheme shall be submitted to Elexicon Energy prior to installation and shall be able to accommodate automatic reclosing on Elexicon Energy distribution facilities.