

## **Micro-Embedded Generation Facility Connection Agreement**

In consideration of Horizon Utilities agreeing to allow you to connect your 10 kW name-plate rated capacity or smaller generation facility to Horizon Utilities' distribution system, you hereby agree to the following terms and conditions.

### **1.0 Eligibility**

- 1.1 You agree that your generation connection shall be subject to all applicable laws and bound by the terms and conditions of Horizon Utilities' Conditions of Service as amended from time-to-time, which have been filed with the OEB and are available on request.

### **2.0 Technical Requirements**

- 2.1 You represent and warrant that you have installed or will install prior to the connection of your generation facility to Horizon Utilities' distribution system, an isolation device satisfying Section 84 of the Ontario Electrical Safety Code and agree to allow Horizon Utilities staff access to and operation of this as required for the maintenance and repair of the distribution system.
- 2.2 You agree to perform regular scheduled maintenance to your generation facility as outlined by the manufacturer in order to assure that connection devices, protection systems, and control systems are maintained in good working order and in compliance with all applicable laws.
- 2.3 You agree that during a power outage on the Horizon Utilities system your generation facility will shut down, unless you have installed special transfer and isolating capabilities on your generation facility. You agree to the automatic disconnection of your generation facility from Horizon Utilities' distribution system, as per the generator protective relay settings set out in this Agreement, in the event of a power outage on Horizon Utilities' distribution system or any abnormal operation of Horizon Utilities' distribution system.
- 2.4 You covenant and agree that the design, installation, maintenance, and operation of your generation facility are conducted in a manner that ensures the safety and security of both the generation facility and Horizon Utilities' distribution system.
- 2.5 Due to Horizon Utilities' obligation to maintain the safety and reliability of its distribution system, you acknowledge and agree that in the event Horizon Utilities determines that your generation facility (i) causes damage to; and/or (ii) is producing adverse effects affecting other distribution system customers or Horizon Utilities' assets, you will disconnect your generation facility immediately from the distribution system upon direction from Horizon Utilities and correct the problem at your own expense prior to reconnection.

### **3.0 Liabilities**

- 3.1 You and Horizon Utilities will indemnify and save each other harmless for all damages and/or adverse effects resulting from either party's negligence or willful misconduct in the connection and operation of your generation facility or Horizon Utilities' distribution system.
- 3.2 Horizon Utilities and you shall not be liable to each other under any circumstances whatsoever for any loss of profits or revenues, business interruptions losses, loss of contract or loss of goodwill, or for any indirect, consequential, incidental or special damages, including but not limited to punitive or exemplary damages, whether any of the said liability, loss or damages arise in contract, tort or otherwise.

### **4.0 Compensation and Billing**

- 4.1 If you are not an embedded retail generator, you agree that, subject to any applicable law:
  - a. Horizon Utilities will not pay you for any excess generation that results in a net delivery to Horizon Utilities between meter reads; and
  - b. there will be no carryover of excess generation from one billing period to the next unless you are, at the relevant time, a net metered generator (as defined in section 6.7.1 of the Distribution System Code).
- 4.2 If you are an embedded retail generator selling output from the embedded generation facility to the Ontario Power Authority under contract, you agree that Horizon Utilities will pay you for generation in accordance with the Retail Settlement Code.
- 4.3 If you are an embedded retail generator delivering and selling output to Horizon Utilities, you agree that Horizon Utilities will pay you for generation in accordance with the Retail Settlement Code.

**5.0 Termination**

5.1 You understand that you have the right to terminate this agreement at any time, and that by doing so you are required to disconnect your generation facility and notify Horizon Utilities of such action.

**6.0 Assignment**

6.1 You may assign your rights and obligations under this Agreement with the consent of Horizon Utilities, which shall not withhold its consent unreasonably. Horizon Utilities shall have the right to assign its rights and obligations under this Agreement without your consent.

I understand, accept and agree to comply with and be bound by the above terms and conditions governing the connection of my generation facility to Horizon Utilities' distribution system.

Customer Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Print name and LDC account number: \_\_\_\_\_

I confirm that the following information is true and accurate:

Nameplate rating of Generator: \_\_\_\_\_KW Total installed generation \_\_\_\_KW

Type:  Wind Turbine  Photovoltaic (Solar)  Hydraulic Turbine  Fuel Cell  
 Other \_\_\_\_\_

Inverter Utilized:  Yes  No

Inverter Certification:  C22.2 #107.1  UL 1741  Site Certified by the ESA

**For Office Use:** Station: \_\_\_\_\_ Feeder: \_\_\_\_\_ Date Connected: \_\_\_\_\_

## Generator Protective Relay Settings

**Table 1: Inverter Based Generation**

The following relay settings shall be used for inverters built to the CSA standard:

Source: CSA C22.2 No. 107.1-01 Table 16

System Voltage Vn ' V nominal <b>V (Volts)</b>	Frequency <b>F (Hertz)</b>	Maximum number of cycles to disconnect	
		Seconds	Cycle
<b>V &lt; 0.5 Vn</b>	60	0.1	6
<b>0.5 Vn ≤ V &lt; 0.88 Vn</b>	60	2	120
<b>1.10 Vn ≤ V &lt; 1.37 Vn</b>	60	2	120
<b>V &gt; 1.37 Vn</b>	60	0.033	2
Vn	<b>F &lt; 59.5*</b>	0.1	6
Vn	<b>F &gt; 60.5</b>	0.1	6

\* The UL1741 & IEEE P1547 Standards use F < rated-0.7 i.e. 59.3 Hz. To update if CSA C22.2 No. 107.1-01 is changed

**Table 2: Non-Inverter Generation**

**Horizon Utilities minimum requirements, for other generation are as follows:**

System Voltage Vn ' V nominal <b>V (Volts)</b>	Frequency <b>F (Hertz)</b>	Maximum clearing time*	
		Seconds	Cycles
<b>V &lt; 0.5 Vn</b>	60	0.16	9.6
<b>0.5 Vn ≤ V &lt; 0.88 Vn</b>	60	2	120
<b>1.10 Vn ≤ V &lt; 1.20 Vn</b>	60	1	60
<b>V ≥ 1.20 Vn</b>	60	0.16	9.6
Vn	<b>F &lt; 59.3</b>	0.16	9.6
Vn	<b>F &gt; 60.5</b>	0.16	9.6

\*Clearing time is the time between the start of the abnormal condition and the generation ceasing to energize Horizon Utilities' distribution system

- If you are uncertain about your generation equipment's protective relay settings, please check with your generating equipment supplier.
- Automatic reconnect setting time for your generator is after 5 minutes of normal voltage and frequency on Horizon Utilities' distribution system.