



MILTON HYDRO DISTRIBUTION INC.

DER Technical Interconnection Requirements for
Interconnections at Voltages 50kV and Below

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Revision Table

Revision #	Revisions Made	Revised by	Date
0	Initial Document	C. Hale, C.E.T., LEL	May 2026

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1 Embedded Generation

An Embedded Generation Facility is a generation facility that is not directly connected to the IESO-controlled grid but is instead connected to Milton Hydro's distribution system. A person who owns or operates an Embedded Generation Facility is known as an Embedded Generator.

The Ontario Energy Board (OEB) Distribution System Code (DSC) provides for the standardization of connection processes, size categories and the time frames for connecting embedded generation facilities to the distribution system. These categories are as described below.

Generator Classification	Rating
Micro	≤ 12 kW
Small	(a) ≤ 500 kW connected on distribution system voltage < 15 kV (b) ≤ 1 MW connected on distribution system voltage ≥ 15 kV
Mid-Sized	(a) ≤ 10 MW but > 500 kW connected on distribution system voltage < 15 kV (b) > 1 MW but ≤ 10 MW connected on distribution system voltage ≥ 15 kV
Large	≥ 10 MW

The connection and operation of a Customer's embedded generator must not endanger workers or jeopardize public safety, or adversely affect or compromise equipment owned or operated by Milton Hydro, or the security, reliability, efficiency and the quality of electrical supply to other Customers connected to Milton Hydro's distribution system. If damage or increased operating costs result from a connection with a generator, Milton Hydro shall be reimbursed for these costs by the generator.

When an embedded generator is connected to Milton Hydro's distribution system, the Customer shall provide an interface protection that minimizes the severity and extent of disturbances to Milton Hydro's distribution system and the impact on other Customers. The interface protection shall be capable of automatically isolating the generator(s) from Milton Hydro's distribution system for the following situations:

- Internal faults within the generator.
- External faults in Milton Hydro's distribution system.
- Certain abnormal system conditions, such as over/under voltage, over/under frequency.

The Customers shall disconnect the embedded Generator from Milton Hydro's distribution system when:

- a) a remote trip or transfer trip is included in the interface protection, and
- b) the Customer effects changes in the normal feeder arrangements other than those agreed upon in the operating agreement between Milton Hydro and the Customer.

The Customer must also comply with the detailed requirements outlined in the document “Milton Hydro General Requirements for Parallel Generation”.

2 Introduction

Customers of Milton Hydro may choose to supply some or all of their electrical energy needs through the installation of an on-site, Customer-owned generation facility. Milton Hydro will provide non-discriminatory access to its distribution system for a generator, and will make every effort to respond promptly to a generator’s request for connection. For the purposes of this document, a generator that requests connection to the Milton Hydro distribution system will be referred to as an “Embedded Generator”.

This guideline outlines the typical technical requirements and procedural activities required of a prospective Embedded Generator of 10 MVA or less to connect to the Milton Hydro electrical distribution system to ensure safe and reliable distribution system operations. Generation facilities of 10 MVA or higher will be reviewed on a case-by-case basis, as these will require a greater degree of difficulty for connection, and significantly higher costs. This guideline also ensures that Milton Hydro and the Embedded Generator comply with the requirements of the DSC, Section 6.2, the Milton Hydro Conditions of Service, and the Ontario Electrical Safety Code, Section 84.

This guideline focuses on protections required to detect and isolate the generator from the Milton Hydro distribution system when faults/disturbances occur on the distribution system, to protect the Milton Hydro system and other Customers on the distribution system. The Embedded Generator should consider these typical protection requirements when preparing the proposed protection package for Milton Hydro’s review; however, **this guide is not intended to take the place of a detailed final design**. A detailed final design should be completed by a competent person or organization, and should include consideration of proposed power and protective equipment, and local conditions, including existing and future equipment loading and operating conditions.

3 Milton Hydro Distribution System

Hydro One owns the high-voltage transmission system and transformation facility that supplies power to Milton Hydro at the 27.6 / 16 kV levels which, in turn, Milton Hydro distributes to various Customers throughout their electrical distribution system. Because of this arrangement, an Embedded Generator must also comply with Hydro One requirements for connection, as an embedded generator could have a serious impact on the Hydro One system under fault conditions.

The embedded generating facility will be designed, constructed, owned and operated by a developer independent of Milton Hydro. All embedded generator interconnection arrangements must be acceptable to and approved by Milton Hydro and, for some specific relay protection areas, by Hydro

One.

An Embedded Generator facility that includes a generation unit rated at 10 MVA or higher, or whose embedded generation facility is comprised of generation units whose net output is greater than 50 MVA, will require approval of the IESO. Such a facility must meet the applicable IESO performance standards identified in Chapter 4 of the “Market Rules for the Ontario Electricity Market”.

As a general rule the voltage levels might have capacity for the maximum following amounts of distributed energy resources.

- 8.32/ 4.8 kV - Approx. 50% of feeder peak capacity, 300 kW and 1 MW;
- 27.6/ 16.0 kV possibly between 1 MW and 10 MW
- 44 kV possibly between 5 MW and 10 MW

The above examples assume the presence of single-phase and where required three-phase lines with adequate conductor size and inherent load levels. The actual capacity of the lines to accept distributed energy resources can only be determined by an engineering review.

The necessary protection systems to protect Milton Hydro’s distribution system from events that can occur with distributed energy resources connected will also vary by generation size and distribution line characteristics. Therefore, similar units connected at different locations could have different protection requirements based on varying load conditions, as well as on Milton Hydro’s Hydro One feeder supply and transformer characteristics.

Where an Embedded Generation facility is proposed to be greater than 50% of the peak load of a connecting 8.32kV feeder, transfer-trip signal and DG End-Open signal may be required.

Where an Embedded Generation facility is proposed to be greater than 1MW connecting to 1 27.6kV or 44kV feeder, transfer-trip signal and DG End-Open signal may be required.

4 Milton Hydro Utility Practices

The major elements of a utility connection for an embedded generation facility include a circuit breaker for fault current interruption, a transformer for matching the generator and utility system voltages, and a connecting line to the utility facilities. Control, metering and protective relaying facilities are also necessary for both the Embedded Generator and Milton Hydro operations. Milton Hydro will have operating control of the circuit breaker at the interface between the Embedded Generator and the Milton Hydro distribution system

Protection systems are required at the generation facility, and these protection systems must be capable of automatically isolating the Embedded Generator from the Milton Hydro system. The Embedded Generator should provide protection systems to cover the following conditions:

- Internal faults (i.e., faults within the Embedded Generator);
- external faults (i.e., faults on the Milton Hydro system to which the Embedded Generator is connected);
- certain abnormal system conditions that could result in Embedded Generator islanding (e.g., conditions where the Embedded Generator becomes separated from the Milton Hydro system, along with some load); and
- additional protection features, such as Remote Trip or Voltage Supervision, may be required in some applications.

The purpose of the connection and protection requirements outlined in this guide is to:

- consider the health and safety of the general public and of Milton Hydro employees in the performance of their duties;
- preserve the security and reliability of the Milton Hydro and Hydro One distribution systems;
- preserve acceptable quality of the electrical supply to other Milton Hydro Customers; and
- ensure operating flexibility during normal or emergency conditions.

Once a prospective Embedded Generator Customer decides to proceed with the installation of a generation facility, they will be responsible to reimburse the cost reasonably incurred by Milton Hydro in making an offer to connect a generator. The amount that Milton Hydro may charge an Embedded Generator to construct the expansion to connect a generator to the Milton Hydro distribution system shall not exceed the generator's share of the present value of the projected capital costs and on-going maintenance costs for the equipment. Projected revenue and avoided costs from the generator shall be assumed to be zero unless otherwise determined by rates approved by the OEB. The economic methodology and inputs that Milton Hydro will follow are presented in the Milton Hydro Contributed Capital Policy.

Costs that could be reasonably incurred by Milton Hydro include costs associated with:

- Preliminary review for connection requirements;
- detailed study to determine connection requirements; and
- final proposal to connect the generator.

This guideline is prepared for one Embedded Generator on a Milton Hydro distribution feeder. If there is a second Embedded Generator to be connected to the same feeder, then total generation versus maximum feeder load must be considered, and the protection package must be designed accordingly. If additional equipment protection is required for the Embedded Generator already connected to the feeder, the second Embedded Generator may be responsible for the modification costs.

An Embedded Generator will be required to comply with all of Section 5.2 of the DSC in regards to metering requirements for a generating facility. For an OEB-licensed generator connected to the Milton Hydro system that sells energy and settles through the Milton Hydro settlement process, the Embedded Generator must install a four-quadrant interval meter. Milton Hydro will meter Customers with generation that does not require an OEB license, such as back-up capability or generation for load displacement, in the same manner as Milton Hydro other load Customers.

An Embedded Generator that wishes to become connected to the Milton Hydro distribution system must enter into a Connection Agreement with Milton Hydro. This Connection Agreement shall contain specific terms and conditions relating to the connection, operations, maintenance and communications requirements of the generator and Milton Hydro.

4.1 Embedded Generator Interconnection Requirements and Procedure

A prospective Embedded Generator must contact Milton Hydro for information and request the form “Pre-Consultation Request Form (PCIR)”, also available on Milton Hydro’s website.”

As connection costs are to be paid by the generating facility, most applicants will want to determine the point of connection and expected costs prior to committing the project. This information can only be provided after a preliminary review is conducted by Milton Hydro and Hydro One, based on the information included in the “Application to Connect an Embedded Generator.”

The preliminary review includes a verification of the voltage and power ratings of the Embedded Generator installation to confirm whether they are compatible with those of the distribution system. The impact of the proposed connection on reliability, power quality and equipment and personnel safety will also be assessed. Once the preliminary review is completed, and should the Embedded Generator installation be pursued further, more detailed analysis, specifications and information will need to be provided by the Embedded Generator.

Listed below are the recommended steps involved in proceeding to have an Embedded Generator connect to the Milton Hydro electrical distribution system.

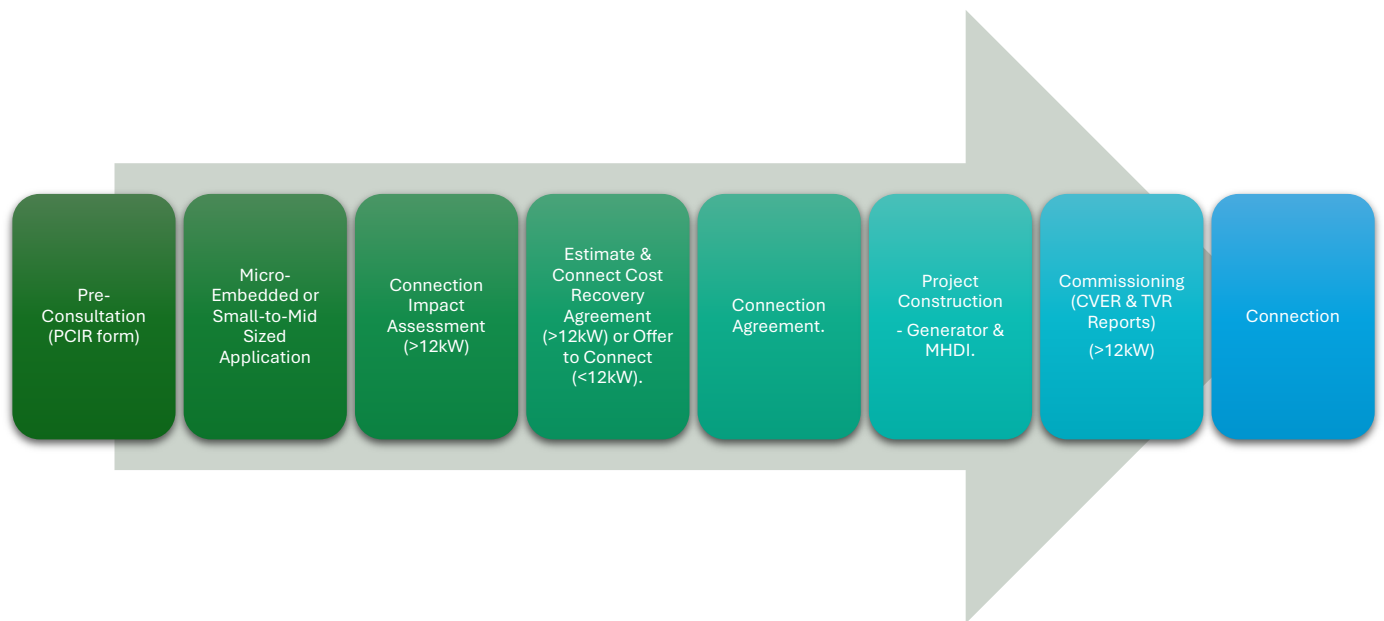


Figure 1: Embedded Generation Connection Process.

