

Hydro One Brampton Networks Inc. Conditions of Service

Preface

The Distribution System Code (DSC) of the Ontario Energy Board requires each Distributor to prepare a “Conditions of Service” document that will serve to communicate the various types and levels of service available to Customers within a Distributor’s Service Area, and requires these Conditions of Service to be readily accessible for review by the general public. The most recent versions of Conditions of Service documents will be retained by the OEB to facilitate the resolution of any disputes that cannot be resolved between Customers and their local Distributors.

This document follows the form and content requirements of the OEB’s Conditions of Service template, which is appended to the DSC and provided to assist the Distributor in developing its Conditions of Service document, based on the DSC and the Distributor’s current practice. Hydro One Brampton’s Conditions of Service document encompasses the local Service Area and its characteristics, and other specific requirements.

The General section provides information about the services and requirements which are common to all Customer classes, including Rates, billing, hours of operation, Emergency response, power quality, available voltages, metering, back-up generation, and deposits.

The Customer (Class) Specific section provides information about the services and requirements specific to the respective Customer classes, including service entrance requirements, delineation of ownership, special contracts, etc.

Other sections include the Glossary of Terms, and Appendices.

Subsequent changes to these Conditions of Service will be incorporated by Hydro One Brampton into each submission to the OEB.

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1 INTRODUCTION

1.1 IDENTIFICATION OF DISTRIBUTOR & SERVICE AREA

Hydro One Brampton Networks Inc., referred to herein as Hydro One Brampton (HOB), is a Corporation under the laws of the Province of Ontario, and a Distributor of electricity.

HOB is licensed by the Ontario Energy Board (OEB) to supply electricity to Customers, as described in the Transitional Distribution License issued to HOB on 01 April 2000 by the OEB (i.e., Distribution License). Additional requirements are imposed on HOB by various Codes referenced in the License and by the *Electricity Act, 1998*, and the *Ontario Energy Board Act, 1998*.

HOB may only operate distribution facilities within its Licensed Territory, as defined in its Distribution License. This Service Area is subject to change with OEB approval.

Nothing contained in these Conditions of Service or in any contract for the supply of electricity by HOB shall prejudice or affect any rights, privileges, or powers vested in HOB by law under any Act of the Legislature of Ontario or the Parliament of Canada, or any Regulations thereunder.

1.1.1 Distribution Overview

HOB distributes electricity through its 13.8 kV, 27.6 kV and 44.0 kV primary Distribution Systems. Feeders on the 27.6 kV and 44.0 kV systems are arranged to run radially by maintaining open points between interconnections. The 44.0 kV feeders also supply distribution transformers through a 13.8 kV Subdistribution System.

HOB maintains an underground network system in a specific area of Brampton. This low voltage secondary network system may be available to some Customers in the City of Brampton's downtown core as a source of supply at 120/208 V, depending on the local capacity of the system and the Customer's Emergency requirements.

The supply of electricity by HOB to any Customer will be at one of the following primary voltage levels: 44.0 kV, 27.6 kV or 13.8 kV, depending on the proximity of the Customer's premises to the nearest distribution facility.

1.2 RELATED CODES & GOVERNING LAWS

The supply of electricity or related services by HOB to any Customer shall be subject to various laws, Regulations and Codes, including provisions of the latest editions of the following documents:

- 1) *Electricity Act 1998 (p/o Energy Competition Act 1998)*;
- 2) *Ontario Energy Board Act 1998 (p/o Energy Competition Act 1998)*;
- 3) Distribution License;
- 4) Affiliate Relationships Code;
- 5) Transmission System Code;
- 6) Distribution System Code;
- 7) Retail Settlement Code;
- 8) Standard Service Supply Code.

In the event of a conflict between these Conditions of Service (i.e., this document) and the Distribution License or regulatory Codes issued by the OEB, or the *Energy Competition Act, 1998* (Act), the provisions of the Act, the Distribution License and associated regulatory Codes shall prevail in the order of priority indicated above. If there is a conflict between a Connection Agreement with a Customer and Conditions of Service, these Conditions of Service shall govern.

When planning and designing for electricity service, Customers and their representatives shall refer to all applicable provincial and Canadian Electrical Codes, and all other applicable federal, provincial and municipal laws, Regulations, Codes and by-laws to ensure compliance with their requirements. Without limiting the foregoing, the work shall be conducted in accordance with the latest edition of the *Ontario Occupational Health and Safety Act (OHS)*, the Regulations for Construction Projects, and the harmonized Infrastructure Health and Safety Association (IHSA) rule book.

1.3 INTERPRETATION

In these Conditions of Service, unless the context requires otherwise:

- Headings, paragraph numbers, underlining and other conventions are provided for convenience only, and do not affect the interpretation of these Conditions of Service;
- Words referring to the singular include the plural, and vice-versa;
- Words referring to a gender include any gender.

1.4 AMENDMENTS & CHANGES

The provisions of these Conditions of Service and any amendments made from time to time form part of any contract between HOB and any connected Customer, Retailer, or Generator, where these Conditions of Service shall supersede all previous oral or written Conditions of Service from HOB or any predecessor municipal electric utility as of the effective date. In the event of changes to these Conditions of Service, HOB shall issue a notice with the Customer's bill. HOB may also issue a public notice in a local newspaper.

The Customer shall be responsible for contacting HOB to ensure it has obtained the current version of these Conditions of Service. HOB may charge a reasonable fee for providing the Customer with a copy of this document.

1.5 CONTACT INFORMATION

For general inquiries, HOB can be reached during normal business hours (Monday to Friday) from 8:30 am to 4:30 pm EST at (905) 840-6300, by email at HydroOneBrampton.com, or by writing to:

Hydro One Brampton Networks Inc.,
175 Sandalwood Pkwy W.
Brampton, Ontario L7A 1E8

In an Emergency, Customers can call HOB at 905-840-6300, twenty-four (24) hours a day and seven (7) days a week.

1.6 CUSTOMER RIGHTS & OBLIGATIONS

HOB shall only be liable to a Customer and a Customer shall only be liable to HOB for any damages that arise directly out of the willful misconduct or negligence of:

- HOB in providing Distribution Services to the Customer;
- Customer in being connected to HOB's Distribution System;
- HOB or the Customer in meeting their respective obligations under these Conditions of Service, licence(s) and any other applicable law.

Accuracy of Information: HOB may request certain information from the Customer including the Customer's credit report, driver's license, date of birth, articles of incorporation and/or business registration, as appropriate. Customers are obligated to provide HOB with information that is true, complete, and correct. The information is used to provide Customer service, deliver and/or supply Emergency, manage Customer accounts and assess credit history regarding the need for a Security Deposit. HOB may, at any time, verify the accuracy of all information provided and may obtain additional credit information from a credit-reporting agency as required. If HOB is unable to establish the identity of a Customer based on the information provided by the Customer, HOB may disconnect the Customer in accordance with section 2.2.10.

Accounts With More Than One Person: If an account is opened in more than one Person's name, all those named are deemed to be the Customer and are jointly and severally responsible for compliance with these Conditions of Service, and for the payment of rates and charges in accordance with same.

Notwithstanding the above, neither HOB nor the Customer shall be liable under any circumstances whatsoever for any loss of profit or revenue, business interruption losses, loss of contract or loss of goodwill, or for any indirect, consequential, incidental or special damage that includes, but is not limited to, punitive or exemplary damage and regardless of whether any of the said liability, losses or damages arise in contract, tort or otherwise.

The Customer or embedded Generator shall indemnify and hold HOB harmless, including its directors, officers, employees and representatives, from any claims made by any third parties in connection with the construction and installation or operation of a Generator by or on behalf of the Customer or embedded Generator.

1.7 DISTRIBUTOR RIGHTS

Ability to Transfer Arrears from One Account to Another: HOB shall have the right to transfer arrears for Distribution Services, electricity supplied, or other services provided by HOB from one account in a Customer's name to any other account in that same Customer's name, irrespective of the Rate classification or whether either account is in the name of another Person or Persons in addition to the Customer.

1.7.1 Access to Customer Property

HOB shall have the right to access a Customer's property in accordance with Section 40 of the *Electricity Act, 1998*.

1.7.2 Safety of Equipment

The Customer shall comply with all aspects of the Ontario Electrical Safety Code (latest edition) with respect to insuring that installed equipment is properly identified and connected for metering and operational purposes, and shall take whatever steps necessary to correct any deficiencies in a timely fashion. If the Customer does not take such action within a reasonable time, HOB shall advise the Electrical Safety Authority (ESA) of any deficiencies and may disconnect the supply of power to the Customer.

The Customer shall not construct, plant or maintain or cause any structure, tree, shrub or landscaping to be constructed, planted or maintained that would or could obstruct the running of distribution lines, endanger HOB's equipment, interfere with the proper and safe operation of HOB's facilities, or adversely affect compliance with any applicable legislation in the sole opinion of HOB.

The Customer is responsible for ensuring that the slope of the grading from the Building permits natural drainage of water away from the Building. The Customer is also responsible for any settling of the grade that causes damage to HOB's underground plant.

The Customer shall not use or interfere with the facilities of HOB, except in accordance with a written agreement with HOB. The Customer shall also grant HOB the right to seal any apparatus where an electrical connection could potentially be made on the line side of the revenue metering equipment (i.e., unauthorized unmetered load).

The Customer shall provide a convenient and safe location which is satisfactory to HOB for installing, maintaining and operating its equipment in, on, or about the Customer's premises. HOB assumes no risk and shall not be held liable for damages resulting from locating its equipment on the Customer's premises or approaches thereto; or from any action, omission or occurrence beyond its control, or negligence of any Persons over whom HOB has no control.

Customers shall be required to pay the cost of repairs or replacement of any HOB equipment which has been damaged or lost and caused by the direct or indirect act or omission of the Customer or its representatives.

1.7.3 Operating Control

The physical location on a Customer's premises at which a Distributor's responsibility for operational control of distribution equipment ends is defined by the DSC as the "Operational Demarcation Point" (i.e., Customer's primary isolation to its transformer).

Operational Demarcation Points for services that are not flat Rate are identified in Table 5-1, Table 5-2, Table 5-3, Table 5-4, and Table 5-5.

For unmetered (i.e., flat Rate) overhead services, the demarcation point is the connection point at the Customer's service mast. For unmetered underground services, the demarcation point is either in the Customer's handwell (if used) or the secondary spades of HOB's mini-pad transformer.

HOB shall define its point of operating control for each site, as required. No Person shall operate remove, replace, alter, repair, inspect or tamper with HOB's equipment unless the Person is a HOB employee or representative, or another Person lawfully entitled to do so.

1.7.4 Repairs of Defective Customer Electrical Equipment

The Customer shall be required to repair or replace any Customer-owned equipment that may affect the integrity or reliability of HOB's Distribution System. If the Customer does not take such action within a reasonable time, HOB may disconnect the supply of power to the Customer. HOB's policies and procedures with respect to the Disconnection process are described further in these Conditions of Service.

1.7.5 Repairs to Customer's Physical Structures

Construction and maintenance of all civil works on private property owned by the Customer which include items, such as Transformer Vaults, transformer pads, cable

chambers, cable pull rooms and underground conduit, shall be the Customer's responsibility. All civil work on private property that facilitates HOB equipment shall be inspected and accepted by HOB.

The Customer is responsible to HOB for the maintenance and safe-keeping of the Customer's structural and mechanical facilities located on private property.

1.7.6 Force Majeure

Except for any amounts due and payable by the Customer to HOB or by HOB to the Customer, neither HOB nor the Customer shall be held to have committed a default with respect to any obligation under these Conditions of Service if prevented from performing that obligation, in whole or in part, because of a Force Majeure event.

If a Force Majeure Event prevents either party from performing any of its obligations under these Conditions of Service, that party shall:

- a) Other than for Force Majeure Events related to acts of God, promptly notify the other party of the Force Majeure Event and its assessment in good faith of the event's effect on its ability to meet any of its obligations. If the initial notification is not provided in writing, it shall be confirmed in writing as soon as reasonably practical;
- b) Not be entitled to suspend the performance of any of its obligations under these Conditions of Service to any greater extent or for any longer time than any Force Majeure requires it to do;
- c) Use its best efforts to mitigate the effects of the Force Majeure Event, remedy its inability to perform, and resume the full performance of its obligations;
- d) Keep the other party continually informed of its efforts;
- e) Other than for Force Majeure Events related to acts of God, provide written notice to the other party when it resumes performance of any obligations affected by the Force Majeure Event;
- f) If the Force Majeure Event is a strike or lock-out of HOB's employees or authorized representatives, HOB shall be entitled to discharge its obligations by notifying its Customers in writing by placing an ad in the local newspaper.

1.8 DISPUTES

Initial contacts for Customer complaints should be made by calling HOB at 905-840-6300 during normal business hours (i.e., Monday to Friday from 8:30 am to 4:30 pm EST).

To resolve disputes, HOB shall follow the terms in Section 23 of the Transitional Distribution Licence, which state that the Licensee shall:

- a) Establish proper administrative procedures for resolving complaints by Customers and other market participants regarding services provided under the terms of this License;
- b) Publish information that will facilitate access to the complaints resolution process by Customers;
- c) Refer unresolved complaints and subscribe to an independent third-party complaints resolution agency which is approved by the Board;

- d) Make a copy of the complaints resolution procedure available for inspection by members of the public at each of the Licensee's premises during normal business hours;
- e) Provide or send a free copy of the procedure to any Person who reasonably requests it;
- f) Maintain a record of all complaints, whether resolved or not, including the name of the complainant, the nature of the complaint, the date resolved or referred, and the results of any dispute resolution.

2 DISTRIBUTION ACTIVITIES (GENERAL)

2.1 CONNECTIONS: PROCESS & TIMING

Under the terms of the Distribution System Code, HOB is obligated to either connect or make an "Offer to Connect" any Customers in HOB's distribution Service Area.

