

CONDITIONS OF SERVICE

APPENDIX C1

**Connection Agreement for a Micro-Embedded
Generation Facility**

This Connection Agreement is made this ____ day of _____, _____.

BETWEEN

Horizon Utilities Corporation, (“Horizon Utilities”)

AND

_____, (the “Customer”)

(each a “Party” and collectively the “Parties”)

In consideration of Horizon Utilities agreeing to allow the Customer to connect the Customer’s 10 kW nameplate rated capacity or smaller generation facility to Horizon Utilities’ distribution system, the Customer hereby agrees to the following terms and conditions.

1. Eligibility

- 1.1 The Customer agrees that the Customer’s 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 files with the OEB and are available on request.

2. Technical Requirements

- 2.1 The Customer represents and warrants that the Customer has installed or will install prior to the connection of the Customer’s generation facility to Horizon Utilities’ distribution system, an isolation device satisfying Section 84 of the Ontario Electrical Safety Code and agrees to allow Horizon Utilities’ staff access to and operation of this as required for the maintenance and repair of its distribution system.
- 2.2 The Customer agrees to perform regular scheduled maintenance to the Customer’s 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 The Customer agrees that during a power outage on Horizon Utilities’ distribution system the Customer’s generation facility will shut down, unless the Customer has installed special transfer and isolating capabilities on the Customer’s generation facility. The Customer agrees to the automatic disconnection of the Customer’s 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 The Customer covenants and agrees that the design, installation, maintenance, and operation of the Customer’s generation facility are conducted in a manner that ensures the safety and security of both the generation facility and Horizon Utilities’ distribution system and staff who may be working on lines connect to the customer.
- 2.5 Due to Horizon Utilities’ obligation to maintain the safety and reliability of its distribution system, the Customer acknowledges and agrees that in the event Horizon Utilities determines that the Customer’s generation facility (i) causes damage to; and/or (ii) is producing adverse effects affecting other distribution system customers or Horizon Utilities’ assets; and/or (iii) is

endangering the public safety, property or the environment, the Customer will disconnect the Customer's generation facility immediately from the distribution system upon direction from Horizon Utilities and correct the problem at the Customer's own expense prior to reconnection.

3. Liabilities

- 3.1 The Customer will indemnify and save Horizon Utilities harmless from all damages and/or adverse effects which arise out of the wilful misconduct or negligence of the Customer in: (i) operating the generation facility; (ii) being connected to the Horizon Utilities' distribution system; or (iii) meeting its respective obligations under this agreement, its license and any other applicable law.
- 3.2 Horizon Utilities will indemnify and save the Customer harmless from all damages and/or adverse effects which arise out of the wilful misconduct or negligence of Horizon Utilities in; (i) providing distribution services to the Customer; or (ii) meeting its respective obligations under this agreement, its license and any other applicable law.

4. Compensation and Billing

- 4.1 If the Customer is not an Embedded Retail Generator, the Customer agrees that, subject to any applicable law:
 - a) Horizon Utilities will not pay the Customer 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 the Customer is, at the relevant time, a net metered generator (as defined in Section 6.7.1 of the Distribution System Code).
- 4.2 If the Customer is an Embedded Retail Generator selling output from the embedded generation facility to the Ontario Power Authority under contract, the Customer agrees that Horizon Utilities will pay the Customer for generation in accordance with the Retail Settlement Code.
- 4.3 If the Customer is an Embedded Retail Generator delivering and selling output to Horizon Utilities, the Customer agrees that Horizon Utilities will pay the Customer for generation in accordance with the Retail Settlement Code.

5. Termination

- 5.1 The Customer has the right to terminate this agreement at any time, and by doing so the Customer is required to disconnect the Customer's generation facility and notify Horizon Utilities of such action.

6. Assignment

- 6.1 The Customer may assign the Customer's 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 the Customer's 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 Horizon Utilities' 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, $V_n = V$ nominal V (Volts)	Frequency F (Hertz)	Maximum number of cycles to disconnect	
		Seconds	Cycles
$V < 0.5 V_n$	60	0.1	6
$0.5 V_n \leq V < 0.88 V_n$	60	2	120
$1.10 V_n \leq V < 1.37 V_n$	60	2	120
$V > 1.37 V_n$	60	0.033	2
V_n	$F < 59.5^*$	0.1	6
V_n	$F > 60.5$	0.1	6

* The UL1741 & IEEE P1547 Standards use $F < \text{rated} - 0.7$ 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, $V_n = V$ nominal V (Volts)	Frequency F (Hertz)	Maximum clearing time*	
		Seconds	Cycles
$V < 0.5 V_n$	60	0.16	9.6
$0.5 V_n \leq V < 0.88 V_n$	60	2	120
$1.10 V_n \leq V < 1.20 V_n$	60	1	60
$V > 1.20 V_n$	60	0.16	9.6
V_n	$F < 59.3^*$	0.16	9.6
V_n	$F > 60.5$	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 the Customer is uncertain about the Customer's generation equipment's protective relay settings, the Customer should check with the generating equipment supplier.

Automatic reconnect setting time for the Customer's generator is after 5 minutes of normal voltage and frequency on the Horizon Utilities' distribution system.