4.1.1 Initial Contact and Embedded Generator Connection Application Process

A prospective Embedded Generator must contact Milton Hydro to identify an interest in connecting a generator to the Milton Hydro electrical distribution system, and obtain the form “Pre-Consultation Request Form (PCIR)”. The prospective Embedded Generator shall complete the PCIR form and submit the form to Milton Hydro’s Engineering Department at engineering@miltonhydro.com.

Milton Hydro’s Engineering Department will review the PCIR and contact the Embedded Generator within 10 business to provide a pre-consultation. Following pre-consultation, the Embedded Generator will be provided with Milton Hydro’s assessment of their proposed generation project. The assessment will advise the Embedded Generator if there is sufficient capacity to connect their project, and potential distribution or transmission upgrades including remote telemetry that may be required. For Embedded Generators whose projects can proceed, they are invited to submit an application for connection as following:

Table 1: Application Forms.

Nameplate Capacity	Application Form
12kW or less (micro-embedded)	Electrical Requirements Summary form
Greater than 12kW up to 10MW	Connection Impact Assessment Application form

Application forms can be found on Milton Hydro’s website.

A prospective Embedded Generator must provide Milton Hydro with a written request for connection, along with the completed application form, including the preliminary technical information (two copies) describing the proposed Embedded Generator facility. As a minimum, this would include the following information pertaining to the connection:

- Site location with a scaled map referencing the site relative to existing lot lines, easements, road allowances and power lines, that identifies the facility location;

a brief description of the proposed plant design and operating characteristics, including expected monthly peak power and net energy production for each month of the year. If the Embedded Generator intends to purchase power from Milton Hydro to supplement its Embedded Generator production to meet its total plant load, a monthly estimate of this expected purchase should also be provided;

- short- and long-term site development plans and installation schedule, and the preferred point of connection to the Milton Hydro system;
- preliminary single-line diagram showing generator(s), transformer(s), grounding arrangements and main isolating devices;
- type and rating of main isolating device, generator(s) and transformer(s), and nameplate data if available;

- proposed preliminary relay protection schemes; and
- proposed revenue-metering equipment (i.e., 4-quadrant interval metering).

Once Milton Hydro has received the required information to begin an analysis, Milton Hydro will proceed with a preliminary review of the Embedded Generator connection requirements.

4.1.2 Preliminary Review for Connection Requirements

Milton Hydro will review the application and its associated documents and, if insufficient information has been provided, Milton Hydro will advise the Embedded Generator of its requirements, and will put on hold its review until all sufficient data is provided. In general, the preliminary review will be conducted as follows:

- Determine the acceptability of the location and voltage level of connection to the Milton Hydro system;
- determine the Embedded Generator plant capacity limitations for the proposed connection;
- Provide a completed PCIR form to the Embedded Generator with Milton Hydro's response which includes feasibility of the connection and identifies potential distribution system upgrades by Milton Hydro, transmission system upgrades by the Host Distributor or Transmitter, and Teleprotection requirements. depending on the total generation to be connected to the Milton Hydro feeder, and the minimum feeder load, remote trip protection facilities between the transformer station (Hydro One supply) and the Embedded Generator may be required. Milton Hydro and Hydro One will determine if this requirement is necessary.
- the size of the generator and the Embedded Generator transformer configuration will determine the feeder protection modifications and requirements at the Hydro One supply station. This information will also help to determine any specific connection and equipment requirements, (e.g., requirement for a remote trip protection scheme).

Milton Hydro will provide the applicant with a written response to the preliminary review for connection within 20 calendar days of starting the review.

If the proposed Embedded Generator finds the preliminary review acceptable, they are invited to submit a Electrical Summary Requirements form (12kW or less) or Connection Impact Assessment Application form (>12kW up to 10MW).

Submission Requirements

Table 2: Application Submission Requirements

Documentation	12kW or less (micro-embedded)	>12kW up to 10MW*
PCIR Form	YES	YES
Electrical Requirements Summary Form	YES	N/A
Connection Impact Assessment Application form	N/A	YES
Site Plan	YES	YES
Single Line Diagram	YES	YES
Inverter Specifications	YES	YES
Protection Philosophy (Appendix A)	N/A	YES

**All documents for >12kW up to 10MW projects must be sealed by a Professional Engineer registered with Professional Engineers Ontario.*

Submissions shall be made to Milton Hydro's Engineering Department at engineering@miltonhydro.com.

Upon receiving an application for a generator connection, Milton Hydro's Engineering Department will review the application and advise the Embedded Generator of any material deficiencies. The Embedded Generator shall remedy any deficiencies prior to the application moving to the Connection Impact Assessment (CIA) stage. Once Milton Hydro's Engineering Department has deemed the application with supporting documentation complete, the Embedded Generator will be advise of CIA costs (available on Milton Hydro's website). Projects greater than 12kW may require a Connection Impact Assessment from an upstream utility. Milton hydro's Engineering Department will advise the Embedded Generator if an upstream LDC's Connection Impact Assessment is required and the associated costs.

The Embedded Generator shall pay Milton Hydro the Connection Impact Assessment fees prior to the detailed impact assessment commencing, including Milton Hydro applying to the upstream LDC for their assessment.

At any time during the Connection Impact Assessment stage the Embedded Generator modifies their plans, they must advise Milton Hydro and provide revised plans. Milton Hydro will pause the Connection Impact Assessment process to assess if and how their modifications impact the current assessment.

4.1.3 Detailed Connection Impact Assessment

If the Embedded Generators application qualifies for Milton Hydro's Simplified Connection Impact Assessment, Milton Hydro will advise the Embedded Generator. Appendix C outlines Milton Hydro's requirements for such qualifying projects. Otherwise, a detailed Connection Impact Assessment and process as outlined in these guidelines shall be followed.

The complete detailed engineering package, including relay settings, must be submitted to Milton Hydro before the detailed review can proceed. Milton Hydro will provide the Embedded Generator with an offer to connect within 60 calendar days of starting the detailed review, unless other necessary information outside of Milton Hydro control is required before an offer can be made.

The Embedded Generator must provide Milton Hydro with detailed technical information (two copies) describing the proposed Embedded Generator facility. As a minimum, this would include the following information pertaining to the connection:

- Project construction and commissioning schedule;
- site details, including power line to be constructed, transformer location, isolating switch location and connection location relative to the Milton Hydro feeder circuit;
- final single-line diagrams showing voltage levels, transformer connections, isolating devices, safety interlocks, fusing and metering (statistical and revenue metering);
- nameplate data for protective relays (provide descriptive bulletins), load interrupter switch, generator(s) (include auto/manual synchronization scheme), transformers, breakers and station service;
- generator specifications, including:
 - a) inertial constant in kWsec/kVA
 - b) maximum MVAR limit
 - c) neutral ground resistance in Ohms
 - d) short-circuit unsaturated reactance in per-unit on the generator's MVA and kV base;
 - e) X_d - Synchronous reactance in p.u.
 - f) X'_d - Direct axis transient reaction in p.u.
 - g) X''_d - Direct axis sub-transient reactance in p.u.
 - h) X_2 - Negative sequence reactance in p.u.
 - i) X_0 - Zero sequence reactance to p.u.
- power transformer positive and zero sequence impedances in per-unit on the transformer rating base as measured between each pair of windings:

- a) R1
 - b) X1
 - c) R0
 - d) X0
-
- large motor specifications, in order to calculate voltage drops due to motor starting:
 - a) motor type (synchronous, induction, etc.)
 - b) rating in HP or kW;
 - c) transient reactance in p.u.
 - d) sub-transient reactance in p.u.
 - relaying single-line diagram showing complete protective relaying and tripping schemes;
 - provide settings for the various protective-relaying schemes;
 - AC and DC elementary drawings for control and protection;
 - short-circuit (fault) calculations and voltage drop study (including all appropriate reactances for the generator(s) and transformer(s), relay settings, fuse selection and coordination study of the protection scheme). Short-circuit calculations will be based on IEEE Standard #ANS/IEEE C37.04
 - electrical equipment layout;
 - station ground design and ground potential rise study; and
 - phasing diagram showing all transformer connections.

Milton Hydro, in association with Hydro One, will review the detailed electrical package and determine the acceptability of the interface design as it affects the Milton Hydro and Hydro One systems, and provide written comments to the Embedded Generator.

It is recommended that the Embedded Generator not begin procurement of electrical equipment until Milton Hydro, the Electrical Safety Authority and Hydro One have provided, in writing, the acceptability of the Embedded Generator interface design.

Once the Embedded Generator agrees to proceed with the construction of the generating facility, the Embedded Generator must enter into various agreements with Milton Hydro as set out below in Section 3.5.4.4 Agreements.

Note: Milton Hydro will not provide any consulting services to an Embedded Generator, but only evaluate proposed generating facilities as to how it may impact on the Milton Hydro distribution system.

4.1.4 Protection Philosophy Requirements

All Embedded Generators larger than 12kW shall submit a Protection Philosophy document describing in detail the operation of their perspective generation project. The Protection Philosophy document shall accompany their Connection Impact Assessment and supporting documents per Table 1.

This section provides a summary of protection philosophy for non-exporting, inverter-based (NE/I) connections including storage, solar, and wind. It is intended as a guide for proponents regarding the kinds of protections, and particularly the categories of protections, that distributors will require for connection.

The protection system of the connection will be designed to:

- Detect internal faults with the generator facility, downstream of the Point of Common Coupling (PCC), and automatically disconnect the NE/I source
- Detect external faults on the utility feeder and automatically disconnect the NE/I source
- Detect islanding conditions and disconnect the NE/I source
- Detect export of power from the NE/I source to the utility feeder and automatically disconnect the NE/I source

Internal Faults within the Generator Facility

The following protections are in place to protect against internal faults resulting from the NE/I source:

- Multi-Function Relay-At the PCC, a multi-function relay will be installed to monitor internal faults resulting from the NE/I source. The 52 Trip Breaker will trip if it detects the following:
 - 25 - Synchronization Check
 - 27 - Undervoltage
 - 59 - Overvoltage
 - 81O/U - Under and Over Frequency
 - ID -Active Anti-Islanding
- Inverter Breakers - Each inverter is equipped with an AC breaker at the output of the inverter providing additional overcurrent protection

Facility Overcurrent Protection - All circuits within the facility are protected from both phase-to-phase and phase-to-ground faults by appropriate overcurrent protection devices. Fuses are sized to clear under fault conditions within the generator facility

External Phase and Ground Faults in the Distribution System

The following protections are in place to protect against external faults resulting from the utility feeder:

Multi-Function Relay - At the main utility service, prior to the first facility load, a multi-function relay will be installed to monitor faults from the utility feeder. The 52 Trip Breaker at the NE/I source PCC will trip under the following faults:

- 27 - Undervoltage
- 32R- Reverse Power
- 50/51- Overcurrent
- 59 - Overvoltage
- 81O/U - Under and Over Frequency
- 67 - Directional

Inverter Protection: The inverters proposed for this project are certified to UL 1741, IEEE 1547, and CSA C22.2 107.1-01 standards and will behave accordingly.

Anti-Islanding

The Energy Resource Facility will operate in a grid following mode and will not operate islanded.

Anti-Islanding Inverters - The NE/I source inverters contain both passive and active anti-islanding protection as required by IEEE 1547 and UL1741 SA. If the utility normal power supply is interrupted, the inverters detect the loss of power and disconnect.

Reverse Power

Reverse Power Protection - In addition to the multi-function relay at the utility supply monitoring reverse power (32R), the load is continually monitored to ensure the NE/I source discharge is below the consumption of the facility. This additionally protects against power injection to the utility grid.

Directional Overcurrent

Directional overcurrent protection - Directional overcurrent relays are normally used on incoming line circuit breakers on buses which have two or more sources. They are connected to trip an incoming line breaker for fault current flow back into the source, so that a fault on one source is not fed by the other sources.