The Customer or representative shall consult with HOB regarding the availability of supply, Supply Voltage, service location, metering, and any other relevant details. These requirements are separate from and in addition to those of the Electrical Safety Authority. HOB shall confirm the characteristics of its electric supply to the Customer in writing.

The Customer or representative shall apply for new or upgraded electricity services and temporary power services in writing. The Customer shall provide HOB with sufficient lead-time for ensuring:

- a) Timely provision of supply to new and upgraded premises; or
- b) Availability of adequate capacity for connecting additional loads in existing premises.

For the Connection of Generators, see section 3.5.3.

HOB shall make every reasonable effort to respond promptly to another Distributor's request for Connection. HOB shall provide an initial consultation with another Distributor regarding the Connection process within 30 days of receiving a written request for Connection. A final "Offer to Connect" the Distributor to HOB's Distribution System shall be made within 90 days of receiving the written request for Connection, unless other necessary information outside the Distributor's control is required before the offer can be made.

HOB, at its discretion, may require a Customer, Generator or Distributor to enter into a Connection (Operating) Agreement with HOB, including terms and conditions in addition to those described in these Conditions of Service.

If any special equipment is required or equipment delivery problems occur then longer lead times may be necessary, HOB shall notify the Customer of any extended lead times.

In addition to any other requirements in these Conditions of Service, the supply of electricity is conditional upon HOB being permitted and able to provide such a supply, obtaining the necessary apparatus and material, and constructing works to provide the service. If HOB is not permitted or able to do so, it is under no obligation to the Customer whatsoever, and the Customer shall release HOB from any liability in respect thereto.

2.1.1 Building that Lies Along

For the purpose of these Conditions of Service, “lies along” means a Customer property or parcel of land directly adjacent to or abutting onto the public road allowance where HOB has distribution facilities of the appropriate voltage and capacity.

Under the terms of the Distribution System Code, HOB is obligated to connect (under Section 28 of the *Electricity Act, 1998*) a Building or facility that “lies along” its distribution line, provided that:

- a) Building can be connected to HOB’s Distribution System without Expansion or Enhancement; and
- b) Service installation meets the conditions listed in these Conditions of Service for the Distributor that owns and operates the distribution line.

The location of the Customer's service entrance equipment shall be subject to approval by HOB, and the Electrical Safety Authority.

2.1.2 Expansions / Offer to Connect

For Residential Subdivision or Commercial/Industrial Subdivision services, refer to the sample subdivision agreements outlined in Appendix 2B, Appendix 6B and Appendix 7B, respectively, which are available from HOB’s website at www.hydroonebrampton.com, or by contacting HOB’s Technical Service Department (see section 5.2). The following describes HOB’s relationship with a Customer wishing to connect.

Under the terms of the Distribution System Code, HOB is required to make an “Offer to Connect” if HOB must construct new Distribution System facilities or increase the capacity of such existing facilities (i.e., “Expansion” of its system) in order to connect a Customer. In making such an offer, HOB shall include the following requirements, without limitation, as applicable:

- Capital contribution;
- Security deposit.

The cost associated with the expansion shall be fair and reasonable. For basic and Capital Contribution fees for each Customer Class, and the respective Ownership Demarcation Point, see Table 5-1, Table 5-2, Table 5-3, Table 5-4, and Table 5-5.

HOB shall perform an economic evaluation to determine whether the future Customer’s revenue will pay for the capital and ongoing maintenance costs of the Expansion project (refer to methodology and assumptions in Appendix B of the Distribution System Code). At HOB’s discretion, the capital costs for Expansion may include incremental costs associated with the full use of HOB’s existing spare facilities or equipment, which may result in adverse impact on future Customers. The economic evaluation shall be based on the Customer’s proposed load.

In performing the economic evaluation, should the net present value (NPV) of costs and revenues associated with the Expansion be less than zero, a Capital Contribution to cover the shortfall amount is required. HOB has the choice of either:

- Collecting this shortfall from the Customer; or
- Absorbing this shortfall.

HOB may charge a Customer that chooses to pursue an alternative bid for any costs incurred by HOB associated with the Expansion project, which include, but are not limited to:

- Costs for additional design, engineering, or installation of facilities required to complete the project that were made in addition to the original Offer to Connect;
- Costs to review designs prepared by the Customer or its representative;
- Costs for the inspection or approval of work performed by the contractor that was hired by the Customer.

2.1.2.1 Offer to Connect

HOB's "Offer to Connect" shall include the estimated costs to construct the Expansion and shall not be a firm offer, where the final amount charged to the Customer shall be based on the actual costs incurred. HOB shall calculate the first estimate and the final payment at no charge to the Customer.

2.1.2.2 Capital Contributions

If applicable, the Capital Contribution charges collected from the Customer shall be consistent with the respective Customer Class, as outlined below:

- Class 1: Residential Single Service;
 - Overhead: Contribution is not collected for up to a 200 A 120/240 V service and the utility supplying a maximum 30 metres of service cable. Consult with the utility for rural services or services more than 200 A at 120/240 V;
 - Underground: Contribution is collected for work involved in supplying and installing a service from the street line into the Customer's meter base. A credit equivalent to the cost of supplying and installing up to 30 meters of overhead secondary conductor and an overhead transformer rated for 200 A and 120/240 V capacity shall be applied to the recoverable costs incurred.
- Class 2: General Service (below 50 kW);
 - No transformation required on private property (i.e., overhead or underground):
 - Contribution is collected from the Customer.
- Class 3: General Service (50 kW to 1499 kW);
 - Single Building (50 kW to 250 kW) (no transformation on Customer's property): Contribution is collected from Customer;
 - Single Building (50 kW to 1499 kW) (transformation on Customer's property):
 - Contribution is collected from the Customer;
 - Subdivisions, multi-unit or townhouse complex/developments;
 - Contribution is collected from the Customer.
- Class 4: General Service (1500 kW and greater);
 - Contribution is collected from the Customer.

Note: Customers serviced from HOB's 44 kV or 27.6 kV Distribution System that own high-voltage switchgear/transformer equipment and whose monthly Demand is less than 1500 kW are included in Class 4.

2.1.2.3 Settlement of Capital Contributions: Residential Subdivisions

The initial Demand proposed by the Customer shall be reasonable and subject to acceptance by HOB. However, if after two years from the in-service date, the Customer's 12-month rolling average monthly Demand is less than 90% of the incremental Demand for the Expansion, the Customer and HOB shall agree to:

- Revise the economic evaluation based on the Customer's actual 12-month average monthly Demand;
- Recalculate the amount of Capital Contribution;
- Readjust the expected incremental revenue accordingly;
- Customer or HOB shall reduce the difference in the Capital Contribution to zero by paying the balance no later than 30 days after the date of HOB's notice of Capital Contribution settlement.

2.1.2.4 Rebates Related to Expansions: Residential Subdivisions

In scenarios where HOB is required to install a new plant solely for a Customer Connection, the Customer shall pay HOB 100% of the calculated shortfall. If any non-forecasted Customers shall contribute their share within five years of the Connection date, the first Customer shall be entitled to a rebate as outlined in HOB's rebate process.

2.1.2.5 Supply Agreement & Securities

To keep HOB harmless as a result of HOB agreeing to reduce the amount of its Capital Contribution required for the Expansion, the General Service Class 3 and Class 4 Customers (i.e., 700 kW and greater) shall enter into a Supply Agreement and provide a Security Deposit to cover the difference between the actual costs incurred by HOB, and the Capital Contribution(s) paid by the Customers.

With each subsequent renewal of a Security Deposit, the Customer's liability shall be reduced by an amount equal to the actual incremental revenue collected since the in-Service Date. The residual debt, if any, is due five years after the in-Service Date, or upon termination of the Supply Agreement. However, the obligation to pay HOB any outstanding amount shall survive termination of the Supply Agreement. An irrevocable (i.e., standby) letter of credit or letter of guarantee from a chartered bank, trust company or credit union is acceptable in lieu of a cash deposit. This Security Deposit is required in addition to any other charges or deposits that may be required by HOB, and shall be provided prior to the Connection of service.

2.1.3 Connection Denial

The Distribution System Code includes provisions for a Distributor to deny connections. A Distributor shall not be obligated to connect a Building within its Service Area if such a Connection would result in any of the following:

- Contravention of existing laws of Canada and the Province of Ontario;
- Violation of any conditions in HOB's License;
- Use of a Distribution System line for a purpose that it does not serve, and the Distributor does not intend to serve;
- Adverse effect(s) on the reliability or safety of the Distribution System;
- Public safety reasons, or the imposition of unsafe working conditions beyond normal risks;

- A material decrease in the efficiency of the Distributor's Distribution System Connection;
- Discriminatory access to Distribution Services;
- Refusal by the Customer to sign and deliver any agreements required for execution under these Conditions of Service;
- Person requesting the Connection owes HOB money for Distribution Services, including amounts owed under any judgment, writ or other judicial order;
- Customer refuses or is unable to provide current and valid identification or references, if requested;
- Potential increases in outstanding Distributor payment amounts that are already in arrears;
- Electrical Connection to HOB's Distribution System does not meet HOB's design requirements;
- Any other conditions specified in these Conditions of Service.

HOB shall notify the Customer of the Connection denial, and provide the reasons for same in writing. Remedies will be suggested to the Customer where HOB is able to do so. If HOB is unable to resolve the issue, the Customer shall be responsible for resolution as above before a Connection can be made.

2.1.4 Inspections Before Connection

For Residential Subdivision or Commercial/Industrial Subdivision inspection requirements, refer to the sample subdivision agreements provided in Appendix 2B and Appendix 6B, respectively (see section 5.2). For all other projects (i.e., connections), the Customer (or representative) shall coordinate a pre-construction meeting at which the utility and Customer representatives will review the planned work.

All Customer electrical installations shall be inspected and approved by the Electrical Safety Authority, and shall meet HOB's requirements. HOB requires written notification from the Electrical Safety Authority of this approval prior to energizing a Customer's electricity supply. Other conditions specified in these Conditions of Service shall also be met before a Connection is made. Prior to reconnection, if a Customer's services have been disconnected for six months or longer, they shall be re-inspected and approved by the ESA.

Temporary Services that are typically used for construction purposes shall be approved by the Electrical Safety Authority, and re-inspected if the period of use exceeds 12 months.

Customer-owned substations shall be inspected by both the Electrical Safety Authority and HOB. The Customer shall hire an independent high-voltage contractor to inspect the Customer-owned station using a checklist provided by the utility, and provide its findings to HOB prior to Connection.

Transformer Vaults, manholes, pulling rooms and pad-mounted transformer bases shall be inspected and approved by HOB prior to equipment installation.

Duct banks shall be inspected and approved by HOB prior to pouring concrete, and again before backfilling. The completed ducts shall be constructed according to HOB's requirements, and be clear of all foreign material. In the presence of HOB's inspector, a mandrel approved by HOB for a nominal duct diameter shall be passed through each duct by the Owner's representative. If the duct becomes blocked by ice after the inspection but before HOB installs any cables, the Owner's representative shall be responsible for clearing the ducts prior to cable installation.

Connections at existing concrete Duct Banks or manholes shall be made by a HOB-approved contractor. All work performed on the existing HOB plant shall be authorized by HOB and carried out in accordance with all applicable safety-related Acts and Regulations.

Provision for metering shall be inspected and approved by HOB prior to energization.

2.1.5 Relocation of Plant

When requested to relocate a distribution plant, HOB shall exercise its rights and discharge its obligations in accordance with all existing and applicable Acts, including the *Public Service Works on Highways Act*, and with federal, provincial and municipal laws, Regulations, Codes and by-laws, formal agreements, and easements. In the absence of existing agreements, HOB shall not be obligated to relocate the plant. However, HOB shall resolve the issue in a fair and reasonable manner that will include responding to the requesting party, explaining the feasibility or unfeasibility of the relocation, and charging a fair and reasonable amount for the relocation based on cost recovery principles.

2.1.6 Easements

To maintain the reliability, integrity and efficiency of its Distribution System, HOB has the right to have supply facilities on private property, and to have easements registered against the title to the property. Easements are required where the connected facilities will serve other facilities located on another property, and/or where HOB deems it necessary.

Subdivision Developers or Owners shall prepare and submit, at their own cost, any required reference plan to HOB's satisfaction. Four copies of the submitted reference plan shall be submitted to HOB before the preparation of easement documents. Details shall be provided by HOB upon application for service.

For Commercial or Industrial projects, Owners shall arrange for the preparation of reference plans, and the preparation and registration of easement documents at their own cost, and shall forward these to HOB's Survey and Records Supervisor for review and acceptance.

In the event of failure by the Owner/Developer to grant any easement required by HOB pursuant to the terms of these Conditions of Service, the same may be acquired by exercising the powers available to HOB under the *Expropriations Act of Ontario*. Notwithstanding any provision of the above Act, no compensation or costs shall be payable by HOB to the Owner/Developer for any easement, including the market value of interest taken, disturbance damages, injurious affection, or any other compensation. The Owner/Developer hereby waives all claims and HOB shall not be obliged to comply with any provision of the above Act, where the purpose is to determine the compensation payable to the Owner/Developer. The costs incurred by HOB in expropriating an easement pursuant to the above shall be payable by the Owner/Developer.

2.1.7 Contracts

2.1.7.1 Contract for New or Modified Electricity Service

At the present time, a Customer is generally not required to sign a contract for service. HOB shall only connect a Building for new or modified electricity supply upon receipt of a completed and signed Commercial/Industrial Customer Data Form, payment of any

applicable Connection charge, and inspection and approval of electrical and civil equipment by the Electrical Safety Authority and HOB for the new service.

2.1.7.2 Implied Contract

In all cases, notwithstanding the absence of a written contract, HOB shall have an implied contract with any Customer connected to HOB's Distribution System that receives Distribution Services from HOB. Terms of the implied contract are embedded in these Conditions of Service, HOB's Rate schedules, HOB's License, and the Distribution System Code as amended from time to time.

Any Person or Persons who take or use electricity from HOB shall be liable for payment of such electricity. Any implied contract for the supply of electricity by HOB shall be binding upon the heirs, administrators, executors, successors or assigns of the Person or Persons who have taken and/or used electricity supplied by HOB.

2.1.7.3 Special Contracts

Special contracts may be customized in accordance with the service requested by the Customer and would normally include, but not necessarily be limited to:

- Construction sites;
- Mobile facilities;
- Non-permanent structures;
- Special occasions, etc.;
- Generation;
- Street lighting services;
- Flat-Rate services;
- Multi-line electrical supply applications.

2.1.7.4 Landlord & Tenant Agreements

When a tenant opens an account for the distribution of services to a property, the tenant agrees to be a HOB Customer and accepts responsibility for electricity charges provided to a specific service address. Therefore, the contract is between HOB and that tenant. When a tenant closes the account, HOB shall adhere to the date provided by the tenant, regardless of the terms of any lease or verbal agreement between that tenant and the landlord or Owner, and shall issue a final bill for the account.

A landlord or Owner may enter into an agreement with HOB to accept responsibility for any and/or all units listed at a service address for which they are the landlord or Owner, and shall be responsible for any electricity charges for services provided at that property any time that a Person has not assumed responsibility for services delivered to the property until:

- a) New tenant opens an account and agrees to accept responsibility for the charges at the service address; or
- b) Landlord/Owner terminates the agreement.

A landlord or Owner may enter into the above-mentioned agreement by telephone or in writing. If a new account is established in the name of the landlord/Owner pursuant to such an agreement, the following terms and conditions shall apply:

- a) HOB shall open (an) account(s) for Electric Service to the properties in the name of the landlord/Owner as soon as any vacating tenant's account is closed;
- b) Landlord/Owner shall be responsible for the new account(s) and any charges for electricity service provided at any and all units listed at a service address, and shall comply with these Conditions of Service;
- c) New account set-up charge shall apply to the new account(s) and appear on the first electricity bill for any new account(s). Even though the property may be vacant, monthly service charges and any electricity used shall be billed to the new account(s).

The above agreement shall remain in place until HOB is advised otherwise, either verbally or in writing. For example, if a tenant has closed an account and a new tenant or landlord/Owner has not yet assumed responsibility for services delivered to the property, HOB may disconnect and remove its facilities and equipment from the property according to section 2.1.7.5 of these Conditions of Service.

The landlord is responsible for ensuring that HOB is aware of any changes in contact information, or mailing and/or billing details. If the landlord information is unknown, the above shall not apply and HOB will disconnect the service without an active account.

A Building Owner wishing to terminate the supply of electricity to the Owner's Building shall notify HOB in writing. Until HOB receives such written notice, the Building Owner or occupant(s), as applicable, shall be responsible to pay HOB for the supply of electricity to the Owner's Building.

HOB may refuse to terminate the supply of electricity to an Owner's Building until notice has been provided to the Building occupant(s) that the Owner has requested Disconnection. Prior to Disconnection, the Owner shall also pay HOB the Disconnect/Reconnect Fee.

2.1.7.5 Opening & Closing of Accounts

A property Owner or occupant requesting to open an account shall agree to be a HOB Customer and assume responsibility for distribution service charges for a service address by setting up an account by telephone and completing HOB's account application in writing. This will establish a contract with HOB, and the Customer shall accept the responsibility for charges related to the account.

HOB may require a Security Deposit for the account as outlined in section 2.4.3. Connection charges may also be payable to HOB by the Customer at the time of setting up the account, or at a later date. In the case where a Customer is a Corporation or Limited Partnership, an authorized signing officer of the Corporation shall be required to execute the agreement. A Solicitor or Person with Power of Attorney can agree to open an account on behalf of the Customer.

Customers requesting to close an account shall provide five business days advance notice to allow HOB time to read the meter at the service address, and to issue a final bill. If a Customer requests the cancellation of a Service Agreement and no longer wishes to have electricity provided to the service address, HOB may remove certain delivery equipment, such as power lines, transformers and meters. If a request is subsequently made for reconnection, the new Customer account for the service address shall incur applicable costs for HOB to reinstall the appropriate delivery equipment. If service has been disconnected from a service address for six months or longer, an ESA inspection shall also be required.

In all cases, HOB shall not maintain a meter or provide service without an active Customer account. When a Customer advises HOB that it is no longer responsible for an account or requests to close an account, a final bill shall be issued for the account. If, at that time, a new Customer has not yet assumed responsibility for services provided to the property, HOB may disconnect its service to the property and may also remove its facilities and equipment from the property.

2.2 DISCONNECTION

2.2.1 Disconnection & Reconnection: Process & Charges

2.2.1.1 Disconnection / Load Control / Timed Device

HOB reserves the right to disconnect or control the amount of electricity that a Customer can use by installing a load control device or timer for any of the following reasons:

- a) Failure to pay HOB any amounts due and payable for the distribution or supply of electricity under Section 29 of the *Electricity Act*;
- b) Failure to pay HOB any amounts due and payable on a Distributor-Consolidated Bill;
- c) Failure to pay any connection costs which are due and payable;
- d) Failure to notify HOB of the Customer's responsibility for an electricity account when a new party moves into an existing connected property and uses electricity;
- e) Non-payment of Security Deposits identified as a condition of service, or a condition of continuing service;
- f) Any contravention of the laws of Canada or Ontario;
- g) Unsafe worker conditions beyond the normal risks inherent in the operation of the distribution system;
- h) Adverse effects on the reliability and safety of the distribution system;
- i) Material decrease in the efficiency of the distribution system;
- j) Materially adverse effect(s) on the quality of distribution services for an existing connection;
- k) Inability of HOB to perform meter reading (i.e., manually, automatically or remotely), planned inspections, maintenance, repairs or replacement of all or any part of a meter installation;
- l) Failure of the Customer to comply with a directive of HOB for the purpose of meeting its License obligations;
- m) Failure of the Customer to comply with any requirements of these Conditions of Service, including the requirement for a Customer to complete the account set-up process over the telephone and/or in writing, and to assume responsibility for distribution services charges or the terms of any agreement between the Customer and HOB, which includes, but is not limited to, a Connection (Operating) Agreement, Connection Cost Agreement or Connection and Cost Recovery Agreement;
- n) Failure of the Customer to enter into a Connection (Operating) Agreement required by these Conditions of Service;

- o) Compliance with a court order;
- p) By order of the Electrical Safety Authority;
- q) By order of the IESO; or
- r) Reasons identified in section 2.2.1.3.

2.2.1.2 Process for Non-Payment of Account

Immediately following the due date, steps shall be taken by HOB to collect the full amount of a Customer's bill. Bill payment is due 16 calendar days after the bill is printed. Seven calendar days after the due date, the collection process shall begin in accordance with Section 4.2 of the Distribution System Code. Once a disconnect notice has been provided to the Customer, the service may be disconnected by HOB and not restored until satisfactory arrangements have been made for Customer payment, including reconnection costs. Reconnection of service shall only take place between the hours of 08:30 and 16:30. Additional charges shall apply for reconnections performed outside of these hours, and shall be at HOB's discretion. Disconnection notices shall be provided in writing, and if delivered by mail shall be deemed as being received on the third business day after mailing.

2.2.1.3 Electrical

Upon the discovery of a hazardous condition or disturbance propagation (i.e., feedback), HOB shall notify the Customer to rectify the condition at once. If the Customer fails to make satisfactory arrangements to remedy the condition within seven calendar days of receiving a Disconnection notice (i.e., request to rectify) from HOB, the service may be disconnected and not restored until satisfactory arrangements to remedy the condition have been made. HOB shall not be held liable for any damage to the Customer's premises resulting from such discontinuance of service. Disconnection notices shall be provided in writing, and if delivered by mail shall be deemed as being received on the third business day after mailing.

2.2.1.4 General

Upon receipt of a written Disconnection request by the Customer, HOB shall disconnect and/or remove its Connection Assets at the Customer's expense, as outlined in Table 5-1, Table 5-2, Table 5-3, Table 5-4, and Table 5-5.

2.2.2 Unauthorized Energy Use

HOB reserves the right to disconnect the supply of electricity to a Customer for causes not limited to Emergency diversion, fraud or abuse. Electricity supply may not be reconnected until the Customer rectifies the condition, obtains an ESA inspection and provides full payment to HOB for all costs incurred by HOB arising from the Customer's unmetered Energy use, including inspections, damages, repair costs, and the cost of Disconnection and reconnection.

2.2.3 Restricted Access to Meter Located on Residential Property

Pursuant to Section 40 of the *Electricity Act, 1998*, and section 1.7 of these Conditions of Service, HOB has the right to enter a Customer's property for the purposes of reading, inspecting, maintaining, repairing or replacing the meter. Furthermore, as per section 2.2.1 of these Conditions of Service, HOB reserves the right to physically disconnect or limit the amount of electricity that a Customer can use for the following reason:

- HOB's inability to perform meter reading (i.e., manually, automatically or remotely), planned inspections, maintenance, repairs or replacement of all or any part of a meter installation.

If a residential Customer willfully or otherwise restricts access to a meter located on a residential Customer's property for the purpose of preventing Disconnection due to non-payment, HOB reserves the right to make an application to the court for an order to enter the Customer's property, and to request a court-appointed sheriff to escort HOB employees (or representatives) to the Customer's property. If required, HOB shall also request the assistance of a bailiff and locksmith. The Customer shall be responsible for all costs incurred by HOB for the purpose of entering the Customer's property in accordance with the *Electricity Act, 1998*, and with these Conditions of Service, including court fees, sheriff's fees, and the costs of a bailiff and locksmith.

2.2.4 Disconnection Process for Reasons Other Than Non-Payment

Subject to HOB's rights, as specified in section 2.2.5, HOB shall provide the Customer with a notice of Disconnection for reasons other than non-payment by personal service or prepaid mail, or by posting notice on the Customer's property in a conspicuous place. If the Customer does not remedy the situation that gave rise to HOB's right to disconnect the Customer from its distribution system within the time period specified by HOB in the notice, HOB may disconnect the Customer from the distribution system or interrupt the distribution of electricity to the Customer on or after the date specified by HOB in the notice of Disconnection.

2.2.5 Immediate Disconnection Without Notice

HOB may immediately interrupt a Customer's electricity service without notice in accordance with a court order, a request from the fire department or for Emergency or public safety Reasons, including the potential for loss of life or limb, system reliability reasons; or to inspect, maintain, repair, alter, remove, replace or disconnect electrical cables and/or other equipment and facilities used to distribute electricity; or where there is an Energy Diversion, fraud or abuse on the part of the Customer.

2.2.6 Liability for Disconnection

Disconnection of service does not relieve the Customer of the liability for arrears or payment of minimum bills for the balance of the contract terms. The Customer shall be liable for any third-party costs incurred by HOB which are necessary to affect a Disconnection, which include, but are not limited to, court fees, bailiff and sheriff's fees, and the cost of having a locksmith attend the property. Such costs shall be included in the Customer's bill.

Under no circumstances shall HOB be held liable for any damage resulting from or associated with or related to the Disconnection or control of the distribution of electricity, including damage to the Customer's premises, and any business or other losses suffered by the Customer as a result of the Disconnection.

2.2.7 Reconnection

Where the reason for the Disconnection has been remedied to HOB's satisfaction, HOB shall reconnect the Customer. All costs associated with service Disconnection and reconnection, including inspections, shall be paid by the Customer prior to HOB reconnecting the service.

Under any of the following circumstances, HOB shall require the Customer to obtain the approval of the Electrical Safety Authority before HOB reconnects the service, where:

- a) HOB has reason to believe that Customer wiring may have been damaged or altered;
- b) Service was disconnected due to modification of Customer wiring;
- c) Service has been disconnected for a period of six months or longer;
- d) Service was disconnected as a result of (an) adverse effect(s) on the reliability and safety of the distribution system;
- e) Requirement of the Electrical Safety Code.

2.2.8 Disconnection & Reconnection Related Charges

Unless otherwise specified in these Conditions of Service, a charge shall apply in cases where it is necessary for HOB personnel (or representatives) to visit the Customer's premises to collect payment for an overdue account, disconnect service, install a timer or load controller, or reconnect the service. The Customer shall also be responsible for any incidental charges.

2.2.9 Unauthorized Energy Use

HOB reserves the right to disconnect the distribution of electricity to a Customer without notice for causes, including Energy Diversion, fraud, or abuse on the part of the Customer. Electricity service shall not be reconnected until the Customer rectifies the condition and pays all uncollected charges, including any late payment charges as determined by HOB, and any other costs incurred by HOB arising from unauthorized Energy use by the Customer, such as inspections and repair costs, and the cost of Disconnection and Reconnection.

2.2.10 Fraudulent Account Set-Up

HOB reserves the right to disconnect service and/or maintain service interruption if it has reasonable grounds to believe that the Customer(s) of electricity (i.e., where the Customer is an occupant who owns or rents the property, and where the property is used for either Residential or Commercial purposes) has willfully and intentionally avoided bill payment of outstanding charges by applying or re-applying for a new HOB Customer account under a different account holder name. Furthermore, as a condition of establishing a new account for electricity supply, HOB reserves the right, pursuant to Section 3.1.G of the Distribution System Code and section 2.1.3 of these Conditions of Service, to validate the identity of a new account applicant by requesting official verification of the applicant's identity. Acceptable documentation for this purpose includes, but is not limited to, photo identification, credit bureau report, property tax documents, or a letter from a solicitor confirming the new account applicant's identity and that the applicant is no way affiliated with any previous account holder for the property who used electricity with stranded arrears.

2.2.11 Service Cancellation

If a Customer requests a service cancellation, HOB shall remove certain delivery equipment, such as power lines, transformers and meter. If reconnection is requested, the Customer shall incur a cost to reinstall appropriate delivery equipment, and shall follow the steps and processes for new connections according to these Conditions of Service.