Special Comment Regarding Inverter Based Generation

The inverters specified for this project have a limited fault current contribution.

Because inverters are current-limited devices, unlike rotating generators, the fault current is very close to the maximum output current, limiting the fault current in the system to 120% -140% of FLA.

4.1.5 Teleprotection Requirements

This section outlines requirements for Teleprotection requirements based on the size of the generator. Teleprotection is normally only required for generation projects greater than 250kW and requirements will be reviewed on a case-by-case basis.

Table 2. Teleprotection Requirements

Generator Nameplate Rating	Remote Telemetry (MHDI)	Transfer-Trip/ DGEO Signal (HONI)
<250kW	N/A	N/A
>250kW up to 500kW	YES	NO
501kW up to 1MW	YES	POTENTIAL
>1MW	YES	YES

MHDI requires Transfer-Trip DG End Open (DGEO) for any DER connection connecting to an upstream distributor or transmitters distribution system for projects =>1MW in nameplate capacity or as directed by the upstream distributor or transmitter.

4.1.6 Export-Limited Capacity using Power Control System (PCS)

Milton Hydro shall process a proposed DER connection request as a micro-embedded generation facility if:

- The applicant intends to use a Milton Hydro -approved PCS technology to limit exporting capacity,
- The DER's nameplate capacity is no more than 24 kW, and
- The proposed export capacity is no more than 12 kW.

In such cases, Milton Hydro:

- a) May conduct analysis or a simplified CIA, with a fee not exceeding the lowest simplified CIA fee tier.
- b) May take up to an additional 30 days beyond the standard micro-embedded generation connection timeline to either make an offer to connect or provide reasons for refusal,
- c) Shall apply all other requirements applicable to a micro-embedded generation facility connection,
- d) May revise the connection agreement form to reflect the conditions outlined above, and
- e) Shall keep the overall connection cost as close as possible to that of a typical micro-embedded generation connection.

4.1.6.1 DERs with export-limited capacity that meet a certain simplified CIA threshold

Milton Hydro shall also allow DER customers who plan to use PCS to cap their exporting capacity in order to meet the thresholds for simplified CIA eligibility if the nameplate capacity is not more than 200% of the relevant threshold. In such cases, Milton Hydro shall assess eligibility based on the established export-limited capacity rather than the nameplate capacity, allowing the customer to apply for the appropriate simplified CIA tier.

4.1.7 Cost-effective Alternatives to Transfer Trip

The requirement for transfer-trip is established based on one of three factors:

1. The generation source is a renewable technology with export limit of 1MW or greater; or
2. The generation source is a non-renewable technology with an export limit of 1MW or greater; or
3. The generation source is proposed to connect to a feeder whose connected generation exceeds 50% of the feeder peak load determined over the prior 12-month period.

Where a generator can limit or otherwise reduce output to levels meeting the Simplified CIA process or micro-embedded generator limits as agreed to with Milton Hydro, to the generator may qualify for not requiring transfer-trip provided the upstream transmitter also does not require transfer-trip signal.

An applicant shall apply to Milton Hydro for a generator connection following the documented process in these guidelines and the website. Milton Hydro shall advise the applicant during the CIA stage if the proposed project qualifies for cost-effective alternatives to transfer-trip or provide rationale as to why transfer-trip remains a requirement.

5 Agreements

Before a generator installation begins operation, the Embedded Generator applicant must enter into various agreements with Milton Hydro. These agreements must clearly define the obligations and privileges of each party that need to be executed between the Embedded Generator owner and Milton Hydro. The Embedded Generator may be required to enter into all or some of the following agreements:

- **Connection Cost Recovery Agreement (>12kW up to 10MW):** This agreement between the Embedded Generator and Milton Hydro will detail the connection requirements and cost recovery terms.
- **Customer Account Contract:** In the event that the Embedded Generator is also a load customer of Milton Hydro, this contract describes the terms and applicable rates for firm power and backup power, and conditions under which backup power is granted and revoked.
- **Connection Agreement:** This is a technical document which identifies: common language and procedures to be used for normal and emergency situations; installed protection equipment; ownership and operating control of equipment; expected levels of maintenance and testing by both parties; contact names and telephone numbers' definitions; and all necessary schematic diagrams for proper communication between Milton Hydro and the Embedded Generator.
- **Operations Agreement** (if required): This agreement between Hydro One and Milton Hydro will include provisions for safe and effective operation in the presence of the Embedded Generator's equipment connected to the Milton Hydro system. This agreement may only be required if the Embedded Generator affects other parties connected to the Milton Hydro distribution system.
- **Standby Power Agreement** (if required): This agreement for projects requiring standby power describes roles and responsibilities of Milton Hydro and the Embedded Generator, including how Milton Hydro will bill for standby power (effective once OEB has approved a Standby rate for Milton Hydro).

6 Commissioning & Connection

Prior to a generation facility of size 12kW or larger being allowed to connect to the distribution system, the Embedded Generator in coordination with Milton Hydro must complete a “Commissioning and Equipment Verification Report” found in Appendix 7 of these Guidelines. Areas of this Report not shaded must be completed by the Generator and/ or their representatives. The Report must be signed and sealed by a Professional Engineer who is acting on the Generator’s behalf and who is registered with Professional Engineers Ontario.

The Applicant should submit their Commissioning Plan to HHH at least 5 business days prior to the commissioning test date.

Commissioning and Verification tests shall be performed per CSA C22.3 No. 9-08 “Interconnection of Distributed Resources and Electricity Supply Systems”, IEEE 1547 “Standard for Interconnecting of Distributed Resources with Electric Supply Systems” and The OEB Distribution System Code Appendix F.2 “Technical Requirements”.

The Embedded Generator will be required to pay the costs related to production and commissioning tests if these tests are required.

Commissioning Test and ESA Connection Authorization, Ref DSC 6.2.19, 6.2.20, and Appendix F.

Milton Hydro shall make an Offer to Connect and shall connect an Embedded Generator as set out in the following table:

Table 3: Estimate timeframes for Offer to Connect and Connection

Type of Generation	Offer to Connect	Connection
Micro-embedded generation facility	15 Calendar Days if at existing connection; 60 days otherwise	5 Days from date of Connection Agreement & ESA approval
Capacity allocation exempt small embedded generation facility	60 days no reinforcement or expansion; 90 days otherwise	60 days from date of Connection Agreement, ESA approval & no reinforcement or expansion needed; 180 days otherwise
Small embedded generation facility	60 days no reinforcement or expansion; 75 days where upstream distributor/ transmitter CIA required; 90 days where system expansion required.	60-90 days from date of Connection Agreement, ESA approval & no reinforcement or expansion needed; 180 days otherwise
Mid-sized embedded generation facility	60 days no reinforcement or expansion; 75 days where upstream distributor/ transmitter CIA required; 90 days where system expansion required.	Negotiated
Large embedded generation facility	60 days no reinforcement or expansion; 75 days where upstream distributor/ transmitter CIA required; 90 days where system expansion required.	Negotiated

7 General Responsibilities

7.1 Embedded Generator Responsibilities

Design the generating facility electrical and protection package to meet the Milton Hydro, Hydro One and DSC connection requirements and Electrical Safety Authority Inspection requirements. For Electrical Inspection requirements, refer to the Electrical Safety Authority Code, Section 84, and Electrical Inspection Department Bulletin #84-1-1, or the most recent version.

Ensure that the generating facility produces no objectionable harmonics or voltage flicker on the Milton Hydro system. If objectionable harmonics or voltage flicker do occur, the Embedded Generator will be responsible for modifying the generating facility to correct the problem.

The Milton Hydro system is operated within CSA Standard C235, entitled “Preferred Voltage Levels for AC Systems, 0 - 50,000 Volts”, which recommends voltage variation limits on customer circuits. Any Embedded Generator interconnected with the Milton Hydro supply system must not cause voltages, as measured at Customer Service Entrances, to deviate more than the amounts indicated in the CSA Standard.

The output of an Embedded Generator, when connected in parallel with the Milton Hydro supply system, must not adversely affect the voltage, frequency or wave shape of the Milton Hydro electrical distribution system.

If a remote trip protection scheme (ie: Transfer-Trip) and DGEO signals, and/or a voltage supervision scheme is utilized, Hydro One will be required to modify equipment at Hydro One-owned transformer stations and, therefore, the Embedded Generator will be responsible for covering reasonable costs incurred. When an Embedded Generation project is required to have Transfer-Trip and/ or DGEO signals, Milton Hydro and the Embedded Generator shall work with Hydro One to arrange Teleprotection communication from the generation site to Hydro One’s transformer station. Additionally, the Embedded Generator shall participate in Hydro One’s Teleprotection Verification Report (TVR) process with Milton Hydro and Hydro One during any Deand-Zone Transfer-Trip (DZTT0 or Live-Zone Transfer-Trip (LZTT) testing.

If a remote trip protection scheme is required, the Embedded Generator must arrange for and pay the leased circuit costs on data communications circuits.

Provide cellular SIM card or telephone communications inside the generating facility to allow for communication with Milton Hydro staff.

Milton Hydro may require the installation of a “Remote Terminal Unit” (RTU), which will provide data input to the Milton Hydro Supervisory Control Assisted Data Acquisition (SCADA) system. Milton Hydro will require the Embedded Generator to allow for space, in their substation, electrical room, or location as applicable, for the RTU, and provide an AC supply circuit for the unit. Milton Hydro will arrange for a data communications circuit for the SCADA unit, and pay the monthly charges for this leased circuit or cellular signal as applicable.

Where the Embedded Generator is not Net Metered, Milton Hydro shall install a revenue grade meter for recording consumption and generation of the generation facility. The Embedded Generator connected to the Milton Hydro system must install its own meter cabinet complete with 120V outlet supplied from a dedicated 15A breaker in accordance with Milton Hydro metering requirements as described in the Conditions of Service, and provide Milton Hydro with the technical details of the metering installation.

The Embedded Generator metering must be installed at the point of supply. If it is not practical to install the meter at the point of supply, Milton Hydro will apply loss factors to the generation output in accordance with the loss factors applied for retail metering settlement.

An Embedded Generator's substation or medium voltage switchgear must include space for a metering compartment for the installation of instrument transformers and other devices for revenue metering.

It will be the responsibility of the Embedded Generator to forward a detailed electrical package to the Electrical Safety Authority for their review of the proposed generation facility.

Obtain all appropriate permits for the construction and operation of the generation facility (e.g., Electrical Safety Authority approvals, generator licenses, municipal construction permits, etc.)

Advise Milton Hydro of the timetable for commissioning tests of the generator(s) in order that Milton Hydro or its delegate may review and witness the tests.

7.1.1 Termination of Process (Prior to Connection)

If at any time during the course of the project, prior to enacting the Connection Agreement and connecting the generation the Embedded Generator decides for whatever reason that they do not wish to proceed any further, the Embedded Generator shall notify Milton Hydro in writing of their intent to terminate the process. Once notification is received, Milton Hydro personnel will contact the Embedded Generator to confirm the termination notification and proceed with terminating the processes of Milton Hydro's involvement. However, due to equipment and labour hour costs, Milton Hydro reserves the right to determine what funds will be reimbursed to the Embedded Generator assuming payment for the work was made to the utility by the Embedded Generator prior to terminating the process.

7.2 Milton Hydro Responsibilities

Identify and explain the Milton Hydro cost recovery policy to the prospective Embedded Generator.

Review the Embedded Generator electrical design package and determine if it meets the minimum requirements to permit connection to the Milton Hydro system.

Design and modify, as required, the Milton Hydro facilities to incorporate the Embedded Generator.

Discuss and review with Hydro One any relay protection modifications that may be required on the Milton Hydro supply feeder(s).

Milton Hydro Engineering Department will be responsible for coordinating the parallel connection between the Embedded Generator and the Milton Hydro electrical distribution system.

Initiate the preparation of connection estimates and agreements between the Embedded Generator and Milton Hydro.

Coordinate with upstream LDC such as Hydro One for Connection Impact Assessments where required in parallel with its own assessment.

As required by the Market Rules for the Ontario Electricity Market, Milton Hydro will notify the IESO of the generation connection.

Within approximately 60 days following connection, prepare a final project true-up of costs and either refund unused deposit amounts or invoice for any outstanding amounts. This timeframe may vary depending on true-up billing from an upstream LDC.