2.3 CONVEYANCE OF ELECTRICITY

2.3.1 Limitations on the Guarantee of Supply

HOB shall endeavor to use reasonable diligence in providing a regular and uninterrupted electricity supply, but does not guarantee a constant supply or the maintenance of unvaried frequency or voltage, and shall not be held liable for damages to the Customer by reason of any failure with respect to the above.

Customers requiring a higher level of reliability or security than a normal supply shall be responsible for providing their own uninterruptible power supply (UPS), back-up or standby facilities. Because momentary power interruptions may affect a Customer's facility, the Customer shall protect itself from same.

Customers requiring three-phase electrical supply should install protective apparatus to avoid damaging their equipment, which may be caused by the interruption of supply to one phase, or the non-simultaneous switching of any of the three phases of HOB's electricity supply. Any damages resulting from the failure by the Customer to install protective apparatus shall be at the Customer's expense.

In an Emergency, HOB may interrupt electricity supply to a Customer in response to a shortage of supply, or to effect repairs on the Distribution System, or while repairs are being made to Customer-owned equipment. HOB shall have the right to access a Customer's property in accordance with Section 40 of the *Electricity Act, 1998*, and any successor acts thereto.

To assist in resolving Distribution System outages or for Emergency response, HOB may require a Customer to provide Emergency access to Customer-owned distribution equipment that would normally be operated by HOB, or HOB-owned equipment installed on the Customer's property.

2.3.2 Power Quality

2.3.2.1 Power Quality Testing

In response to a Customer's power quality concern, and where the use of electrical power adversely affects the performance of electrical equipment, HOB shall perform investigative analysis to identify the underlying cause. Depending on the circumstances, this may include a review of relevant power interruption data, trend analyses, and/or use of diagnostic measurement tools.

Upon determining the cause of the Customer's power quality concern, and where it is deemed a system delivery issue and/or if industry standards are not being met, HOB shall recommend and/or take appropriate mitigation measures and/or actions to control any power disturbances found to be detrimental to its Customers. If HOB is unable to correct the problem without adversely affecting other Customers, HOB shall not be obligated to make any corrections. HOB shall use appropriate industry standards, such as IEC (International Electrotechnical Commission) or IEEE (Institute of Electrical and Electronics Engineers) standards, and Good Utility Practice as guidelines.

If the power quality concern lies on the Customer side of the Distribution System, HOB shall seek reimbursement from the Customer for costs incurred in its investigation. However, HOB shall not be obligated to identify the source of the power quality concern on the Customer's side of the Electric Service.

2.3.2.2 Prevention of Voltage Distortion in Distribution

Customers with non-linear loads shall not be connected to HOB's Distribution System, unless the power quality is maintained by implementing corrective measures, such as installing proper filters and/or grounding. Furthermore, to ensure that the Distribution System is not adversely affected, any installed power electronics equipment shall comply with IEEE Standard 519-1992 (latest edition). The limit on individual voltage harmonic distortion is 3%, and the limit on total voltage harmonic distortion is 5%.

2.3.2.3 Obligation to Assist the Investigation

During the course of a power quality investigation conducted by HOB or its representative, the Customer shall be obligated to assist HOB by providing required equipment information, relevant data, and necessary access for equipment monitoring.

2.3.2.4 Timely Correction of Deficiencies

If an undesirable system disturbance is being caused by a Customer's equipment, the Customer shall cease operation of the equipment until satisfactory remedial action is taken by the Customer, at its expense. The Customer shall be responsible for all costs incurred by the utility in its effort to identify and correct the source(s) of disturbance. If the Customer does not take such action within a reasonable time, HOB may disconnect the Customer's electricity supply.

2.3.2.5 Notification for Interruptions

Although it is HOB's policy to minimize Customer inconvenience, it may be necessary for HOB to occasionally interrupt a Customer's electricity supply to allow work on the electrical system. HOB shall endeavor to provide its Customers with reasonable advance notice of any planned power interruptions. Notice may not be provided where the nature of the work is an Emergency involving possible injury to Persons, or damage to property or equipment.

2.3.2.6 Third-Party Notification to Customers

HOB offers a service to Customers who require assistance communicating with staff due to language difficulties, age, etc. Upon receipt of written instructions from the Customer, HOB shall record the name and telephone number of a designated third party for HOB personnel (or representatives) to contact regarding the Customer's account. The account record will instruct HOB's representatives how to contact the third party instead of the Customer.

2.3.2.7 Emergency Interruptions for Safety

HOB shall endeavor to notify its Customers prior to interrupting the supply of any service. However, if an unsafe or hazardous condition is found to exist, such as missing ground connections at Customer-owned stations, or if the use of electricity by apparatus, appliances or other equipment is found to be unsafe or damaging to HOB or the public, the service may be interrupted without notice.

2.3.2.8 Emergency Service (Trouble Calls)

HOB shall exercise reasonable care and diligence to deliver continuous electricity service to its Customers. However, HOB cannot guarantee a supply of electricity free from interruption.

If electrical power has been interrupted, the Customer should first ensure that power failure is not internal on the Customer's property. If there is a partial power failure, the Customer should contact HOB's control room operator (available 24 hours a day and 7 days a week at 905-840-6300 ext. 7250) before requesting the services of an electrical contractor. After HOB confirms that its electrical supply has failed, it shall initiate restoration efforts as soon as reasonably possible.

2.3.2.9 Outage Reporting

In the event of a major loss of power and depending on the duration of the outage, HOB may issue a news bulletin or press release to advise the general public of the outage. Local television and radio stations may contact HOB for information on a 24-hour basis when they hear of an outage.

2.3.3 Electrical Disturbances

HOB shall not be held liable for the failure to maintain Supply Voltages within standard levels due to Force Majeure, as defined in section 2.3.5.

Customers that require an uninterrupted source of Electric Service or a supply completely free of fluctuation and disturbance shall provide and maintain their own power conditioning equipment for such purposes.

2.3.3.1 Voltage Fluctuations

Voltage fluctuations and other disturbances can cause flickering of lights and other serious difficulties for Customers connected to the HOB's Distribution System. Electrical equipment that may cause disturbances includes, but is not limited to, large motors, welders, arc furnaces, variable speed drives, etc.

The Customer shall be responsible for ensuring that its equipment does not introduce any voltage disturbances into the utility's supply system that could adversely affect other Customers. If the Customer's equipment is causing such a disturbance in the utility's supply system, it shall immediately cease operating the equipment causing the disturbance (see section 2.3.2.4).

2.3.3.2 Motors, Welders, Arc Furnaces, Etc.

Customer-owned motors, resistance welders, arc furnaces and other electrical equipment shall be of approved designs, and operated so that the quality of Electric Service to other Customers will not be affected. See also Note #3 under Table 5-12 in section 5.1).

As provided in Table 5-11 and Table 5-12, the motor and welder starting current limitations and nameplate kVA ratings do not imply that Customer voltage is "flicker free". Rather, these are the limits on Customer equipment that should not disturb the utility's electrical supply system.

2.3.3.3 Three-Phase Reclosure, Single-Phase Operation & Loss of Phase

HOB's Distribution System incorporates circuit reclosure as a normal operating function of all primary voltages. This should be taken into account by the designers of any electrical systems and equipment that is sensitive to automatic electrical reclosure operations.

The Distribution System operates such that “single phasing” (i.e., loss of one or two phases) can be expected to occur from time to time.

Any Customers using three-phase supply should install protective apparatus to avoid damaging their equipment, which may be caused by the interruption of one phase, or the non-simultaneous switching of the Distributor’s supply phases.

2.3.3.4 System Switching

HOB and Hydro One Networks Inc. perform system switching during normal operation of the Distribution System. During some switching operations, transients can occur that may cause operational difficulties with the electrical equipment of some Customers. HOB recommends that Customers should consult with the manufacturers of any affected equipment for transient mitigation (e.g., the effect of capacitor bank switching operations on small variable speed drives).

2.3.3.5 Electric & Magnetic Fields

Some types of electronic equipment, such as video display terminals, can be affected by the close proximity of large electrical currents that may be present in transformers. HOB shall assist in attempting to resolve any such difficulties at the Customer’s expense.

2.3.4 Standard Voltage Offerings

2.3.4.1 Primary Voltage

The primary voltage to be used shall be determined by HOB for both HOB-owned and Customer-owned transformers. Depending on the distribution voltage of the HOB plant that “lies along”, the preferred primary voltage will be a 27.6 kV grounded wire, three-phase, four-wire system for utility-owned transformers. For Customer-owned transformers, the preferred primary Supply Voltage will be 44.0 kV when both 27.6 kV and 44.0 kV “lies along” the proposed facility. All Customer-owned transformers shall be Delta-connected primary, three-phase and three-wire, with HOB’s system neutral connected to the Customer’s station ground when the primary voltage is 27.6 kV. As outlined in these Conditions of Service, the Customer shall consult with HOB to confirm the primary voltage to be provided.

2.3.4.2 Supply Voltage

Depending on the secondary voltage of the plant that “lies along” HOB’s Distribution System, the preferred secondary voltage will be at 120/240 V, single phase, 120/208 V, three-phase, four-wire; or 600/347 V, three-phase, four-wire. The supply voltage shall govern the limit of supply capacity for any Customer. General guidelines for electricity supply from overhead street circuits are as follows:

- 1) 120/240 V: Single phase, up to 100 kVA Demand load; or
- 2) 600/347 V: Three-phase, four-wire up to 200 kVA Demand load if a transformer bank (i.e., with spare capacity) already exists; or
- 3) 208/120 V: Three-phase, four-wire up to 150 kVA Demand load if a transformer bank (i.e., with spare capacity) already exists; or
- 4) Where street circuits are buried, the supply voltage and limits shall be determined upon application to HOB; or

- 5) When the Customer or Developer provides a precast concrete (approved by HOB) transformer pad installed on private property;
 - a) 120/240 V: Single phase supply up to 100 kVA; or
 - b) 208/120 V: Three-phase, four-wire up to 500 kVA Demand load; or
 - c) 600/347 V: Three-phase, four-wire up to 1500 kVA Demand load when HOB's primary Supply Voltage is 27.6 kV, or 500 kVA when HOB's primary supply is 13.8 kV., or
- 6) When the Customer or Developer provides a Transformer Vault (approved by HOB) on private property;
 - a) When HOB's primary supply is provided from 13.8 kV primary 208/120 V or 600/347 V, three-phase, four-wire up to 500 kVA, depending on system availability in the area (limited application, consult with HOB); or
 - b) When HOB's primary supply is provided from 27.6 kV primary 208/120 V or 600/347 V, three-phase, four-wire up to 1500 kVA Demand load., or
- 7) When the Customer or Developer provides an outdoor transformer station on private property; or
- 8) When the Customer provides its own transformer substation, primary switchgear and protection to meet the Ontario Electrical Safety Code (latest edition). Consult with HOB's Technical Services Department to confirm the primary voltage, winding configuration, minimum acceptable transformer losses, and other required characteristics.

2.3.5 Voltage Guidelines

HOB maintains service voltage at the Customer's service entrance according to the guidelines of CSA Standard CAN3-C235-87 (latest edition), which allows the following variations from nominal voltage:

- 5% for normal operating conditions;
- 8% for extreme operating conditions.

Where voltages lie outside the indicated limits for normal operating conditions but within the indicated limits for extreme operating conditions, improvement or corrective action should be taken on a planned and programmed basis, but not necessarily on an Emergency basis. Where voltages lie outside the indicated limits for extreme operating conditions, the improvement or corrective action should be taken on an Emergency basis. The urgency for taking such action will depend on many factors, such as the location and nature of the load or circuit(s) involved, and the extent of exceeded limits with respect to voltage levels, duration, etc.

HOB shall exercise reasonable diligence in maintaining voltage levels, but is not responsible for variations in voltage from external forces, such as operating contingencies, exceptionally high loads, and low voltage supply from the Provincial Transmission Grid Company or host Distributor. HOB shall not be held liable for any delay or failure in the performance of any of its obligations under these Conditions of Service due to any events or causes beyond the reasonable control of HOB, which include (without limitation) severe weather, flood, fire, lightning and other forces of nature, acts of animals, epidemic, quarantine restriction, war, sabotage, act of a public enemy, earthquake, insurrection, riot, civil disturbance, strike, restraint by court order or public authority, action or non-action or inability to obtain authorization or approval from

any governmental authority, or any combination of these causes (Force Majeure) (see section 1.7.6).

2.3.6 Back-Up Generators (Open & Closed Transition Operation)

Customers with portable or permanently connected generation capability used for Emergency back-up shall specifically comply with, but not be limited to, the Ontario Electrical Safety Code (latest edition) Section 28-900, Section 46, Section 14-612, and all other applicable criteria. Back-up generators will generally operate in open transition (i.e., no paralleling) mode with the utility supply. In the event that closed transition (i.e., parallel operation) is required for a specified duration, the Customer's Emergency back-up system shall meet or exceed the requirements of IEEE 1547, and CSA 22.3 No. 9-08 (latest edition). For generators with permanent connections to HOB's Distribution System that are not classified as back-up generators, see section 3.5 for additional information on parallel operation.

Customers with permanently connected Emergency back-up generation equipment shall notify HOB regarding the presence and routine testing of such equipment. Customers planning to install (a) back-up generator(s) shall submit two copies of relevant drawings and support documentation for review and comment with details regarding the control philosophy, and how the relevant standards have been met. HOB reserves the right to witness the commissioning and/or operation of a Customer installation and its Connection to the distribution system.

2.3.7 Metering

HOB shall supply and arrange for installation, and shall own and maintain all meters, instrument transformers, ancillary devices, and secondary wiring required for revenue metering.

Metered market participants in the Electricity System Operator (IESO) administered wholesale market shall meet or exceed all IESO metering requirements. Refer to the IESO for standards and details. The Customer shall agree to provide the utility with remote access to the metering point (at the Customer's expense) for the purpose of data collection to enable the utility to conduct settlement.

2.3.7.1 General

HOB shall normally meter the Customer's load at the utilization voltage. Except for secondary supply from the street, secondary metering equipment shall be located as close as is practically possible to the supply transformer, regardless of its ownership. Consult with HOB's Technical Services Department before determining any new secondary metering location.

All residential and small Commercial/Industrial Customers under 200 kW shall be metered by a HOB-approved "Smart Meter", as mandated by the Ontario Government.

No Person, except as authorized by HOB, may remove, connect, or otherwise interfere with any HOB meters, wires, or ancillary equipment.

Each Customer shall be normally restricted to one metering point.

The Customer shall be responsible for the care and safekeeping of HOB meters, wires and ancillary equipment installed on the Customer's premises. If any such installed HOB equipment is damaged, destroyed or lost other than by ordinary wear and tear, temperature or lightning, the Customer shall be liable to pay HOB the lesser value of such equipment, or the cost of repairing same.

The location assigned by the Owner for HOB metering equipment shall provide HOB personnel (or representatives) with direct access, and be subject to environmental conditions that include the following:

- Clear minimum working space of 1 metre shall be maintained in front of all equipment and from all side panels to provide a minimum headroom of 2.1 metres;
- Meter sockets, cabinets and other meter-mounting devices shall be mounted and/or installed to be free from vibration and located away from sources of heat, dust and chemical vapors;
- Where sprinkler equipment is located in the vicinity of any metering equipment, drip shields shall be installed over all meters and related equipment;
- Where moving machinery is in the vicinity, guards may need to be installed to protect workers.

The above requirements shall apply equally to both new installations and existing installations requiring additional Electric Services.

Any compartments, cabinets, boxes, sockets, or other workspace for the installation of HOB's metering equipment shall be provided for the exclusive use of HOB.

2.3.7.1.1 Multi-Unit Residential Suite Buildings

Under Ontario Regulation 442/07, all new multi-unit condominium Buildings shall be either individually metered by a licensed Distributor, or smart sub-metered by an alternative licensed service provider. For existing Buildings, individual smart meters or smart sub-meters will be installed at the discretion of the condominium's Board of directors.

HOB shall provide a single, bulk-metered point for all multi-unit sites at no charge to Customers.

Customers wishing to equip multi-unit sites with individual tenant metering may install their own additional meters or sub-metering systems. Owners of sub-metering systems, or any other electricity meters used for revenue billing purposes shall register as contractors with Measurement Canada, and ensure that all regulatory requirements are met.

HOB may, at its discretion, provide individual metering for multi-unit Buildings under the following conditions:

- Customer pays all additional costs necessary to provide the individually metered services;
- Building Owner shall provide adequately-sized and secure metering rooms within the Building for installing the sub-metering system;
- Customer supplies and maintains a dedicated telephone line installed up to the metering point;
- Building Owner supplies standard meter bases or meter load centres for meters;
- All common areas are separately metered.

2.3.7.1.2 Main Switch & Meter Mounting Devices

The Customer's main switch immediately preceding the meter shall be installed so that the top of the switch is 1.83 m or less from the finished floor, and to permit the sealing and padlocking of:

- a) Handle in the “open” position; and
- b) Cover or door in the “closed” position.

Meter mounting devices for use on three-phase Commercial/Industrial accounts shall be installed on the load side of the Customer's main switch, and located indoors.

When the utility meter is not installed on the main level of a Building, the Customer shall ensure that a staircase is constructed according to the Ontario Building Code.

The Owner shall supply and install a HOB-approved meter base for use with HOB's self-contained socket meters according to the main switch ratings and Supply Voltages listed in Table 5-8.

A list of approved meter sockets is available upon request. The centre of meter sockets shall be set at 1.65 m above the finished floor (refer to standard drawing #27-15, which is available from the HOB website at www.HydroOneBrampton.com).

The Owner shall supply and install a meter cabinet to contain HOB's metering equipment according to the main switch ratings and Supply Voltages listed in Table 5-9.

Requests for meter load centres shall be submitted to HOB for approval prior to ordering any material for a project. The minimum socket mounting height of 600 mm above the finished floor shall be maintained. For additional details, see Table 5-10.

The Customer shall permanently and legibly identify each metered service by its specific address, including unit or apartment number. This identification shall be applied to all service switches, circuit breakers, meter cabinets, and meter-mounting devices. All ganged meter bases shall be properly identified and marked, both inside the socket and on the cover.

2.3.7.1.3 Service Mains Limitations

The metering provision and arrangement for service mains in excess of 600 A shall be submitted to HOB's Technical Services Department for approval before proceeding with Building construction.

2.3.7.1.4 Special Metering Enclosures

Specially constructed meter enclosures may be permitted for outdoor use. Customers should submit a written application with a complete description to HOB's Technical Services Department.

2.3.7.1.5 Meter Loops inside Meter Cabinets

Meter loops with a length of 1 metre (36 inches) shall be provided in addition to the loop length between the line and load entry points. Consult with HOB's Meter Department to confirm entry and exit points in the meter cabinet. Line and load entry points shall be restricted to opposite ends, and the lower half of the meter cabinet (refer to standard drawing #27-15, which is available from the HOB website at www.HydroOneBrampton.com). These entry points shall be correctly marked as “line” and “load”.

Mineral insulated, solid and hard-drawn wire conductors are not acceptable for use with meter loops.

The neutral conductor shall be terminated on an insulated block at the bottom center of the meter cabinet at a distance of 7 cm (3 inches) from the front edge of the cabinet, if the neutral is not required after the metering point. If the neutral is required after the

metering point, conductors shall run along the bottom of the cabinet and not looped like the other phases. HOB shall supply a split bolt and connect a “tickler wire” to the neutral inside the meter cabinet.

2.3.7.1.6 Barriers

Permanently constructed barriers are required in each section of the switchgear or service entrance equipment installed between metered and unmetered conductors, and/or between sections reserved for use by HOB and sections provided for Customer use.

2.3.7.1.7 Doors

Side-hinged doors shall be installed over all live electrical equipment where HOB personnel may be required to work, such as splitter boxes, unmetered sections of switchgear, circuit breakers, switches, utility metering compartments, meter cabinets and enclosures.

These hinged doors shall include provisions for sealing and padlocking. Where bolts are used, they shall be the captive knurled type. All outer-hinged doors shall open no less than 135 degrees. All inner-hinged doors shall open to a full 90 degrees.

2.3.7.1.8 Auxiliary Connections

All connections to circuits, such as fire alarms, exit lights and Customer monitoring instrumentation, shall be made to the load side of HOB’s metering facilities.

Customer equipment shall not be connected to HOB’s metering compartment or facilities, except as authorized by HOB.

2.3.7.1.9 Working Space

A clear minimum working space of 1 metre shall always be maintained in front of all equipment and from all side panels, with a minimum headroom of 2.1 metres. HOB’s revenue metering installations shall not protrude into doorways or be located behind water sprinkler systems, or built into a closet with less than 1 metre of clearance in front of the meter. Safety guards shall be installed on all machinery located within 3 metres of metering equipment to prevent injury to HOB personnel when working on the equipment. All self-contained meters shall provide at least 450 mm of clearance from the side of the meter base to an inside corner of a wall or equipment that protrudes more than 300 mm from the wall beside the meter base.

Where a hinged door in an open position would block an exit route, an additional 600 mm of clearance shall be provided from the edge of the open door to provide an egress route.

2.3.7.2 Current & Potential Transformer Boxes and/or Utility Compartment

When instrument transformers are incorporated into low voltage switchgear, the Customer shall provide a separate meter cabinet for utility revenue meters. This meter cabinet shall be located to the satisfaction of HOB and as close as possible to the utility compartment(s). The meter cabinet and utility compartment(s) shall be connected using empty 1.25 inch conduit(s), where the length shall not exceed 30 metres. The meter cabinet shall be installed on the wall with a minimum of four fasteners, and the cabinet back panel shall be removable. To meet ESA requirements, the meter cabinet shall also be properly connected to the utility compartment ground using a #6 stranded green

copper conductor on the cabinet exterior, instead of using through-the-meter wiring conduit (ESA requirement).

A 120 V convenience receptacle shall be installed inside meter cabinets for single tenant applications. For existing meter installations, the Customer shall provide a receptacle for use by HOB to connect a radio repeater or telephone line sharing device, if required to read the meter.

The Customer's electrical contractor shall install HOB's instrument transformers in the low voltage switchboard. Arrangements shall be made with HOB's Meter Department for delivering instrument transformers to the Customer site prior to meter installation.

The conduit for the HOB metering circuit shall run continuously from the utility compartment to the metering cabinet, and enter the utility compartment in an unobstructed location.

Where instrument transformers are incorporated into low voltage switchgear, the size and layout of the utility compartment shall be approved by HOB prior to equipment fabrication, and shall include:

- Neutral tap of 12.7 mm x 6.3 mm (0.5" x 0.25") bus suitably terminated in the instrument transformer compartment, such that the service neutral does not pass through the instrument transformer compartment;
- Grounding studs installed in all low voltage switchboards, as per section 2.3.7.8;
- Final layout and component arrangement approved prior to equipment fabrication.

2.3.7.2.1 Primary Metering: Overhead & Underground Installations

Depending on the number of circuits to be totalized, sometimes it will be more economical to install primary metering. In such cases, HOB shall provide the primary metering unit(s) for installation by the Customer. HOB shall supply and install its metering circuit wiring harness and metering equipment inside the Customer's meter cabinet. No Capital Contribution is required from the Customer, provided that metering unit(s), meter cabinet, and connecting conduit are installed. Coordination with HOB's Meter Department is required.

If a Customer specifically requests the use of primary metering in circumstances where HOB would normally install secondary metering, the Customer shall provide a Capital Contribution equivalent to the difference in HOB's recoverable cost between secondary and primary metering. For underground installations, the Customer shall be responsible for mounting the primary high voltage instrument transformers (i.e., CTs and PTs) in their switchgear, and for supplying and wiring all primary connections to instrument transformers inside a sealable junction box.

Consultation with HOB is required when proposing two or more totalized circuits, or where remote totalizing is involved, or where instrument transformers are incorporated into high-voltage switchgear (i.e., greater than 750 V). HOB shall issue specific metering requirements in such circumstances.

2.3.7.3 Interval Metering

An Interval Meter shall be installed by HOB for all new or upgraded services, where the monthly average peak Demand is estimated to be 50 kW or greater over the calendar year. HOB shall interrogate Interval Meters remotely via a HOB approved communication platform. At the time of the metering installation HOB will prescribe which remote interrogate method is available. Depending on the method available the

customer may have to install, maintain and pay the cost of a communication system that satisfies the requirements of HOB and provide an ongoing communication line or communication link with the interval meter. HOB will implement the following methods for meeting the remote integration requirements associated with the retrieval of Interval Meter data:

- Method 1: Standard analog voice quality telephone line provided by the Customer to the meter, and maintained at the Customer's expense; or
- Method 2: HOB approved communication system used for remote interrogation, where available.

For method 1 the Customer shall arrange for the installation of a telephone line terminating at the metering point for the exclusive use of HOB to retrieve Interval Meter data. This dedicated telephone line shall be active 24 hours per day, and energized prior to meter installation. Failed Customer telecommunications lines shall be repaired within 48 hours of receiving failure notification from HOB. If repairs are not completed within this time frame, HOB will need to manually collect the Interval Meter readings every second day following Customer notification, and shall invoice the Customer for all costs associated with manually reading the Customer's Interval Meter data.

Customers connected to service under 50 kW that request interval metering shall compensate HOB for all incremental costs associated with an Interval Meter, including the capital cost and associated installation costs; ongoing maintenance (including allowance for meter failure), verification and re-verification of the meter; and installation and ongoing provision of the communication line and/or telecommunications costs associated with interrogating the Customer's meter.

2.3.7.4 Meter Reading & Access to Meter Equipment

The Customer shall provide or arrange for free, safe and unobstructed access by any authorized HOB representative during regular business hours for the purposes of meter reading, meter changing, or meter inspection. Where the Customer premises are closed during HOB's normal business hours, upon reasonable notice the Customer shall arrange for such access at a mutually convenient time.

2.3.7.5 Final Meter Reading

When a service is no longer required, the Customer shall provide sufficient notice of the date requested for the service to be discontinued, so that HOB can obtain a final meter reading as close as possible to the final reading date. The Customer shall provide access to HOB or its representative for this purpose. If a final meter reading is not obtained, the Customer shall pay HOB a sum based on the estimated Demand and/or electricity used since the last meter reading.

2.3.7.6 Faulty Registration of Meters

Metering of electricity use for the purpose of billing is governed by the federal *Electricity and Gas Inspection Act* and associated Regulations under the jurisdiction of Measurement Canada and Industry Canada. HOB's revenue meters shall comply with the accuracy specifications established by Regulations under the above Act.

In the event of incorrect electricity use registration, HOB shall determine the correction factors, based on the specific cause of metering error and the Customer's history of electricity use. The Customer shall pay HOB for all electricity supplied, based on the reading of any meter previously or subsequently installed on the premises by HOB, with due regard for any change in the characteristics of installation and/or electricity Demand.

If Measurement Canada determines that the Customer was overcharged, HOB shall reimburse the Customer for the incorrectly billed amount. Conversely, HOB shall follow the recommendation for billing adjustment if Measurement Canada determines that the Customer was undercharged.

If an incorrect measurement is made due to reasons other than meter accuracy, such as incorrect meter connection, incorrect connection of auxiliary metering equipment, or incorrect use of the meter multiplier in calculating the bill, the billing correction shall apply for the duration of the error. HOB shall correct the bills for that period in accordance with the Regulations under the *Electricity and Gas Inspection Act*.

2.3.7.7 Meter Dispute Testing

Most billing inquiries can be resolved between the Customer and HOB without the use of Measurement Canada's meter dispute test.

Either HOB or the Customer may request the services of Measurement Canada to resolve a dispute involving the meter.