Note: Milton Hydro will not provide any consulting services to an Embedded Generator, but only evaluate proposed generation facilities to assess impact on the Milton Hydro distribution system.

7.3 Important Technical Requirements for Connection

The Embedded Generator's electrical and protection package shall provide the following:

- a three-phase, gang-operated, visible load break switch, with provision for padlocking at the point of connection to the Milton Hydro system, and which must be accessible to Milton Hydro staff. Milton Hydro will have operating control of this isolating point;
- a fault interrupting/synchronizing device with suitable rating for each generator;
- automatic tripping of the generator(s) for all faults on the Embedded Generator side of the connection point;
- automatic tripping of the generator(s) for phase and ground faults on the Milton Hydro electrical distribution system;
Milton Hydro operates a three-phase four-wire system and, therefore, the appropriate transformer connection between the Embedded Generator and the Milton Hydro system can be either:
 1. High Voltage wye-grounded and a Low Voltage delta;
 2. High Voltage delta and a Low Voltage wye-grounded; or
 3. High Voltage wye-grounded and a Low Voltage wye-grounded.

The preferred transformer connection for generator units above 2 MW's is a High Voltage wye-grounded and a Low Voltage delta.

- suitable transformer protection;
- install protective relays to prevent the Embedded Generator from delivering power to the Milton Hydro feeder line when that line has become isolated or islanded from the rest of the Milton Hydro system. (This will usually include over/under frequency relays and over/under voltage relays);
- for Embedded Generator load displacement projects with no power purchase by Milton Hydro, "Reverse Power Protection" will be required;
- normal reclosing time of the Milton Hydro supply station feeder breaker could be from 0.4 to 2.0 seconds. Short time delay for reclosing (i.e., <1.0 second) will increase the risk of generator damage, and may emphasize the need for a remote trip protection and voltage supervision scheme, since the Embedded Generator islanding protection may be too slow;
- remote trip may be required between the Embedded Generator and the feeder circuit breaker because the Embedded Generator is connected at a critical location on the distribution system. This feature will provide for isolation of the Embedded Generator when certain faults or system disturbances are detected at the feeder circuit breaker location;
- synchronizing facilities for each synchronous generator;
- a ground potential rise study to satisfy Milton Hydro and the Electrical Safety Authority for step/touch potential to satisfy the Communications Company for incoming voice-data circuit/personnel protection.

The communication requirements for the Milton Hydro metering equipment and possible remote trip circuit must be confirmed with Milton Hydro before installation; and for induction generators, ensure that the power factor is greater than 0.9. This may require the installation of automatically disconnected capacitors. Embedded Generator's with synchronous generators will be required to operate as near to unity power factor as possible.

Note: Milton Hydro continually strives to provide the most up-to-date information to our Customers. Therefore, we reserve the right to amend this guideline and its requirements at any time upon the sole discretion of Milton Hydro

Appendix A – Sample Protection Philosophy Submission Requirements (OEB)

This document is a summary of a sample protection philosophy for non-exporting, inverter-based (NE/I) connections including storage, solar, and wind. The OEB intends it as a guide for applicants regarding the kinds of protections, and particularly the categories of protections, that distributors will require for connection.

This is one example of a protection philosophy that would meet the requirements for a complete protection philosophy for the purpose of a CIA application⁹. Other philosophies may also meet the standards. It provides guidance to a distributed energy resource (DER) proponent on good utility practice as it relates to protection requirements of non-exporting, inverter-based (NE/I) DERs. To form a protection scheme, all the elements for each category within any given protection philosophy are requirements.

This document is not an approval for connection. This information should help applicants file better and more complete applications for connection. An applicant will need to submit detailed protection settings after the utility has completed the impact assessment of the submitted connection application.

The standards and certification testing referenced in this document should be read as referring to the current versions of these standards at time of reading.

Sample Protection Philosophy for Non-exporting Inverter-based Sources

Project Name:

Project ID#:

Project Type:

Capacity:

Connection feeder (optional):

In compliance with the technical interconnection requirements of the local distribution company for which this project will interconnect, the protection system of the connection will be designed to:

- Detect internal faults with the generator facility, downstream of the Point of Common Coupling (PCC), and automatically disconnect the NE/I source
- Detect external faults on the utility feeder and automatically disconnect the NE/I source
- Detect islanding conditions and disconnect the NE/I source
- Detect export of power from the NE/I source to the utility feeder and automatically disconnect the NE/I source

⁹ The contents of this document, although intended as guidance, conform to the interconnection and approval requirements prevalent at the time of its issuance. At all times, the current versions of relevant codes and standards govern.

Internal Faults Within the Generator Facility

The following protections are in place to protect against internal faults resulting from the NE/I source:

Multi-Function Relay-At the PCC, a multi-function relay will be installed to monitor internal faults resulting from the NE/I source. The 52 Trip Breaker will trip if it detects the following:

- 25 - Synchronization Check
- 27 - Undervoltage
- 59 - Overvoltage
- 81O/U - Under and Over Frequency
- ID -Active Anti-Islanding

Inverter Breakers - Each inverter is equipped with an AC breaker at the output of the inverter providing additional overcurrent protection

Facility Overcurrent Protection -All circuits within the facility are protected from both phase-to-phase and phase-to-ground faults by appropriate overcurrent protection devices. Fuses are sized to clear under fault conditions within the generator facility

External Phase and Ground Faults in the Distribution System

The following protections are in place to protect against external faults resulting from the utility feeder:

- **Multi-Function Relay** - At the main utility service, prior to the first facility load, a multi-function relay will be installed to monitor faults from the utility feeder. The 52 Trip Breaker at the NE/I source PCC will trip under the following faults:
- 27 - Undervoltage
- 32R- Reverse Power
- 50/51- Overcurrent
- 59 - Overvoltage
- 81O/U - Under and Over Frequency
- 67 – Directional

Inverter Protection: The inverters proposed for this project are certified to UL 1741, IEEE 1547, CSA C22.2 107.1-01 standards¹⁰ and will behave accordingly.

Anti-Islanding

The Energy Resource Facility will operate in a grid following mode and will not operate islanded.

Anti-Islanding Inverters -The NE/I source inverters contain both passive and active anti-islanding protection as required by IEEE 1547 and UL1741 SA. If the utility normal power supply is interrupted, the inverters detect the loss of power and disconnect.

¹⁰ All references to standards or testing certifications should be read as the most current version.

Reverse Power

Reverse Power Protection - In addition to the multi-function relay at the utility supply monitoring reverse power (32R), the load is continually monitored to ensure the NE/I source discharge is below the consumption of the facility. This additionally protects against power injection to the utility grid.

Directional Overcurrent

Directional overcurrent protection - Directional overcurrent relays are normally used on incoming line circuit breakers on buses which have two or more sources. They are connected to trip an incoming line breaker for fault current flow back into the source, so that a fault on one source is not fed by the other sources.

Special Comment Regarding Inverter Based Generation

The inverters specified for this project have a limited fault current contribution. Because inverters are current-limited devices, unlike rotating generators, the fault current is very close to the maximum output current, limiting the fault current in the system to 120% -140% of FLA.

Breaker Failure Scheme (Facilities with an aggregate output > 500kW)

In the event that 52-A fails to open when intertie protection relay calls for a trip, 52-B will instantaneously trip and lock out.

Reconnection

Manual reconnection: There is no automatic reconnection scheme at this facility. A manual reconnection will only be executed when given permission by the respective controlling authority.

OR

Automatic reconnection scheme: Intertie protection relay will initiate automatic reconnection of DER only after a fault event has occurred on the utility feeder and not after a fault event within the DER facility. Stable voltage and frequency measurement within ranges and for time period stipulated in the technical interconnection requirements will be met prior to automatic reconnection. Internal faults will be distinguished from external faults by pickup of directional overcurrent 67/67N protection element looking into DER facility. This will ensure reconnection into facility fault is prohibited by blocking of automatic reconnection scheme for facility faults.

Open Phase Protection

This project consists of multiple 1-phase inverters connecting to a 3-phase service or multiple 3-phase inverters connecting to a 3-phase service; therefore, open phase protection will be provided by 46 and/or 47 element(s) in the intertie protection relay to ensure the BESS maintains a balanced 3-phase output and detects loss of voltage in one or more phases and will trip the entire generating facility upon detection of such.

OR

Attached is a signed letter from the inverter manufacturer stating that a facility comprising of multiple inverters is capable of maintaining a balanced 3-phase output and will detect loss of voltage in one or more phases and will trip the entire generating facility upon detection of such.

Communications and Transfer Trip/DGEO (if applicable)

Summarize communication systems and transfer trip/DGEO timing (if applicable).

Table 1: Protection Summary Matrix

Description	IEEE Device	Internal Faults	External Faults	Anti-Islanding	Reverse Power	Trips 52-A	Trips 52-B	Disables Inverters
Over-Voltage	59	X	X	X		X		X
Under-Voltage	27	X	X	X		X		X
Over-Frequency	81O	X	X	X		X		X
Under- Frequency	81U	X	X	X		X		X
Instantaneous Over-Current Phase	50	X	X			X		X
Timed Over-Current Phase	51	X	X			X		X
Reverse Power	32R			X	X	X		
Breaker Fail	50BF						X	
Active Anti-Islanding	IEEE 1547			X				X

Table 2: Protection Elements

Protection Element Function	Device #	Feeder Protection Relay/Shunt Trip	IEEE 1741 SA Inverter
Over-Voltage	59	X	Y
Under-Voltage	27	X	Y
Over-Frequency	81O	X	Y
Under-Frequency	81U	X	Y
Synchronization Check	25	X	Y
Reverse Power	32R	X	
Overcurrent	50/51	X	Y
Directional	67	X	
Active Anti-islanding	ID		X

X = Primary Y = Secondary

Appendix B – Commissioning & Equipment Verification Report

(Inserted following this page)



Commissioning and Equipment Verification Report

Prior to an applicants distributed energy resource (DER) project being connected to Milton Hydro Distribution Inc's (MHDI's) distribution system, the applicant in working with MHDI must complete a Commissioning and Equipment Verification Report (Report) verifying the equipment is approved, tested with all A/C output inverters (or other A/C output devices) active, and suitable for connection.

The Applicant should submit their Commissioning Plan to MHDI at least 20 business days prior to the commissioning test date. The applicant should note that MHDI requires this Report to be signed and sealed by a Professional Engineer registered with the Professional Engineers of Ontario on the applicant's behalf.

In addition to testing required on the part of the Applicant to satisfy other regulatory agencies, MHDI requires that Commissioning and Verification tests be performed per CSA C22.3 No. 9-20 "Interconnection of Distributed Resources and Electricity Supply Systems", IEEE 1547 "Standard for Interconnecting of Distributed Resources with Electric Supply Systems" and The OEB Distribution System Code Appendix F.2 "Technical Requirements".

This Report applies to DER projects greater than 10kW. Field testing portions of this report shall be conducted by qualified individuals hired by the applicant. Additionally, if required a Hydro One Teleprotection Verification Report (TVR)

Instructions for Completing this Report:

- The applicant shall contact MHDI's Engineering Tech and present their Commissioning Plan at which time MHDI's Engineering Tech shall fill in the grey areas of Section 1 "General Site Information" and Section 2 "Contact Information" as send this Report to the Applicant.
- The Applicant shall complete Section 1 "General Information" and Section 2 "Contact Information".
- During commissioning the Applicant will complete their portions of this Report after which MHDI will complete their portions of the same Report.
- In Section 3 "Equipment Verification and Testing" the Applicant shall indicate a result of Pass, Fail, or N/A. Where a result of Fail or N/A is applied the Applicant shall provide notes as to the reason.
 - White areas are to be completed by the Applicant.
 - Grey areas are to be completed by MHDI's Engineering Tech or an MHDI representative.
- The Applicant shall record any deficiencies and resolutions of those deficiencies in Section 4 "Deficiencies and Resolutions". Where no deficiencies are found the Applicant shall check the box at the bottom of Section 4.
- MHDI's Engineering Tech shall complete Section 5 "Electrical Safety, Site Access, and Agreements".
- The Applicants and their representative (P.Eng.) shall sign where indicated in Section 6 of this Report, submit a completed report along with a Professional Engineers, and a copy of their own test reports 10 days prior to go-live date.
- MHDI's Engineering Tech shall review the Report and once satisfied sign the Engineering Tech portion of Section 6 of this Report.

1	General Site Information	
Name of Applicant		
Name of Facility		
Proposed Energization Date		
MHDI D.G. Designation		
Transformer/ Distribution Station		
Feeder Name		

2	Contact Information	
Applicant Contact		MHDI Engineering Tech Contact
Name:		Name:
Title:		Title:
Tel. #:		Tel. #:
Fax #:		Fax #:
Email:		Email:

3	Equipment Verification and Testing (Applicant) (All inverters must be installed and working during commissioning tests)	
Results: P = Pass, F = Fail, N/A = Not Applicable		
Item to be Verified	Result	Notes
Confirm output voltage of generator is no less than 7% below and no greater than 4% above nominal voltage (CSA C235-83, table 3) with clearing times per CSA C22.3 No 9-20. This shall be confirmed by monitoring voltage for 5 minutes with all inverters active.		
Check Phase Rotation (Generator)		
Under Voltage Protection (IEEE 27) working		
Over Voltage Protection (IEEE 59) working		
Confirm frequency is operating in the range of 59.4Hz to 60.6Hz (CSA C22.3 No 9-20). This shall be confirmed by monitoring frequency for 5 minutes with all inverters active.		
Under Frequency Protection (IEEE 81/O) working with clearing times per CSA C22.3 No 9-20		
Over Frequency Protection (IEEE 81/U) working with clearing times per CSA C22.3 No 9-20		
Maximum Harmonic Current Distortion is per CSA C22.3 No 9-20		
Power Factor per OEB DSC Appendix F.2, item 4		
All grounding is in accordance with the Ontario Electrical Safety Code at CSA C22.3 No 9-20		
Instrument Transformers are functioning within manufacturer tolerance (CT's/ PT's)		
Confirm Protective Relays/ Circuit Breakers are calibrated and functioning correctly.		
All Protective Schemes and interconnecting devices relating to loss of utility power function correctly		
Field installed power and control wiring compliant with specifications		



3	Equipment Verification and Testing Continued (Applicant) (All inverters must be installed and working during commissioning tests)		
	Results: P = Pass, F = Fail, N/A = Not Applicable		
Item to be Verified		Result	Notes
Confirm Islanding Detection (ID, Anti-Islanding) functions and removes all generation sources from grid upon simulated utility power outage. This shall be confirmed by a field test once all inverters are actively outputting A/C voltage and current into the distribution system. Steady state production shall be monitored for 5 minutes. After 5 minutes the line side A/C switch will be opened for 1 minute, then closed. During the simulated utility outage the inverters output shall be monitored to ensure they do not produce power during the outage and also do not start producing power immediately when utility power is restored. Grid dependent inverters should not actively produce power until 5 minutes after A/C power is restored. After the inverters begin producing power, monitoring of voltage, current, and frequency shall continue for another 5 minutes.			
Monitoring Equipment that MHDl has remote access to functions correctly (where applicable)			
Confirm Transfer Trip (where applicable): a) Ceases to energize the distribution system upon receiving a transfer trip signal, b) Ceases to energize the distribution system upon transfer trip communication loss.			
Inverter and related equipment is Certified to UL1741, IEEE 1547, and CSA Standards			
Ensure that all active sources of power production (ex. inverters) are on site and working (to be completed by an independent Professional Engineer hired by the applicant)			
Point Verification testing complete and all required data points are transmitted to MHDl during Dead-Zone testing (if applicable).			
Point Verification testing complete and all required data points are transmitted to MHDl during Live-Zone testing (if applicable).			
Applicants own testing records have been provided to MHDl.			

3	Equipment Verification and Testing (MHDl)	
Results: P = Pass, F = Fail, N/A = Not Applicable		
	Item to be Verified	Result
	DG AC Disconnect is CSA/ ULC Approved, lockable, and accessible to MHDl staff	
	Meter base/ cabinet specified was installed	
	ESA warning label "DG SYSTEM DISCONNECT" affixed to AC Disconnect	
	ESA warning label "WARNING TWO POWER PARALLEL SYSTEM" affix to meter base/ cabinet.	
	Inverter bares Certification Organizations emblem.	
	Confirm that communication to MHDl meter/SCADA is working (may require office/ OMS assistance) Note: This check may occur following connection.	

3	Equipment Verification and Testing (Equipment Data)			
Applicant	CT and PT Ratios for meter (400A and up):	CT Ratio: _____ PT Ratio: _____		
	Meter Reading after Commissioning Complete (if applicable):	_____ kWh		
Applicant	Customer Step-up Transformer Size (kVA):		Transformer Impedance:	
	Transformer Manufacturer:		Manufactured Date:	
	Transformer Serial Number:			
	Power Factor (>30kW, PF = ± 0.9):	o Leading _____ o Lagging _____		
	Phase Rotation (from 0°):	R_____	W_____	B_____

4	Deficiencies and Resolutions	
	Deficiency	Resolution
1		
2		
3		
4		
5		
6		
7		
8		
	No Deficiencies were found at time of commissioning ☐ (check)	

5	Electrical Safety, Site Access, and Agreements		
Item		Received (check)	Date (yyyy/mm/dd)
If required for commissioning tests, ESA Temporary Connection Authorization per OESC 2-014			
MHDl has received keys to access meter (where applicable)			
Letter from a Professional Engineer that is signed and sealed stating that the equipment and installation meets CSA, ESA, and all other applicable industry Standards.			
MHDl has received copies of Applicants own commissioning and testing reports			

6	Completion of Report and Acceptance Sign-off's	
By signing this Report the Applicant and their Representative acknowledges that all required verifications on their part have been completed and that the Applicants generation facility meets or exceeds the minimum industry design Standards, Regulations, and Laws for such a facility connected to a distribution system in Ontario. The applicant has submitted to MHDl copies of their own commissioning and testing reports that may be included with this or separate from this Report.	_____ Signature of Applicants Representative (must be a P.Eng.) Name (Print): _____ Date (yyyy/mm/dd): _____ _____ Applicant's Signature Date (yyyy/mm/dd): _____	
MHDl's Engineering Tech has reviewed the above Report and found the results and information provided to be acceptable to MHDl. The project may move forward towards connection subject to all approvals/ documentation being in order prior to connection.	_____ Signature of MHDl Engineering Tech Name (Print): _____ Title: _____ Date (yyyy/mm/dd): _____	

Appendix C – Simplified Connection Impact Assessment & Commissioning

Milton Hydro offers a **Simplified Connection Impact Assessment (CIA)** compliant with OEB Guidelines that are designed to streamline the process of connecting small-scale generation projects (≤ 100 kW) to the electricity distribution grid. These guidelines help ensure that new small scale distributed energy resources (DERs), such as rooftop solar, small wind turbines, and battery storage, can be integrated efficiently while maintaining grid safety, reliability, and power quality.

Eligibility Criteria

To qualify for the **Simplified CIA process**, a project must meet specific conditions, including: A **nameplate capacity of:**

- $>12\text{kW}$ and $\leq 30\text{kW}$ (single phase, 16kV or less); or
- $>30\text{kW}$ and $\leq 100\text{kW}$ (single/ three phase, 16kV or less).

Located in an area where the total generation on the feeder does not exceed 7% of the annual peak load.

The project does not require an upstream distribution or transmission system impact assessments. Compliance with technical and safety requirements of MILTON HYDRO.

If a project does not meet these criteria, it must undergo a Full CIA, which involves a more detailed technical assessment.

Application and Review Process

Step 1: Preliminary Screening

The project proponent must first consult with the MILTON HYDRO to determine whether the project qualifies for a Simplified CIA. To being the preliminary consultation complete and submit the **Pre-consultation Request Form (PCIR)** and submit to **engineering@miltonhydro.com**. Our Engineering Department staff will contact you within 15 business days to discuss your proposal and provide a response.

If the pre-consultation identifies the applicant's proposal meets the criteria for a Simplified CIA, Milton Hydro's Engineering Department will advise the applicant of next steps to submit a CIA application.

Step 2: Application Submission

Once deemed eligible, the applicant submits an CIA Application form found in the Forms section of the website. This includes technical details such as:

- Project location and connection point.
- Equipment specifications (e.g., inverter ratings, protective relays).
- Load flow analysis and expected generation capacity.

- Single Line Diagram that includes at minimum the sources of generation, wire sizes, protective devices and IEEE numbers, meter location, utility disconnect switch, Point of Common Coupling (PCC), and Point of Connection (POC).
- Site plan showing location of generation, utility disconnect switch, and meter.
- Protection philosophy (see MILTON HYDRO Condition of Service and OEB DERCP Guidelines).

Proposed project schedule.

- The application, single line diagram, and protection philosophy must be sealed by a Professional Engineer (for projects > 30kW).

Additionally, the applicant shall submit payment for the CIA in accordance with MILTON HYDRO's CIA fee structure available at (WEBSITE) with their application.

Step 3: Connection Impact Assessment

Once a full application is received, MILTON HYDRO will be doing a Connection Impact Assessment (CIA). The CIA will review the proposed projects:

- Impact on voltage levels at the connection point.
- Protection coordination with existing grid infrastructure.
- Power quality considerations, such as harmonics and flicker.

Step 4: Approval or Further Study

Following completion of the CIA, if no significant distribution system impact is identified, the project is approved under the Simplified CIA process.

Milton Hydro will provide the applicant with a Connection Cost Recovery Agreement (CCRA), CIA report, a **Commissioning & Equipment Verification Report (CVER)**, and Connection Agreement within approximately 45 business days following a complete submission. Additional related information as applicable will be provided.

If **potential issues** are found, Milton Hydro will advise the proponent that a **full CIA** possibly including upstream LDC is required to conduct a more detailed technical review.

Step 5: Construction, Telemetry, and Commissioning

The applicant shall provide Milton Hydro with a current construction schedule that includes

provisions for MILTON HYDRO telemetry point verification testing and commissioning.

Milton Hydro Engineering staff will advise the applicant of any missing information, agreements, or fees. Once approved by Milton Hydro's Engineering Department, the applicant can start making material investments in their equipment.

Telemetry (if required):

- Milton Hydro will supply and install a radio which the applicant shall connect their Real-Time Automation Controller (RTAC).
- The applicant shall provide any telemetry points and network information to Milton Hydro a minimum of eight (8) weeks prior to commissioning to allow Milton Hydro sufficient time to add the project to our SCADA.
- Approximately three (3) weeks prior to commissioning, perform a point verification test of telemetric points and record the results.

Step 6: Commissioning

The applicant shall schedule with Milton Hydro their commissioning date at minimum three (3) weeks in advance to allow for Engineering and Control Room staff to schedule resources.

The applicant is required to complete Milton Hydro's **Commissioning and Equipment Verification Report (CVER)** in Appendix B and submit to Milton Hydro prior to permanent use of the DER. The CVER shall be sealed by a Professional Engineer registered with Professional Engineers Ontario (PEO).

Accompanying the CVER, the applicant shall submit a letter sealed by a Professional Engineer attesting that:

- The DER has been constructed and commissioned in accordance with CSA, OESC, IEEE, and other applicable industry standards, provincial and local laws, by-laws, Act's, and Regulations.
- The DER's operations are consistent with the protection philosophy and all protective equipment has been installed, commissioned, and operated as designed.
- Submit their own commissioning and test reports in addition to CVER.
- Conduct a live point verification test of all telemetric data ensuring that MILTON HYDRO's SCADA shows proper values (if applicable).
- The applicant shall provide ESA Connection Authorization for temporary connection during commissioning and a final Connection Authorization for continued operation of their DER.

- When satisfied, Milton Hydro shall advise the applicant they can continue operation of their DER.

Step 7: Post Commissioning

Following successful commissioning, the applicant shall submit as-built drawings including single line diagrams.

Milton Hydro shall submit a Letter of Equivalency to Hydro One as applicable.

Approximately 2 months following project completion, Milton Hydro shall provide the applicant with a final cost report and provide a refund or request additional payments as applicable.

Appendix D – Connection Agreements (Micro-Embedded and Small-to-Mid Sized Projects)

(Agreements Inserted Following this Page)



Milton Hydro Distribution Inc.