2.3.7.8 Working Ground Points: 120 V to 46 kV Metering Applications

The following requirements apply equally to all revenue metering installations, including utility metering compartments rated from 120 V to 46 kV.

In compliance with the Ontario Occupational Health and Safety Rules in effect at the relevant time, working ground points complete with a permanently mounted 25 mm (1.0") diameter ball type ground stud, Hubbell Chance C600-2102 (or equivalent), shall be provided at all of the following locations within the instrument transformer compartment:

- 1) For 3-wire, 2-element revenue metering applications (i.e., total of 6 ground studs):
 - a) On each side of phase A CT;
 - b) On each side of phase C CT;
 - c) On phase B;
 - d) On ground bus.
- 2) For 4-wire, 3-element revenue metering application (i.e., total of 7 ground studs):
 - a) On each side of phase A CT;
 - b) On each side of phase B CT;
 - c) On each side of phase C CT;
 - d) On ground bus.

2.4 TARIFFS & CHARGES

2.4.1 Service Connections

Charges for Distribution Services according to the Schedule of Rates available from HOB Notice of Rate revisions shall be published by HOB in major local newspapers. Information regarding any changes shall also be mailed by HOB to all Customers together with the first billing issued at revised rates.

2.4.1.1 Customers Switching to Retailer

There are no physical differences between the service connections provided between Standard Service Supply (SSS) Customers and third-party Retailer Customers. Both Customer Energy supplies are delivered through the local Distributor according to the same distribution requirements. Therefore, all service Connection requirements that apply to SSS Customers also apply to third-party Retailer Customers.

2.4.1.2 Supply Deposits & Agreements

Where an Owner proposes the development of premises that require HOB to place equipment orders for a specific project, before any construction begins the Owner shall enter into the necessary Supply Agreement and pay a suitable deposit before such equipment is ordered by HOB.

An irrevocable letter of credit or letter of guarantee from a chartered bank, trust company or credit union is acceptable in lieu of a cash deposit.

2.4.2 Energy Supply

2.4.2.1 Standard Service Supply

Any existing HOB Customer is deemed to be a Standard Service Supply (SSS) Customer until HOB is informed about the Customer switching to a competitive electricity supplier. Either the Customer or the Customer's authorized Retailer shall make the service transfer request (STR).

2.4.2.2 Retailer Supply

Customers transferring from Standard Service Supply (SSS) to a Retailer shall comply with service transfer request (STR) requirements as outlined in Section 10.5 through Section 10.5.6 of the Retail Settlement Code.

All requests shall be submitted as electronic files and transmitted through EBT Express. STRs shall include all required information as per Section 10.3 of the Retail Settlement Code.

If the information is incomplete, HOB shall notify the Retailer or Customer about the specific deficiencies, and shall wait for a reply before processing the transfer.

2.4.2.3 Wheeling of Energy

All Customers considering delivery or receiving electricity from HOB's Distribution System shall contact HOB regarding technical requirements and applicable tariffs.

2.4.3 Deposits

HOB purchases electricity on behalf of its Customers, and then recovers this cost and the cost of distribution through Customer billing.

According to Section 2.4.6.1 and Section 2.4.6.2 of the Distribution System Code, a Distributor may use any risk mitigation option available under law to manage Customer non-payment risk. A Distributor may also impose an amount and type of security requirement on a Customer, depending on the Distributor's assessment of the Customer's likely risk of non-payment. A Distributor shall also not discriminate between Customers with similar risk profiles or risk-related factors.

As Customers switch to competitive Retailers and depending on the billing options, the level of HOB's risk exposure will vary. For this reason, the Security Deposit amount may be adjusted to reflect the new level of exposure.

The following HOB policy shall apply for each billing option:

- 1) Standard Supply Service: Under this option, HOB will continue to issue a bill to the Customer. Because HOB is responsible for Customer non-payment risk, payment of a Security Deposit may be required depending on HOB's assessment regarding the risk of non-payment by the Customer;
- 2) Distributor-Consolidated Billing (DCB): Under this option, HOB will issue a bill to the Customer and assume responsibility for Customer non-payment risk. HOB may require the payment of a Security Deposit, depending on its assessment of the likely risk of non-payment by the Customer;
- 3) Retailer-Consolidated Billing (RCB): Under this option, HOB will not issue a bill to the Customer, and will not require a Security Deposit from the Customer. The Retailer shall be responsible for issuing the bill, and for assuming the responsibility for Customer non-payment risk;

If HOB is holding a Security Deposit when a Customer switches to Retailer-Consolidated Billing, the Customer's deposit shall be applied to the final bill, and any excess deposit amount shall be returned to the Customer.

- 4) Split Billing (if approved in future): Under this option, HOB and the Retailer will both assume responsibility for Customer non-payment risk for billing issued by each party to the Customer.

If the Customer has already provided a Security Deposit, HOB shall retain a portion of the deposit that reflects the non-payment risk associated with the new billing option, and shall return any excess deposit amount to the Customer.

2.4.3.1 Security Deposit Requirements

HOB shall require a Security Deposit from any Residential and Non-Residential Customer that does not demonstrate a good payment history (refer to Section 2.4.10 of Distribution System Code). For example, a Security Deposit is required if a Customer has received more than one Disconnection notice from the Distributor, or if more than one cheque or pre-authorized payment has been returned for insufficient funds, or if a disconnect/collect trip has occurred.

The form of payment from a residential Customer can be either cash or cheque. A non-residential Customer can provide cash, a cheque, or an automatically renewing irrevocable letter of credit from a bank or financial institution as defined in the *Bank Act*.

Residential Customers may request to pay the Security Deposit in up to six equal monthly installments, and Non-Residential Customers may request to pay the Security Deposit in up to four equal monthly installments.

2.4.3.2 Exemption from Paying Security Deposit

For the purpose of the criteria outlined below, the time period considered by HOB for a Customer's good payment history shall be the most recent period, with a portion of this time occurring within the previous 24 months.

Customers shall not be required to provide a Security Deposit to HOB by meeting one of the following exemption criteria:

- Residential Customer;

- 1 year good payment history (i.e., for existing Customers); or
- Reference letter provided by another electricity or natural gas utility in Canada which indicates the Customer's good payment history for 1 year; or
- Credit check (at the Customer's expense) provided by a credit agency listed in HOB's Deposit Policy, and which identifies the Customer as a good credit risk. HOB reserves the right to request updated credit checks from time to time at its discretion;
- Qualified eligible low-income Customers under LEAP.
- Non-Residential Customer (<50 kW Demand Rate class);
 - 5 years good payment history (i.e., for existing Customers); or
 - Reference letter from another electricity or natural gas utility in Canada which indicates the good Customer's payment history for 5 years; or
 - Credit check (at the Customer's expense) provided by a credit agency listed in HOB's Deposit Policy, and which identifies the Customer as a good credit risk. HOB reserves the right to request updated credit checks from time to time at its discretion.
- Non-Residential Customer in any other Rate class (excluding Customers >5,000 kW);
 - 7 years good payment history (i.e., for existing Customers)*; or
 - Reference letter from another electricity or natural gas utility in Canada which indicates the Customer's good payment history for 7 years; or
 - Credit check (at the Customer's expense) provided by a credit agency listed in HOB's Deposit Policy, and which identifies the Customer as a good credit risk. HOB reserves the right to request updated credit checks from time to time at its discretion; or

*To qualify for one of the following reductions, the Customer shall provide a credit rating from either Dominion Bond Rating Service (DBRS), Standard & Poors (S&P) or Moody's. The reduction shall be calculated as per below. HOB reserves the right to request updated credit ratings from time to time at its discretion.

- Credit Rating: Allowable Reduction;
 - Using Standard and Poor's Rating Terminology:
 - AA- and above or equivalent (100%);
 - AA-, AA, AA+ or equivalent (95%);
 - A-, from a, A+ to below AA or equivalent (85%);
 - BBB-, from BBB, BBB+ to below A or equivalent (75%);
 - Below BBB- or equivalent (0%).
 - Non-Residential Customers >5,000 kW:
 - 7 years good payment history** (for existing Customers, HOB is only required to refund 50% of the deposit); or
 - Reference letter from another electricity or natural gas utility in Canada which indicates the Customer's good payment history for 7 years; or

**To obtain a refund higher than 50%, the Customer shall provide a credit rating from Dominion Bond Rating Service (DBRS), Standard & Poors (S&P) or Moody's. The reduction shall be calculated as per below. HOB reserves the right to request updated credit ratings from time to time at its discretion.

- Credit Rating: Allowable Reduction;
 - Using Standard and Poor's Rating Terminology:
 - AA- and above or equivalent (100%);
 - AA-, AA, AA+ or equivalent (95%);
 - A-, from a, A+ to below AA or equivalent (85%);
 - BBB-, from BBB, BBB+ to below A or equivalent (75%);
 - Below BBB- or equivalent (0%).

2.4.3.3 Security Deposit Limits

The maximum amount which can be requested by HOB for a Customer Security Deposit is equal to 2.5 times the estimated Customer bill, based on the Customer's average monthly load during the most recent 12 consecutive months within the past two years. If such information on the Customer's use of electricity is not available, the Customer's average monthly load shall be based on a reasonable estimate determined by HOB.

Customers with more than one Disconnection notice within a relevant 12-month period shall have their deposit calculation based on the highest actual or estimated monthly load.

2.4.3.4 Retention of Security Deposits

HOB shall review all Security Deposits annually to determine whether all or some Customer deposit amounts shall be returned based on re-calculating the maximum allowable Security Deposit amount, as outlined in Section 2.4.12 of the Distribution System Code.

Customers with a good payment history of one year in the case of residential Customers, five years in the case of non-residential Customers in <50kW Demand Rate class, or seven years in the case of non-residential Customers in any other Rate class, shall have Security Deposits credited to their accounts.

In cases where an account is final billing, the Security Deposit and interest shall be applied to the final bill, and any credit balance shall be refunded within six weeks of the final billing date.

A Customer may, no earlier than 12 months following the payment of a Security Deposit or making a prior request for review, demand in writing that HOB undertake a review to determine whether the entire amount of the Security Deposit shall be returned.

2.4.3.5 Interest on Security Deposits

Interest shall accrue monthly on Security Deposits paid in cash or by cheque upon receipt of the total deposit required. The interest rate shall be the prime business rate as published on the Bank of Canada website, less two percent updated quarterly. Accrued interest shall be paid out at least once every 12 months, or upon the application or return of the Security Deposit or closure of the account (whichever comes first), and shall be paid by crediting the Customer's account.

2.4.3.6 Enforcement for Unpaid Security Deposits

Non-payment of a Security Deposit can result in discontinuation of service, and shall be subject to HOB's regular Disconnection procedure (see section 2.2.1).

2.5 BILLING

In this section, references to monthly time periods are notational and approximate periods only, and shall not be construed as calendar-based time periods.

2.5.1 Billing Frequency

HOB may, at its option, issue bills to its Customers on a monthly basis. Billing for the use of electricity may be based on either a metered Rate or a flat Rate, as determined by HOB.

A Customer may dispute the charges shown on HOB's Customer bill or other matters by contacting and advising HOB of the reason for the dispute. HOB shall promptly investigate all disputes and advise the Customer of the results.

2.5.2 Use of Estimates

In months where a bill is issued and no reading is obtained, HOB shall estimate the Energy and Demand to determine the billing quantities. This estimate is based on historical electricity use for the premises, or a predetermined quantity if no information on historical use is available. A Customer without an Interval Meter or a Customer not yet transitioned to time-of-use pricing may avoid receiving bills based on estimated meter readings, if a Customer-obtained meter reading is provided that passes validation checks according to the processes and timing established by HOB for billing purposes.

2.5.3 Pro-Rating of Accounts

Accounts shall be pro-rated where the Customer's bill is for a period shorter or longer than the standard billing period, or where rates have been revised and effective on a date not coincident with the Customer's billing or meter reading date.

2.5.4 Equal Payment Plan

An equal payment plan is available to all HOB Standard Supply Service (SSS) Customers on Distributor-Consolidated Billing (DCB). Reviews are performed quarterly, and periodic adjustments to regular billing amounts may be made by HOB due to rate or changes in electricity use.

2.5.5 Billing Errors

Where a billing error from any cause has resulted in a Customer or Retailer being overbilled, and where Measurement Canada has not become involved in the dispute, HOB shall credit the Customer or Retailer with the amount erroneously billed for up to a two-year period. Where the billing error is not the result of HOB's standard billing practices (i.e., estimated meter reads), HOB shall pay interest on the amount credited at the same interest rate as in the Retail Settlement Code.

Where a billing error from any cause has resulted in a Customer or Retailer being under-billed, and where Measurement Canada has not become involved in the dispute, the Customer or Retailer shall pay to HOB the amount not previously billed. If the Customer is not responsible for the error, the allowable time period for which the Customer may be charged is two years for residential Customers, and all other Customers. If the Customer is responsible for the under-billing, whether by tampering, willful damage, unauthorized Energy use or other unlawful actions, the Customer shall pay a late payment charge as determined by HOB in accordance with these Conditions of Service. Refer also to Section 7.7 of the Retail Settlement Code.

2.5.6 Annual Reclassification of Class

For all general service Customers, consumption and billed Demand shall be reviewed annually by HOB to determine whether any Customer accounts should be reclassified for billing purposes, and a Demand Meter installed.

The review is conducted in the first quarter of the year, with a measurement period from January 1st through December 31st of the previous year, where the average monthly Billing Demand calculated is based on measurements taken for bills issued within that time period. Customer account reclassification with no retroactive adjustment shall be effective on the next scheduled bill following the annual review. Such a review will not take place more than once every calendar year.

2.6 PAYMENTS & OVERDUE ACCOUNT INTEREST CHARGES

2.6.1 HOB Payment Options

Customers may pay their electricity bills either by cheque, money order, telephone banking, internet banking; or e-payment through HOB's website or a local bank, trust company, credit card, MoneyGram, or Western Union. All payments shall be in Canadian dollars.