Micro-Embedded Generation Facility Connection Agreement

In consideration of Milton Hydro Distribution Inc (MHDI) agreeing to allow you to connect your 12 kW name-plate rated capacity or smaller generation facility to MHDI's 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 MHDI's 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 MHDI's distribution system, an isolation device satisfying Section 84 of the Ontario Electrical Safety Code and agree to allow MHDI's 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 MHDI's 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 MHDI's distribution system, as per the generator protective relay settings set out in this Agreement, in the event of a power outage on MHDI's distribution system or any abnormal operation of MHDI's 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 MHDI's distribution system.
- 2.5 Due to MHDI's obligation to maintain the safety and reliability of its distribution system, you acknowledge and agree that in the event MHDI determines that your generation facility (i) causes damage to; and/or (ii) is producing adverse effects affecting other distribution system customers or MHDI's assets, you will disconnect your generation facility immediately from the distribution system upon direction from MHDI and correct the problem at your own expense prior to reconnection.

3.0 Liabilities

- 3.1 You and MHDI 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 MHDI's distribution system.
- 3.2 MHDI 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. MHDI will not pay you for any excess generation that results in a net delivery to MHDI 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 MHDI 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 MHDI, you agree that MHDI 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 MHDI of such action.

Milton Hydro Distribution Inc.
Micro-Embedded Generation Facility Connection Agreement



6.0 Assignment

6.1 You may assign your rights and obligations under this Agreement with the consent of MHDI, which shall not withhold its consent unreasonably. MHDI 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 MHDI's distribution system.

Name (print): _____

Signature: _____ Date: _____

MHDI account number: _____

I confirm that the following information is true and accurate:

Nameplate rating of Generator: _____kW Total installed generation _____kW

Generator applying for: ☐ Net Metering
☐ Feed-in-Tariff (FIT) Provide Reference Number from IESO: _____

Type: ☐ Wind Turbine ☐ Photovoltaic (Solar) ☐ Hydraulic Turbine ☐ Fuel Cell
☐ Other _____

Inverter Utilized: ☐ Yes ☐ No If yes, inverter rating: _____kW

Note: Inverters must be certified to CSA standard C22.2 #107.1 and bear a certification mark recognized in Ontario

Generator Protective Relay Settings

Table 1- Inverter Based Generation				Table 2- Non Inverter Generation			
The following relay settings shall be used for inverters built to the CSA standard:				MHDI's minimum requirements, for other generation are as follows:			
System Voltage Vn - V nominal V (Volts)	Frequency F (Hertz)	Maximum number of cycles to disconnect		System Voltage Vn - V nominal V (Volts)	Frequency F (Hertz)	Maximum clearing time*	
		Seconds	Cycles			Seconds	Cycles
$V < 0.5 V_n$	60	0.1	6	$V < 0.5 V_n$	60	0.16	9.6
$0.5 V_n \leq V < 0.88 V_n$	60	2	120	$0.5 V_n \leq V < 0.88 V_n$	60	2	120
$1.10 V_n \leq V < 1.37 V_n$	60	2	120	$110 V_n \leq V < 120 V_n$	60	1	60
$V > 1.37 V_n$	60	0.033	2	$V \geq 120 V_n$	60	0.16	9.6
V_n	$F < 59.5^*$	0.1	6	V_n	$F < 59.3$	0.16	9.6
V_n	$F > 60.5$	0.1	6	V_n	$F > 60.5$	0.16	9.6
* The UL1741 & IEEE P1547 Standards use $F < \text{rated} - 0.7$ i.e. 59.3Hz. To update if CSA C22.2 No. 107.1-01 is changed				* Clearing time is the time between the start of the abnormal condition and the generation ceasing to energize the distribution system			
Source: CSA C22.2 No. 107.1-01 Table 16							

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 MHDI's distribution system.

CONNECTION AGREEMENT FOR A SMALL EMBEDDED GENERATION FACILITY OR A MID-SIZED EMBEDDED GENERATION FACILITY

This Connection Agreement is made this ____ day of _____, 202__.

BETWEEN

Milton Hydro Distribution Inc, (the "Distributor")

AND

_____, (the "Customer")

(each a "Party" and collectively the "Parties")

RECITALS

WHEREAS the Distributor is the owner of the distribution system serving the service area described in electricity distribution licence number ED-20030-0014 (the "Licence") issued by the Ontario Energy Board (the "Board") (the "Distributor's distribution system").

AND WHEREAS the Customer owns or operates an embedded generation facility that is located in the Distributor's licensed service area (the "Facility").

AND WHEREAS the Customer has connected or wishes to connect its Facility to the Distributor's distribution system and the Distributor has connected or has agreed to connect the Facility to the Distributor's distribution system.

AND WHEREAS the Distributor has previously reviewed and accepted the Customer's application to connect and related materials that were submitted to the Distributor in accordance with the process set out in the Distribution System Code (the "Code") (altogether, the "Application") and the Distributor and the Customer have signed a connection cost agreement (both of which are attached to this Agreement as Schedule A).

AND WHEREAS in accordance with its Licence and the Code, the Distributor has agreed to offer, and the Customer has agreed to accept, distribution service in relation to the Facility.

NOW THEREFORE in consideration of the foregoing, and of the mutual covenants, agreements, terms and conditions herein contained, the Parties, intending to be legally bound, hereby agree as follows:

1. Definitions and Schedules

1.1 Words and phrases contained in this Agreement (whether capitalized or not) that are not defined in this Agreement have the meanings given to them in the *Electricity Act, 1998*, the *Ontario Energy Board Act, 1998*, any regulations made under either of those Acts, or the Code.

1.2 The following schedules form part of this Agreement:

Schedule A – Application and Connection Cost Agreement (recitals)

Schedule B – Single Line Diagram, Connection Point and Location of Facilities (section 2.3)

Schedule C – List of Other Contracts (section 3.4)

Schedule D – Technical and Operating Requirements (section 4.1(d))

Schedule E – Billing and Settlement Procedures (section 5.3)

Schedule F – Contacts for Notice (section 12.1)

Schedule G – Dispute Resolution (section 16.1)

Schedule H – Provisions Applicable if Facility Financed by a Lender (sections 19.3, 20.3 and 21.1)

Where a schedule is to be completed by the Parties, the Parties may not include in that schedule a provision that would be contrary to or inconsistent with the Code or the remainder of this Agreement.

2. Type of Facility and Customer

2.1 The Facility has a name-plate rated capacity of:
[Parties to check the applicable box below]

☐ more than 10 kW and:

- (a) up to and including 500 kW, if the Facility is or will be connected to a less than 15 kV line; or
- (b) up to and including 1 MW, if the Facility is or will be connected to a 15 kV or greater line

(in which case the Facility is a “Small Embedded Generation Facility”)

☒ 10 MW or less and:

- (a) more than 500 kW, if the Facility is or will be connected to a less than 15 kV line; or

- (b) more than 1 MW, if the Facility is or will be connected to a 15 kV or greater line

(in which case the Facility is a “Mid-sized Embedded Generation Facility”)

2.2 The Facility is or will be connected:
[Parties to check the applicable box(es) below]

- ☐ directly to the Distributor’s distribution system
- ☐ on the load customer side of a connection point to the Distributor’s distribution system
- ☐ the load customer is the same as the Customer
- ☐ the load customer is: _____

2.3 Schedule B sets out the following:

- a) a single line diagram of the Facility;
- b) a list of the facilities of one Party that are on the property of the other Party; and
- c) a diagram of the metering installations applicable to the Facility.

2.4 The Customer:
[Parties to check the applicable box(es) below]

- ☐ intends to:
- ☐ sell output from the Facility to the Independent Electricity System Operator (“IESO”) and has entered into an agreement with the IESO for that purpose
- ☐ deliver and sell output from the Facility to the Distributor
(in which case the Customer is an “Embedded Retail Generator”)
- ☒ does not intend to sell any of the output of the Facility to the IESO or the Distributor

3. Incorporation of Code and Application of Conditions of Service and Other Contracts

- 3.1 The Code, as it may be amended from time to time, is hereby incorporated in its entirety by reference into, and forms part of, this Agreement. Unless the context otherwise requires, all references to “this Agreement” include a reference to the Code.
- 3.2 The Distributor hereby agrees to be bound by and at all times to comply with the Code, and the Customer acknowledges and agrees that the Distributor is bound at

all times to comply with the Code in addition to complying with the provisions of this Agreement.

3.3 In addition to this Agreement, the relationship between the Distributor and the Customer will be governed by the Distributor's Conditions of Service that are in effect at the relevant time. In the event of a conflict or an inconsistency between a provision of this Agreement and a provision of the Distributor's Conditions of Service, the provision of this Agreement shall govern.

3.4 The Distributor may require or may have already required the Customer to enter into one or more of the other contracts listed in Schedule C. In the event of a conflict or an inconsistency between a provision of the Code or this Agreement and a provision of such other contract, the provision of the Code or this Agreement shall govern.

4. Facility Standards

4.1 The Customer shall ensure that the Facility:

- a) meets all applicable requirements of the Electrical Safety Authority ("ESA");
- b) conforms to all applicable industry standards including, but not limited to, those of the Canadian Standards Association ("CSA"), the Institute of Electrical and Electronic Engineers, the American National Standards Institute and the International Electrotechnical Commission;
- c) is installed, constructed, operated and maintained in accordance with this Agreement, the Distributor's offer to connect, the requirements of the ESA, the connection cost agreement, all applicable reliability standards and good utility practice; and
- d) meets the technical and operating requirements set out in Schedule D. These requirements shall not exceed any technical or operating requirements set out in the Code unless the Customer agrees.

5. Charges, Settlement and Billing

5.1 The Customer shall pay the Distributor such charges as may be approved by the Board in relation to the connection of, and the provision of distribution service to, the Facility.

5.2 The Customer agrees to the following in relation to settlement for the output of the Facility:

[Parties to check the applicable box below]

☒ if the Customer is not an Embedded Retail Generator (see section 2.4)

the Distributor will not pay the Customer for any excess generation that results

in a net delivery to the Distributor between meter reads and 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

- ☐ if the Customer is an Embedded Retail Generator (see section 2.4)

the Distributor will settle all applicable payments and charges in accordance with the Retail Settlement Code

- 5.3 Billing and settlement activities will be conducted in accordance with the procedures set out in Schedule E.

6. Representations and Warranties

- 6.1 The Customer represents and warrants to the Distributor as follows, and acknowledges that the Distributor is relying on such representations and warranties without independent inquiry in entering into this Agreement:
- a) the Facility is fully and accurately described in the Application;
 - b) all information in the Application is true and correct;
 - c) the Facility is in compliance with all applicable technical requirements and laws;
 - d) the Customer has been given warranty information and operation manuals for the Facility;
 - e) the Customer has been adequately instructed in the operation and maintenance of the Facility and the Customer has developed and implemented an operation and maintenance plan based on those instructions;
 - f) if the Customer is a corporation or other form of business entity, the Customer is duly incorporated, formed or registered (as applicable) under the laws of its jurisdiction of incorporation, formation or registration (as applicable);
 - g) the Customer has all necessary power, authority and capacity to enter into this Agreement and to perform its obligations under this Agreement;
 - h) this Agreement constitutes a legal and binding obligation on the Customer, enforceable against the Customer in accordance with its terms;
 - i) all permits, licences and other authorizations necessary to enable the ownership and operation of the Facility have been obtained; and
 - j) any individual signing this Agreement on behalf of the Customer has been duly authorized by the Customer to sign this Agreement and has the full power and authority to bind the Customer.
- 6.2 The Distributor represents and warrants to the Customer as follows, and acknowledges that the Customer is relying on such representations and warranties without independent inquiry in entering into this Agreement:
- a) the Distributor is duly incorporated under the laws of Ontario;
 - b) the Distributor has all necessary power, authority and capacity to enter into

- this Agreement and to perform its obligations under this Agreement;
- c) this Agreement constitutes a legal and binding obligation on the Distributor, enforceable against the Distributor in accordance with its terms; and
 - d) any individual signing this Agreement on behalf of the Distributor has been duly authorized by the Distributor to sign this Agreement and has the full power and authority to bind the Distributor.

7. Disconnection Device at the Point of Connection

- 7.1 The Customer shall furnish and install a disconnection switch at the point of connection for the Facility that opens, with a visual break, all ungrounded poles of the connection circuit. The disconnection switch at the point of connection shall be rated for the voltage and fault current requirements of the Facility, and shall meet all applicable CSA standards, ESA requirements, and all other applicable laws. The switch enclosure, if applicable, shall be properly grounded. The disconnection switch at the point of connection shall be accessible at all times, located for ease of access to the Distributor's personnel, and shall be capable of being locked in the open position. The Customer shall follow the Distributor's procedures for switching, clearance, tagging, and locking.

8. Modifications to the Facility

- 8.1 The Customer shall not modify its connection assets or the Facility except in accordance with this section. Where the modification will not increase the maximum electrical output of the Facility, the Customer shall give the Distributor no less than 15 working days notice prior to the date on which the modification will be completed. Where the modification will increase the maximum electrical output of the Facility, the Customer shall submit a new application for connection to the Distributor. The Distributor shall process that application for connection in accordance with the Code. The Customer shall not commence such modification until that process has been completed.

9. Insurance

- 9.1 Throughout the term of this Agreement, the Customer shall carry commercial general liability insurance for third party bodily injury, personal injury, and property damage in an amount as follows:

[Parties to check the applicable box below]

- ☐ if the Facility is a Small Embedded Generation Facility (see section 2.1) not less than \$1,000,000 per occurrence and in the annual aggregate
- ☒ if the Facility is a Mid-sized Embedded Generation Facility (see section 2.1) not less than \$2,000,000 per occurrence and in the annual aggregate

Prior to execution of this Agreement, the Customer shall provide the Distributor with a valid certificate of insurance. The Customer shall provide the Distributor with prompt notice of any cancellation of the Customer's insurance by the insurer.

10. Liability and Force Majeure

- 10.1 The liability provisions of section 2.2 of the Code apply to this Agreement and are hereby incorporated by reference into, and form part of, this Agreement.
- 10.2 A Party shall have a duty to mitigate any losses relating to any claim for indemnification from the other Party that may be made in relation to that other Party. Nothing in this section shall require the mitigating Party to mitigate or alleviate the effects of any strike, lockout, restrictive work practice or other labour dispute.
- 10.3 A Party shall give prompt notice to the other Party of any claim with respect to which indemnification is being or may be sought under this Agreement.
- 10.4 The force majeure provisions of section 2.3 of the Code apply to this Agreement and are hereby incorporated by reference into, and form part of, this Agreement.

11. Facility Commissioning and Testing

- 11.1 The Customer shall give the Distributor at least fifteen days advance written notice of the date(s) and time(s) on which the Facility will be commissioned and tested prior to connection. The Customer shall give the Distributor the same notice in relation to the commissioning and testing of any material modification to the Customer's connection assets or Facility that occurs after connection.
- 11.2 The Distributor shall have the right to witness the commissioning and testing activities referred to in section 11.1.

12. Notice

- 12.1 Any notice, demand, consent, request or other communication required or permitted to be given or made under or in relation to this Agreement shall be given or made: by courier or other personal form of delivery; by registered mail; by facsimile; or by electronic mail. Notices shall be addressed to the applicable representative of the Party identified in Schedule F.
- 12.2 A notice, demand, consent, request or other communication referred to in section 12.1 shall be deemed to have been made as follows:
 - a) where given or made by courier or other form of personal delivery, on the date of receipt;
 - b) where given or made by registered mail, on the sixth day following the date of mailing;
 - c) where given or made by facsimile, on the day and at the time of transmission as indicated on the sender's facsimile transmission report; and

- d) where given or made by electronic mail, on the day and at the time when the notice, demand, consent, request or other communication is recorded by the sender's electronic communications system as having been received at the electronic mail destination.

13. Access to Facility

- 13.1 Each Party shall ensure that its facilities are secured at all times.
- 13.2 The Customer shall permit and, if the land on which the Facility is located is not owned by Customer, cause such landowner to permit, the Distributor's employees and agents to enter the property on which the Facility is located at any reasonable time. Such access shall be provided for the purposes of inspecting and/or testing the Facility as and when permitted by this Agreement, the Code or the Distributor's Conditions of Service or as required to ensure the continued safe and satisfactory operation of the Facility, to ensure the accuracy of the Distributor's meters, to establish work protection, or to perform work.
- 13.3 Any inspecting and/or testing referred to in section 13.2 shall not relieve the Customer from its obligation to operate and maintain the Facility and any related equipment in a safe and satisfactory operating condition and in accordance with this Agreement.
- 13.4 The Distributor shall have the right to witness any testing done by the Customer of the Facility and, to that end, the Customer shall provide the Distributor with at least fifteen working days advance notice of the testing.
- 13.5 Notwithstanding section 10.1, where the Distributor causes damage to the Customer's property as part of this access, the Distributor shall pay to the Customer the Customer's reasonable costs of repairing such property or, if such property cannot be repaired, replacing such property.
- 13.6 Notwithstanding section 10.1, if the Customer has been given access to the Distributor's property, and if the Customer causes damage to the Distributor's property as part of that access, the Customer shall pay to the Distributor the Distributor's reasonable costs of repairing such property or, if such property cannot be repaired, replacing such property.

14. Disconnection of Facility to Permit Maintenance and Repairs

- 14.1 If the Customer requests it, the Distributor will provide the Customer with reasonable notice of any planned equipment outages in the Distributor's distribution system that occur on or after the date of the Customer's request which will impact the Facility or its connection.
- 14.2 The Distributor will make reasonable efforts to ensure that the outages referred to in section 14.1 will be of minimal duration and cause minimal inconvenience to the Customer.

- 14.3 In connection with any planned equipment outage, either Party may disconnect or isolate, or require the disconnection or isolation of, its Facility or system (as applicable) from the other Party's Facility or system (as applicable) so that the employees, contractors or agents of the Party may construct, maintain, repair, replace, remove, investigate or inspect its respective Facility or system (as applicable) in accordance with the terms of this Agreement and good utility practice.
- 14.4 Where practical, the Customer shall notify the Distributor prior to temporarily isolating or disconnecting the Facility from the Distributor's distribution system.

15. Disconnection of Facility for Other Reasons

- 15.1 The Customer shall discontinue operation of the Facility and the Distributor may isolate or disconnect the Facility from the Distributor's distribution system, upon any of the following:
- a) termination of this Agreement in accordance with section 19;
 - b) if the Customer's connection assets or the Facility are modified by the Customer in a manner contrary to section 8.1;
 - c) during an emergency or where necessary to prevent or minimize the effects of an emergency;
 - d) in accordance with section 31, 31.1 or 40(5) of the *Electricity Act, 1998*, other applicable law, the Code, the Distributor's Licence or the Distributor's Conditions of Service; or
 - e) where required to comply with a decision or order of an arbitrator or court made or given under Schedule G.
- 15.2 In the event of disconnection under section 15.1(b), the Facility shall remain isolated or disconnected from the Distributor's distribution system until the connection process referred to in section 8.1 has been completed.
- 15.3 In the event of disconnection under section 15.1(c), the Distributor shall reconnect, or permit the reconnection of, the Facility to the Distributor's distribution system when it is reasonably satisfied that the emergency has ceased and that all other requirements of this Agreement are met.
- 15.4 In the event of disconnection under section 15.1(d) or 15.1(e), the Distributor shall reconnect, or permit the reconnection of, the Facility to the Distributor's distribution system when the Distributor is reasonably satisfied that the reason for the disconnection no longer exists, the Customer agrees to pay all Board-approved reconnection costs charged by the Distributor, and the Distributor is reasonably satisfied of the following, where applicable:
- a) the Customer has taken all necessary steps to prevent the circumstances that caused the disconnection from recurring and has delivered binding undertakings to the Distributor that such circumstances shall not recur; and

- b) any decision or order of a court or arbitrator made or given under Schedule G that requires a Party to take action to ensure that such circumstances shall not recur has been implemented and/or assurances have been given to the satisfaction of the affected Party that such decision or order will be implemented.

15.5 Where the Facility has been isolated or disconnected, each Party shall be entitled to decommission and remove its assets associated with the connection. Each Party shall, for that purpose, ensure that the other Party has all necessary access to its site at all reasonable times.

15.6 The Customer shall continue to pay for distribution services provided up to the time of isolation or disconnection of its Facility.

15.7 The Customer shall pay all reasonable costs including, but not limited to, the costs of removing any of the Distributor's equipment from the Customer's site, that are directly attributable to the isolation or disconnection of the Facility and, where applicable, the subsequent decommissioning of the Facility. The Distributor shall not require the removal of the protection and control wiring on the Customer's site.

15.8 While the Facility is isolated or disconnected, the Distributor shall not be required to convey electricity to or from the Facility.

16. Dispute Resolution

16.1 Any dispute between the Customer and the Distributor arising under or in relation to this Agreement will be resolved in accordance with Schedule G. The Parties shall comply with the procedure set out in Schedule G before taking any civil or other proceeding in relation to the dispute, provided that nothing shall prevent a Party from seeking urgent or interlocutory relief from a court of competent jurisdiction in the Province of Ontario in relation to any dispute arising under or in relation to this Agreement.

17. Amendments

17.1 The Parties may not amend this Agreement without leave of the Board except where and to the extent permitted by this Agreement.

17.2 The Parties may by mutual agreement amend this Agreement to reflect changes that may from time to time be made to the Code during the term of this Agreement.

17.3 The Parties may by mutual agreement amend any portion of a schedule that was originally to be completed by the Parties.

17.4 No amendment made under section 17.2 or 17.3 shall be contrary to or inconsistent with the Code or the remainder of this Agreement.

- 17.5 The Parties shall amend this Agreement in such manner as may be required by the Board.
- 17.6 Any amendment to this Agreement shall be made in writing and duly executed by both Parties.

18. Waiver

- 18.1 A waiver of any default, breach or non-compliance under this Agreement is not effective unless in writing and signed by the Party to be bound by the waiver. The waiver by a Party of any default, breach or non-compliance under this Agreement shall not operate as a waiver of that Party's rights under this Agreement in respect of any continuing or subsequent default, breach or non-compliance, whether of the same or any other nature.

19. Term of Agreement and Termination

- 19.1 This Agreement shall become effective upon execution by the Parties, and shall continue in effect until terminated in accordance with section 19.2 or 19.3.
- 19.2 The Customer may, if it is not then in default under this Agreement, terminate this Agreement at any time by giving the Distributor thirty days prior written notice setting out the termination date.
- 19.3 Except as set out in Schedule H, the Distributor may terminate this Agreement upon any material breach of this Agreement by the Customer (a "Default"), if the Customer fails to remedy the Default within the applicable cure period referred to in section 19.4 after receipt of written notice of the Default from the Distributor.
- 19.4 The Customer shall cure a Default within the applicable cure period specified in the Code or the Distributor's Conditions of Service. If no such cure period is specified in relation to a given Default, the cure period shall be sixty working days.
- 19.5 Termination of this Agreement for any reason shall not affect:
- a) the liabilities of either Party that were incurred or arose under this Agreement prior to the time of termination; or
 - b) the provisions that expressly apply in relation to disconnection of the Customer's facilities following termination of this Agreement.
- 19.6 Termination of this Agreement for any reason shall be without prejudice to the right of the terminating Party to pursue all legal and equitable remedies that may be available to it including, but not limited to, injunctive relief.
- 19.7 The rights and remedies set out in this Agreement are not intended to be exclusive but rather are cumulative and are in addition to any other right or remedy otherwise available to a Party at law or in equity. Nothing in this section 19.7 shall be interpreted as affecting the limitations of liability arising from section

10.1 or the obligation of a Party to comply with section 16 while this Agreement is in force.

19.8 Sections 19.5 to 19.7 shall survive termination of this Agreement.

20. Exchange and Confidentiality of Information

20.1 Confidential information in respect of a Party means (i) information disclosed by that Party to the other Party under this Agreement that is in its nature confidential, proprietary or commercially sensitive and (ii) information derived from the information referred to in (i), but excludes the following:

- a) information that is in the public domain; or
- b) information that is, at the time of the disclosure, in the possession of the receiving Party, provided that it was lawfully obtained from a person under no obligation of confidence in relation to the information.

20.2 Subject to section 20.3, each Party shall treat all confidential information disclosed to it by the other Party as confidential and shall not, without the written consent of that other Party:

- a) disclose that confidential information to any other person; or
- b) use that confidential information for any purpose other than the purpose for which it was disclosed or another applicable purpose contemplated in this Agreement.

Where a Party, with the written consent of the other Party, discloses confidential information of that other Party to another person, the Party shall take such steps as may be required to ensure that the other person complies with the confidentiality provisions of this Agreement.