HOB also offers a pre-authorized payment option.

Customers with past due accounts can refer to their notices or visit HOB's website at www.hydroonebrampton.com to find out how long it takes for payment to reach HOB's office. Payment must be received at the HOB office by the due date on the Disconnection notice to stop any collection process.

2.6.2 Late Payment Charges

Customer bills are due on the billing date. A late payment charge shall apply if payment is not received by HOB within 19 days of the billing date. HOB provides Customers with a 16-day payment period, plus an allowance of three days for payment to be received by mail. When a required payment date is on a weekend or holiday, payment is required on the next business day.

HOB's late payment charge is 1.5% per month, compounded monthly (19.56% annually). Late payments are calculated from the billing date to the issue date of the next bill. A late payment charge of 1.5% is applied to the outstanding balance. If partial payment is made within 19 days of the billing date, the late payment charge shall apply only to the amount outstanding after deducting the partial payment. Late payment charges will be added to the Customer's next bill.

Customers using electronic funds transfer or pre-authorized payment shall have their payment amounts automatically withdrawn from designated bank accounts on the bill due date. The withdrawal date and amount are clearly indicated on each bill.

2.6.3 Allocation of Payments

Any payments received by HOB shall be applied to the total outstanding balance of the Customer's electricity account, which could include billed amounts, Security Deposits, late payments, or other charges. However, payments cannot be directed to specific portions of a Customer's outstanding balance.

2.6.4 Return Payments

The Customer shall pay additional charges for the processing of returned payments due to insufficient funds (NSF).

2.6.5 Specific Service Charges

Customer accounts with past due balances may incur additional service charges, as outlined in the Electricity Rates on HOB's website at www.hydroonebrampton.com, and may have their requirements for Security Deposits reviewed according to these Conditions of Service (see section 2.4.3).

2.6.6 Arrears Management Program

2.6.6.1 Residential Customer

A residential Customer may request to enter into a Payment Agreement for the total outstanding balance of the electricity account, where any Security Deposit held by HOB shall be applied to the outstanding balance. The Customer may also be required to repay the Security Deposit, and pay a down payment of up to 15% of the total outstanding balance as part of the Payment Agreement.

2.6.6.2 Eligible Low-Income Residential Customer

An eligible low-income Customer may be required to repay the Security Deposit, and pay a down payment of 10% of the electricity charge arrears accumulated, inclusive of any applicable late payment charges, but excluding other service charges as part of the Payment Agreement.

Where an eligible low-income Customer enters into a Payment Agreement, HOB shall waive any service charges related to collection, Disconnection, non-payment or load control devices, and shall not include such charges in the Payment Agreement only if the eligible low-income Customer is entering into the Payment Agreement for the first time, or after subsequently and successfully completing a previous Payment Agreement as an eligible low-income Customer. HOB shall not impose any late payment charges after such Customers have entered into Payment Agreements for amounts subject to these agreements. Notwithstanding the above, HOB shall not be required to waive any accrued late payment charges up to the Payment Agreement date.

2.7 CUSTOMER INFORMATION

A third party which is not a Retailer may request historical information on Customer electricity use following written authorization from the Customer to provide such information. HOB shall provide sufficiently aggregated information as appropriate for operational purposes, such that an individual's Customer information cannot be reasonably identified at no charge to another Distributor or Transmitter, the ESO or the OEB. HOB may charge a fee approved by the OEB for all other requests for aggregated historical information on Customer electricity use.

Upon request by the Customer, HOB shall provide a list of Retailers with Service Agreements in effect within its distribution Service Area. The list will inform the Customer whether choosing an alternative Retailer is necessary, and will ensure that the Customer receives electricity according to the terms of service available under HOB's Standard Supply Service.

Upon receiving an inquiry from a Customer connected to its Distribution System, HOB shall either respond to the inquiry if it pertains to its own Distribution Services, or provide the Customer with contact information for the entity in question in accordance with Chapter 7 of the Retail Settlement Code.

An embedded Distributor that receives electricity from HOB shall provide load forecasts or any other information related to the embedded Distributor's system load to HOB, as determined and required by HOB. A Distributor will not require any information from another Distributor, except as required for the safe and reliable operation of either Distributor's Distribution System, or to meet Distributor license obligations.

2.8 FORESTRY

To ensure public safety and the continued reliable operation of its distribution system, Hydro One Brampton shall maintain the clearance around its distribution lines on a cyclical or as-needed basis in close cooperation with the City of Brampton's forestry department. The tree trimming cycle may vary depending on the extent of storm damage, the health of trees, and type of vegetation.

HOB shall coordinate and maintain tree clearance around all its distribution lines located on the public allowance, and shall also maintain tree clearance around its overhead lines over 750 Volts that may be located on private property at no cost to the Customer. HOB will endeavor to discuss any planned re-clearing with property owners before any work is performed to mitigate the impact to the environment and property. However, in an Emergency, HOB may be unable to notify the property owner before performing the work.

Customers shall be responsible for all initial tree trimming for all new overhead lines that will be located on private property, and for continued tree trimming and tree and brush removal around dedicated service lines less than 750 Volts located on private property, and around overhead lines over 750 Volts when these lines are owned by the Customer. The Customer shall be responsible for ensuring that only qualified arborists (contractors) work near overhead lines. Hydro One Brampton will provide advice to assist the Customer in meeting the above conditions in the safest manner possible. All clearances shall conform to the Electrical Safety Code.

To permit the safe clearance of trees and vegetation from overhead lines over 750 Volts located on private property, HOB shall disconnect and reconnect the Customer's supply without charge once each year during normal business hours upon at least ten days prior notice from the Customer.

3 CUSTOMER (CLASS) SPECIFIC

When the property requiring Electric Service is supplied by a single metered service with mixed Commercial or Industrial and Residential use, the metered service shall be classified by HOB as a General Service account.

3.1 RESIDENTIAL

Combined Services: All services supplied to single-family dwelling units for domestic or household purposes, including seasonal occupancy, shall be classified as Residential Service. This includes, but is not limited to, detached houses or one unit of a semi-detached, duplex, triplex or quadraplex house with residential zoning. Separately metered dwellings within a townhouse complex shall also qualify as Residential Service.

For the Point of Demarcation, Standard Allowance and Connection Fees for Residential Service, see Table 5-1.

HOB recommends servicing all new houses in existing residential areas from underground on the Customer's property.

For Residential Service where the revenue meter is located inside the Customer's premises and installed after the main disconnect switch, other connections inside the main disconnect switch are not permitted. Any unauthorized connections found as above shall be removed by the Customer in a timely matter at the Customer's expense. Back billing may be charged to the Customer following the investigation of any unbilled loads.

3.1.1 Overhead Services

3.1.1.1 Minimum Requirements

The following conditions shall apply, in addition to Ontario Electrical Safety Code requirements (latest edition):

- 1) A clevis type insulator supplied and installed by the Customer, where this point-of-attachment device is located:
 - a) Not less than 4.5 metres (15 feet) or more than 5.5 metres (18 feet) above grade;
 - b) Between 150 millimetres and 300 millimetres (6-12 inches) below the top of the service mast;
 - c) Within 914 millimetres (3 feet) of the Building front (i.e., when service is supplied from the street).
- 2) Clearance shall be provided between utility conductors and finished grade at least 6 metres (19 feet) over travelled portions of the road allowance, and 4.5 metres (15 feet) over all other areas. A minimum horizontal clearance of 1.0 metre (3 feet) shall be provided between utility conductors and second storey windows;
- 3) A 4-jaw meter socket from an approved manufacturer shall be provided. Certain areas will require a 5-jaw socket, as determined by HOB. The Customer should contact HOB to confirm details;
- 4) Clear unobstructed access shall be maintained up to and in front of the meter location;
 - a) Service locations requiring access to adjacent properties (i.e., mutual drives, narrow side setbacks, etc.) shall require the completion of easements from the property Owners involved;
 - b) Approved meter base shall be mounted directly below the service mast, such that the midpoint of the meter is 1.73 m (± 100 mm) above finished grade within 914 mm of the Building face and in front of any existing or proposed fence, unless otherwise approved by HOB.

3.1.1.2 Electrical Services in Vicinity of Swimming Pools

Any electrical conductors located above a swimming pool or underground in the vicinity of a swimming pool shall meet the minimum clearances, as identified in the Ontario Electrical Safety Code. HOB shall inspect a Customer's application before approval is granted.

When underground electrical circuits are installed in the vicinity of a proposed swimming pool, the Customer shall provide the utility with a site plan that clearly identifies the new swimming pool location. The Customer will have also obtained "locates" for all Electric Services (i.e., high voltage and low voltage), and shall provide this information to HOB.

If the proposed swimming pool location conflicts with any clearances required by the Ontario Electrical Safety Code, the swimming pool shall be relocated to permit the minimum clearances. Alternatively, the Customer may choose to relocate the underground Electric Services. In such cases, the Customer shall be responsible for all costs incurred directly and by HOB for the work. Approval shall be granted by HOB after the minimum clearances have been achieved and verified.

Where any overhead electrical conductors are located over a proposed swimming pool, the Customer shall (if necessary) increase the height of the existing electrical conductors to meet the minimum clearances as per the Ontario Electrical Safety Code. The Customer shall be responsible for all costs incurred directly and by HOB in this work. Approval shall be granted by HOB after the minimum clearances have been achieved and verified.

Customers requesting underground service in an overhead Service Area shall pay all Connection costs for the underground service, less HOB's Standard Allowance for 200 A 120/240 V overhead service.

The Owner shall also pay the cost of any necessary road crossings.

Any trench route on the Customer's property shall be approved by HOB, and follow the route indicated on the underground drawing supplied by HOB. Any deviation from this route shall be approved by HOB. The Customer shall be responsible for HOB's costs associated with re-design and inspection services due to changes or deviations initiated by the Customer (or representative).

The Owner shall ensure that provisions for the service entrance and meter meet with HOB's approval.

The Owner or its contractor shall be responsible for obtaining clearances from all involved utility companies, including HOB, before digging.

The Owner shall be responsible for contacting HOB to inspect each trench and duct structure prior to the installation of HOB's service cables.

The Owner shall provide HOB with unimpeded access to install the electricity service.

3.1.2 Underground Services for Individual Residences

Customers requesting underground service in an overhead Service Area shall pay 100% of the Connection costs for underground service, less HOB's Standard Allowance for 200 A 120/240 V overhead service.

The Owner shall pay the cost of any necessary road crossings.

Any trench route on the Customer's property shall be approved by HOB, and follow the route indicated on the underground drawing supplied by HOB. Any deviation from this route shall be approved by HOB. The Customer shall be responsible for HOB's costs associated with re-design and inspection services due to changes or deviations initiated by the Customer (or representative).

The Owner shall ensure that provisions for the service entrance and meter meet with HOB's approval.

The Owner or its contractor shall be responsible for obtaining clearances from all involved utility companies, including HOB, before digging.

The Owner shall be responsible for contacting HOB to inspect each trench and duct structure prior to the installation of HOB's service cables.

The Owner shall provide HOB with unimpeded access to install the electricity service.

3.1.3 MicroFIT Solar & Micro Generator Installations

Home owners planning to install solar panels or micro generators shall contact HOB's Project Engineering Department prior to commencing work or ordering materials.

3.1.4 Residential Upgrades

Any and all alterations to existing Residential Services shall cause HOB's installation to be upgraded to current standards at the Owner's expense. All HOB-owned equipment shall be relocated to the exterior of the dwelling (see section 3.1).

3.1.5 Addition of Second Residential Account

Where a second metered service for an apartment, etc., is requested, the Owner shall provide a letter from the City of Brampton that verifies the City's approval and the assigned address of the second metered service.

3.2 GENERAL SERVICE (BELOW 50 KW)

3.2.1 Transformer Vaults for HOB Use

It may be necessary for proposed Buildings to incorporate an on-grade Transformer Vault to facilitate the installation of HOB's electrical equipment. HOB shall confirm the required size of the vault, the size and quantity of ducts, configuration of the primary concrete-encased duct structure, and the routing of Secondary Services from the Transformer Vault.

3.2.1.1 Common

The Customer shall provide the following to HOB when initially proposing a new project:

- 1) Completed Commercial & Industrial Customer Electrical Service Request Form;
- 2) Proposed service entrance equipment rated capacity (Amperes), in addition to voltage rating and metering requirements;
- 3) Proposed total load details in kVA and/or kW (i.e., both winter and summer);
- 4) Details regarding heating equipment, air conditioners, and generation (i.e., back-up or parallel operation);
- 5) Legal survey plan and site plan indicating the proposed location of service entrance equipment with respect to public rights-of-way and lot lines;
- 6) For General Service Class (i.e., 50 kW to 1499 kW, 1500 kW and greater) Customers: Electrical, architectural, site servicing, and/or mechanical drawings, as required by HOB;
- 7) Non-refundable deposit (cheque) to cover internal resource costs during the initial design phase.