20.3 Nothing in section 20.2 shall prevent the disclosure of confidential information:

- a) where required or permitted under this Agreement, the Code, the Market Rules or the Distributor's Licence;
- b) where required by law or regulatory requirements;
- c) where required by order of a government, government agency, regulatory body or regulatory agency having jurisdiction;
- d) if required in connection with legal proceedings, arbitration or any expert determination relating to the subject matter of this Agreement, or for the purpose of advising a Party in relation thereto;
- e) as may be required to enable the Distributor to fulfill its obligations to any reliability organization; or
- f) as may be required during an emergency or to prevent or minimize the effects of an emergency.

- 20.4 Notwithstanding section 10.1, a Party that breaches section 20.2 shall be liable to the other Party for any and all losses of the other Party arising out of such breach.
- 20.5 The Parties agree that the exchange of information, including, but not limited to, confidential information, under this Agreement is necessary for maintaining the reliable operation of the Distributor's distribution system. The Parties further agree that all information, including, but not limited to, confidential information, exchanged between them shall be prepared, given and used in good faith and shall be provided in a timely and cooperative manner.
- 20.6 Each Party shall provide the other with such information as the other may reasonably require to enable it to perform its obligations under this Agreement.
- 20.7 Each Party shall, as soon as practicable, notify the other Party upon becoming aware of a material change or error in any information previously disclosed to the other Party under this Agreement and, in the case of the Customer, in any information contained in its Application. The Party shall provide updated or corrected information as required to ensure that information provided to the other Party is up to date and correct.

21. Assignments, Successors and Assigns

- 21.1 Except as set out in Schedule H, the Customer shall not assign its rights or obligations under this Agreement in whole or in part without the prior written consent of the Distributor, which consent shall not be unreasonably withheld or unduly delayed. The Distributor may withhold its consent to any proposed assignment until the proposed assignee assumes, in writing, all of the Customer's obligations contained in this Agreement.
- 21.2 The Distributor shall have the right to assign this Agreement in whole upon written notification to the Customer.
- 21.3 This Agreement shall be binding upon and ensure to the benefit of the Parties and their respective successors and permitted assigns.

22. Governing Law

- 22.1 This Agreement shall be governed by the laws of the Province of Ontario and the federal laws of Canada applicable therein.

23. Entire Agreement

- 23.1 Except as expressly provided herein, this Agreement constitutes the entire agreement between the Parties with respect to the subject-matter hereof and supersedes all prior oral or written representations and agreements of any kind whatsoever with respect to the subject-matter hereof.

IN WITNESS WHEREOF, the Parties hereto, intending to be legally bound, have caused this Agreement to be executed by their duly authorized representatives.

Customer Signature

Date

Name (Print)

Title

Distributor Signature

Name: Christopher Hale, C.E.T., LEL

Title: Manager, Engineering & Grid Transformation

Date

Distributor Signature

Name: Hassan Syed, P.Eng, PMP

Title: VP Distribution Systems

SCHEDULE A

Application and Connection Cost Agreement (recitals)

See the attached Application and connection cost agreement.

SCHEDULE B

Single Line Diagram, Connection Point and Location of Facilities (section 2.3)

B.1 Single Line Diagram and Connection Point

- *See attached drawing E-01, Customer single line diagram*

B.2 List of Facilities on the Property of the Other Party

B.2.1 The following facilities of the Customer are located on the property of the Distributor:

- *none*

B.2.2 The following facilities of the Distributor are located in the property of the Customer:

- *Gross load billing metering equipment*

B.3 Metering Installation Diagram

- *See attached drawing E-01, Customer single line diagram*

SCHEDULE C

List of Other Contracts (section 3.4)

The following other contracts have been or will be entered into by the Parties:

- *Load Displacement DER Facility Standby Power Agreement*

SCHEDULE D

Technical and Operating Requirements (section 4.1(d))

The following technical and operating requirements apply to the Facility:

See requirements listed in attached documents:

Operating Requirements

The Customer shall not isolate or otherwise cause their load facility to be removed from service without first notifying MHDl's Control Room of the need to isolate and prospective date. This includes but is not limited to operation of Customer owned load break switches or similar devices exterior to interior to the premises. If isolating the service and MHDl is required to attend site, the Customer shall make arrangements with MHDl for service isolation.

SCHEDULE E

Billing and Settlement Procedures (section 5.3)

The following provisions apply in relation to billing and settlement in relation to the Facility:

The distributor will settle all applicable payments and charges in accordance with our conditions of service and Ontario Regulation 541/05: NET METERING & Ontario Regulation 273/12: NET METERING.

Gross Load Billing

Notwithstanding anything to the contrary contained herein or in the GFA, Utility agrees to provide Customer with an electricity standby demand capacity of **XX,XXX kW**. This standby demand capacity will be reviewed from time to time and may be amended annually with 90 days notice (to take effect **MMMMMM D, YYYY**), in writing with the approval of both Parties. Gross load billing (GLB) applies to Customers with Load Displacement Distributed Energy Resources (DER) facilities that meet the following criteria:

- The required approval for the generation facility was obtained after October 30, 1998
- The GLB will be applicable to the generation facility if any single generating unit, operated in parallel with Utilities Distribution System, at the facility exceeds the threshold listed below, regardless of cumulative size of the generation facility:
 - equal to or greater than 1 MW with non-renewable generation
 - equal to or greater than 2 MW for renewable generation (wind, solar, biomass, bio-oil, bio-gas, landfill gas, or water).

Customers meeting the criteria outlined above agree to have a retail point-to-point meter installed at the generator terminal¹. Utility will provide the meter, associated equipment, as well as the Private APN telecommunication connection. The customer agrees to pay Utility the cost of the metering equipment, installation and Utility's provision of the Private APN telecommunications connection. If the Meter requires a dedicated phone line instead of the Private APN for communication purposes, Utility will not pay the monthly communication bill, and the customer

¹ Customers in Milton Hydro's General Service 1,000 to 4,999 kW customer classification and Large User customer classification would be the classes of customers who gross load billing could potentially apply if the criterial noted above are met.

must supply and pay for a dedicated phone line as per Utility's Conditions of Service.

A Customer meeting the criteria outlined above agrees to be billed at the gross demand level for the following charges²:

- i. Retail Transmission rate - Line Connection and Transformation Connection Service charges; and
- ii. Distribution Volumetric charges.

Gross demand calculations involve adding back the generation output (which is metered at the generator terminals), to the electricity drawn by the Customer.

Customer agrees that all applicable electricity distribution and transmission charges, shall reflect the current approved Utility tariff sheet in effect at the relevant time, as set forth and approved by the Ontario Energy Board (OEB).

² The customer shall be billed on a gross demand level basis for the charges listed once the Ontario Energy Board (OEB) approves Milton Hydro Distribution Inc.'s tariff of rates and charges at its next Cost of Service rate application.

SCHEDULE F

Contacts for Notice (section 12.1)

MHDI Contact Information:

Mailing Address

Milton Hydro Distribution Inc.
200 Chisholm Dr.
Milton, Ontario
L9T 3G9

E-mail

EngineeringDepartment@MiltonHydro.com

Phone Numbers

Office: 905-876-4611

Emergency: 1-844-NOHYDRO (1-844-664-9376)

Customer Contact Information:

Mailing Address

E-mail

Phone Numbers

Emergency:

SCHEDULE G

Dispute Resolution (section 16.1)

- G.1 The Party claiming a dispute will provide written notice to the other Party. The Parties will make reasonable efforts through or by their respective senior executives to resolve any dispute within sixty days of receipt of such notice.
- G.2 If a dispute is settled by the senior executives of the Parties, the Parties shall prepare and execute minutes setting forth the terms of the settlement. Such terms shall bind the Parties. The subject-matter of the dispute shall not thereafter be the subject of any civil or other proceeding, other than in relation to the enforcement of the terms of the settlement. If a Party fails to comply with the terms of settlement, the other Party may submit the matter to arbitration under section G.3. A copy of the minutes referred to in this section from which all confidential information has been expunged shall be made available to the public by the Distributor upon request.
- G.3 If the senior executives of the Parties cannot resolve the dispute within the time period set out in section G.1 or such longer or shorter period as the Parties may agree, either Party may submit the dispute to binding arbitration under sections G.4 to G.8 by notice to the other Party.
- G.4 The Parties shall use good faith efforts to appoint a single arbitrator for purposes of the arbitration of the dispute. If the Parties fail to agree upon a single arbitrator within ten working days of the date of the notice referred to in section G.3, each Party shall within five working days thereafter choose one arbitrator. The two arbitrators so chosen shall within fifteen working days select a third arbitrator.
- G.5 Where a Party has failed to choose an arbitrator under section G.4 within the time allowed, the other Party may apply to a court to appoint a single arbitrator to resolve the dispute.
- G.6 A person may be appointed as an arbitrator if that person:
- a) is independent of the Parties;
 - b) has no current or past substantial business or financial relationship with either Party, except for prior arbitration; and
 - c) is qualified by education or experience to resolve the dispute.
- G.7 The arbitrator(s) shall provide each of the Parties with an opportunity to be heard orally and/or in writing, as may be appropriate to the nature of the dispute.
- G.8 The Arbitration Act, 1991 (Ontario) shall apply to an arbitration conducted under this Schedule G.
- G.9 The decision of the arbitrator(s) shall be final and binding on the Parties and may be

enforced in accordance with the provisions of the Arbitration Act, 1991 (Ontario). The Party against which the decision is enforced shall bear all costs and expenses reasonably incurred by the other Party in enforcing the decision.

- G.10 A copy of the decision of the arbitrator(s) from which any confidential information has been expunged shall be made available to the public by the Distributor upon request.
- G.11 Subject to section G.12, each Party shall be responsible for its own costs and expenses incurred in the arbitration of a dispute and for the costs and expenses of the arbitrator(s) if appointed to resolve the dispute.
- G.12 The arbitrator(s) may, if the arbitrator(s) consider it just and reasonable to do so, make an award of costs against or in favour of a Party to the dispute. Such an award of costs may relate to either or both the costs and expenses of the arbitrator(s) and the costs and expenses of the Parties to the dispute.
- G.13 If a dispute is settled by the Parties during the course of an arbitration, the Parties shall prepare and execute minutes setting forth the terms of the settlement. Such terms shall bind the Parties, and either Party may request that the arbitrator(s) record the settlement in the form of an award under section 36 of the Arbitration Act, 1991 (Ontario). The subject-matter of the dispute shall not thereafter be the subject of any civil or other proceeding, other than in relation to the enforcement of the terms of the settlement.
- G.14 If a Party fails to comply with the terms of settlement referred to in section G.13, the other Party may submit the matter to arbitration under section G.3 if the settlement has not been recorded in the form of an award under section 36 of the Arbitration Act, 1991 (Ontario).
- G.15 G.15. A copy of the minutes referred to in section G.13 from which all confidential information has been expunged shall be made available to the public by the Distributor upon request.
- G.16 G.16 The Parties may not, by means of the settlement of a dispute under section G.2 or section G.13, agree to terms or conditions that are inconsistent with or contrary to the Code or this Agreement.

SCHEDULE H

Provisions Applicable if Facility Financed by a Lender (sections 19.3, 20.3 and 21.1)

- H.1 For the purposes of this Schedule, "lender" means a bank or other entity whose principal business is that of a financial institution and that is financing or refinancing the Facility.
- H.2 Where notice of a Default has been served on the Customer under section 19.3, an agent or trustee for and on behalf of a lender ("Security Trustee") or a receiver appointed by the Security Trustee ("Receiver") shall upon notice to the Distributor be entitled (but not obligated) to exercise all of the rights and obligations of the Customer under this Agreement and shall be entitled to remedy the Default specified in the notice within the applicable cure period referred to in section 19.4. The Distributor shall accept performance of the Customer's obligations under this Agreement by the Security Trustee or Receiver in lieu of the Customer's performance of such obligations, and will not exercise any right to terminate this Agreement under section 19.3 due to a Default if the Security Trustee, its nominee or transferee, or the Receiver acknowledges its intention to be bound by the terms of this Agreement and such acknowledgment is received within 30 days of the date of receipt by the Customer of the notice of Default.
- H.3 The Customer may, without the prior written consent of the Distributor, assign by way of security only all or any part of its rights or obligations under this Agreement to a lender. The Customer shall promptly notify the Distributor upon making any such assignment.
- H.4 The Customer may disclose confidential information of the Distributor to a lender or a prospective lender.