The Customer shall construct or install all civil infrastructure that includes, but is not limited to, poles, U/G conduits, cable chambers, cable pull rooms, transformer

room/vault/pad, and switchgear foundations on private property deemed as required by HOB as part of its Connection Assets. All civil infrastructure shall be provided in accordance with HOB's current standards, practices, specifications and these Conditions of Service, subject to HOB inspection and acceptance:

- a) HOB shall be responsible for the maintenance and repair of its Connection Assets, except for the Transformer Vault or pad(s) or any other civil structure that forms part or is part of the Customer's assets;
- b) When effecting changes, the Customer shall maintain sufficient clearances between electrical equipment and Buildings and other permanent structures to meet the requirements of the Ontario Electrical Safety Code, and the *Occupational Health & Safety Act* and Regulations;
- c) Owner or its contractor shall be responsible for obtaining clearances from all involved utility companies, including Hydro One Brampton, before digging;
- d) HOB shall undertake the necessary programs to maintain and enhance its distribution plant at its own expense. In the event that services or facilities to a Customer must be restored as a result of such HOB construction or maintenance activities, they shall be restored to an equivalent condition;
- e) Project Delays: Penalty charges shall apply when a Customer's actual in-Service Date is delayed more than 180 days following the initial confirmed in-Service Date. A penalty of 1% per month shall be applied to the cost of materials purchased for the project, and to the final project invoice/statement;
- f) Restocking Charges: A 15% restocking charge shall apply to all materials ordered for a project which is no longer required due to changes initiated by the Customer, based on written direction received from the Customer. This includes materials in HOB's inventory or materials on order from a supplier. This restocking charge shall be added to the final project invoice/statement;
- g) Downtown Network Services: Demand load limits for Customers supplied from HOB's network system in Brampton's downtown core shall be determined upon application to HOB's Technical Service Department. Only copper conductors shall be accepted by HOB for services supplied from its network system in Brampton's downtown core.

In addition, HOB shall undertake the necessary construction and electrical work to maintain existing supplies by providing standard overhead or underground supply services to Customers affected by HOB's construction activities. If a Customer requests any special construction in addition to the normal HOB standard installation in accordance with the program, the Customer shall pay the additional cost, including engineering and administration fees.

For Point of Demarcation and Connection Fees for General Service, see Table 5-1, Table 5-2, Table 5-3, Table 5-4, and Table 5-5.

3.2.1.2 Customer Rate Class Eligibility Criteria

Class 2 (Less than 50 kW): All services supplied to premises except those designated as Residential or Municipal Street Lighting shall be classified as General Service less than 50 kW, providing they have a monthly peak Demand of less than 50 kW. Multi-unit

residences, such as apartment Buildings supplied through one service (i.e., bulk metered), shall be normally classified as General Service.

Where service is provided to combined residential and business Customers, or residential and agricultural Customers, whether for seasonal or all-year premises and the wiring does not provide for separate metering, the service shall be normally classified as General Service.

This classification also includes traffic signals and control lighting (except Municipal Street Lighting), sign and display lighting, telephone booths, cable television amplifiers, and other similar small loads supplied throughout HOB's service territory.

Class 3A (Greater Than or Equal to 50 kW, But Less Than or Equal to 699 kW): All services supplying accounts with a monthly average peak greater than or equal to 50 kW or forecast to be greater than or equal to 50 kW, but less than or equal to 699 kW.

Class 3B (Greater Than or Equal to 700 kW, But Less Than or Equal to 4,999 kW): All services supplying accounts with a monthly average peak greater than or equal to 700 kW or forecast to be greater than or equal to 700 kW, but less than or equal to 4,999 kW.

Class 4 (Large User): Customer accounts with a monthly peak Demand or forecasted Demand averaged over 12 consecutive months which is greater than or equal to 5000 kW shall be classified as Large User accounts.

3.2.2 Electrical Requirements (Applicable): Regulatory

For low voltage supply, the Customer's service entrance equipment shall be suitable for accepting conductors installed by HOB. Customer cables shall be brought to a point as determined by HOB for Connection to its supply.

3.2.2.1 Electrical (Utility) Room

When two or more metered services are required, the Owner shall supply and maintain an Electrical (Utility) Room of sufficient size to accommodate the service entrance and meter requirements of tenants, and to provide clear working space in accordance with the Ontario Electrical Safety Code.

To allow for increased load, the Owner shall provide spare wall space so that at least 30% of Customer-supplied through-meter sockets can accommodate meter cabinets at a later date.

The Owner shall identify each Customer's metered service by address and/or unit number in a permanent and legible manner. This identification shall apply to all main switches, breakers, and all meter cabinets or meter-mounting devices that are not immediately adjacent to the switch or breaker. The Electrical (Utility) Room shall be visibly identifiable from the outside. The Customer or landlord shall be responsible for all costs incurred by HOB for sorting and identifying any mislabelled meter bases and disconnect switches. In the event of multiple transformers feeding a facility, the transformer number shall be clearly legible on the associated meter equipment cabinet.

Access doors, panels, slabs and vents shall be kept free from obstructing objects. The Customer shall provide unimpeded and safe access to HOB at all times for the purpose of installing, removing, maintaining, operating or changing the revenue metering and all associated equipment.

Electrical rooms are required when there is more than one metered service, and shall include a door opening to the outside, or 24-hour access if located inside a Building.

The Electrical (Utility) Room entry door shall be constructed of steel to open outward and equipped with a door closer that includes a pull-handle on the exterior, and a push-bar on the interior. The push-bar shall extend across the full width of the door. The Building Owner shall be responsible for purchasing, installing and maintaining a Von Duprin model 22EO Panic Bar, complete with 210NL or 230NL door trim (or HOB-approved equivalent) and a HOB-coded Primus lock cylinder on the Electrical (Utility) Room door(s). Refitted Electrical (Utility) Room doors shall be upgraded to this standard.

The Primus lock cylinder shall be purchased through HOB. Arrangements for purchasing this cylinder and obtaining extra keys shall be coordinated with HOB's Meter Department Supervisor.

The Customer shall be responsible for maintaining the Electrical (Utility) Room door, including its replacement and repair (as required) to keep the Electrical (Utility) Room secure.

The customer shall be also responsible for maintaining a HOB-issued lock on the Electrical (Utility) Room door. All doors originally fitted with HOB-issued locks which have been removed without HOB's authorization shall be replaced by the Customer at the Customer's expense. Door locks shall be purchased through HOB.

Any Electrical (Utility) Room equipped with a second door that leads inside a Building shall be locked (bolted) from inside the Electrical (Utility) Room.

All new Electrical (Utility) Rooms shall be equipped with a fire extinguisher, and provided with an up-to-date Building unit layout plan mounted on the Building's inside wall showing the unit layout, and the Emergency contact names and telephone numbers of property managers and/or maintenance personnel.

All new services in a multiple unit Building shall have unit numbers clearly identified on the tenant entry doors and switches located inside the units. Access to the main switch inside each unit is required for verifying the connections before the meter is installed.

For service upgrades of existing tenant Electric Services, HOB requires all meter bases to be identified with the correct unit number(s), and any existing meter base(s) with the same unit numbers from previous metering installations to be changed to reflect the new layout. The Building Owner shall be responsible for informing HOB about any metered services not required during upgrades so they can be removed.

The Customer shall grant HOB permission to operate the Customer's main disconnect switch for the purpose of meter re-verification and maintenance. The Customer shall continue to be liable for the integrity and replacement of the disconnect switch, should the switch fail or fault while HOB is performing the work described above.

Any free-standing Building housing a financial institution shall not incorporate a common Electrical (Utility) Room.

Electrical (Utility) rooms installed either on or below grade shall be provided with a drain which includes a "P" trap, complete with a non-mechanical priming device and a one-way back-water valve connected to the sanitary sewer.

Below grade or interior Electrical (Utility) Rooms shall require the installation of 1/2 inch PVC conduit from the Electrical (Utility) Room to a location outside the Building which is eight feet above grade for installing a radio repeater for meter reading purposes.

HOB recommends that the Building design should exclude the entry of Electric Service into a below-grade Electrical (Utility) Room. If this is not possible, the Customer shall be responsible for sealing the underground ducts at both ends of the secondary (or primary) duct structure.

The Electrical (Utility) Room shall not be used for storage or for containing any equipment which is foreign to the electrical installation and within the area designated as a safe working space. All stairways leading to Electrical (Utility) Rooms above or below grade shall be located indoors with a handrail provided on at least one side, as per the Ontario Building Code. Ladders and steep stairways are not permitted.

The Electrical (Utility) Room shall be provided with a clear minimum ceiling height of 2.2 metres and adequate lighting in accordance with Illuminating Engineering Society (IES) standards, including a switch provided at the entrance to the room, and a 120 V convenience outlet. The above lighting and convenience outlet, and any required vault circuit shall be supplied from a clearly identified panel located in the Electrical (Utility) Room.

Electrical (Utility) Room doors that open onto driveways shall be protected by bollards.

Any deficiencies in Electrical (Utility) Rooms shall be rectified before any meters are installed.

3.2.3 Underground Service Requirements

The Customer shall construct or install all civil infrastructure that includes, but is not limited to, poles, underground conduit, cable chambers, cable pull rooms, and Transformer Vaults/pads, on private property that is considered required by HOB as part of its Connection Assets. All civil infrastructure shall be provided in accordance with HOB's current standards, practices, specifications and these Conditions of Service, subject to HOB inspection/acceptance.

The Customer shall be responsible for maintaining all of its structural and mechanical facilities on private property in a safe condition, which is satisfactory to HOB.

The trench route and any deviation from this route shall be approved by HOB. The Customer shall be responsible for HOB's costs associated with re-design and inspection services due to changes or deviations initiated by the Customer (or representative) or any other body with jurisdiction.

The Owner or its contractor shall be responsible for obtaining clearances from all involved utility companies, including the local distribution company, before digging.

The Owner shall be responsible for contacting HOB within two full business days prior to any planned installation of primary concrete-encased duct structures, or any other civil facilities that will house HOB's plant. HOB shall observe and inspect this construction.

3.2.4 Temporary Services

A Temporary Service is a metered service provided for construction purposes or special events. Temporary Services can be supplied either overhead (O/H) or underground (U/G). The Customer shall be responsible for all costs associated with the installation and removal of equipment required for a Temporary Service to HOB's Point of Supply. Following a two-year period from the date of Connection, a Temporary Service shall be considered as permanent and final-billed as such. Any subsequent Disconnection charges shall be treated as a separate project.

Temporary Services shall not be connected to any transformer that is dedicated for use by traffic lights.

Where meter bases are required, they shall be approved by HOB and securely mounted on minimum 152 mm diameter poles or an alternative approved by HOB, such that the meter midpoint is 1.73 m (± 100 mm) above the finished grade.

In the case of temporary overhead services, the Customer shall provide an additional 760 mm of cable at the masthead for Connection purposes.

In the case of temporary underground services, the Customer's cable shall extend to HOB's Point of Supply.

3.2.5 Reference Guides & Standards for Commercial & Industrial Contribution

For a complete listing of construction standards and typical standard drawings, refer to Appendix 4B (see section 5.2).

3.3 GENERAL SERVICE (ABOVE 50 KW)

All non-residential Customers with an average peak Demand between 50 kW and 1499 kW over the past twelve months shall be classified as General Service above 50 kW. For new Customers with no prior billing history, the peak Demand may be based on 90% of the proposed capacity or installed transformer.

Telecommunications and communications type services constructed inside a fenced enclosure shall include a lockable walk-through gate for use by HOB to access and read meters, and to perform necessary maintenance.

3.3.1 New Residential Subdivisions or Multi-Unit Developments

New Residential Subdivisions or Multi-Unit Developments that include the construction of new city streets and roadways are treated as Non-Residential Class Customers that require Capital Contribution for "Expansion" work, in addition to any applicable Connection Charges. Should the economic evaluation identify a shortfall for the Expansion, the Developer may choose to either complete the portion of the plant not yet connected to HOB's system, or have HOB complete this work in accordance with Section 3.3 of the Distribution System Code, titled "Alternate Bids". The Customer shall not be permitted to complete any construction work on HOB's existing Distribution System.

New residential subdivisions or multi-unit complexes that do not include any new city streets and roadways, but only private property, shall follow the general terms and conditions for Connection charges and Capital Contribution for appropriate General Class Customers.

In all cases, the full Electric Service shall be constructed according to HOB's standards and in compliance with the Ontario Electrical Safety Code, applicable laws, Regulations and Codes. The Developer shall enter into a Supply Agreement with HOB and to pay deposits to HOB for ordering equipment, and for associated design and construction work to install the proposed underground electrical Distribution System. Such (an) amount(s) shall be paid concurrently with the signing of the Supply Agreement.

In case of any conflicts between the Supply Agreement and the terms contained herein, the Supply Agreement shall be binding. All design work, including service locations and trench routes, shall be approved by HOB. For the conditions found at www.hydroonebrampton.com, refer to the sample agreement provided in Appendix 2B (see section 5.2).

3.3.2 General Service (50 kW to 1499 kW)

3.3.2.1 Electrical Requirements

Only one Customer-owned secondary supply shall be permitted for each legally severed lot. Sites requiring service to multiple Buildings shall feed such Buildings from a single common Electrical (Utility) Room as Subservices, and these Subservices shall be metered from the load side of the main disconnect switch according to HOB's specifications.

Where the size of the Customer's Electric Service warrants, the Customer shall provide facilities on the property, and an easement on the premises to be served (as required) which is acceptable to HOB for housing the necessary transformer(s) and/or switching equipment. HOB will provide planning details upon application for Electric Service.

HOB shall supply, install and maintain the electrical equipment within the Transformer Vault or pad, as outlined in section 2.3.4.2.

HOB shall not be responsible for damages resulting from the incorrect identification of any services or equipment.

3.3.2.2 Electrical (Utility) Room

For Electrical (Utility) Room details, see section 3.2.2.1.

3.3.3 Technical Information

Where project drawings are required by HOB for the approval of items under its jurisdiction, the Customer (or representative) shall ensure that proposal drawings are provided in full compliance with HOB's standards. Approval of project drawings by HOB shall not relieve the Customer of its responsibility for full compliance with HOB's standards. In all cases, one copy of all relevant drawings shall be submitted to HOB. Where the Customer requires an approved copy to be returned, two copies of all drawings shall be submitted.

Before HOB prepares for designing a service, the Customer shall provide the following information, including a completed HOB Electrical Demand Load Information Form (or Load Guarantee Form) that identifies the Customer's approximate required date for Electric Service. Hard copies of documents shall be printed from electronic files, and electronic copies shall be submitted on CD/DVD disk or other standard electronic media.

3.3.3.1 Architectural Site & Grading Plans

The lot number, plan numbers and street number shall be indicated, when available. The site plan shall show the Building's location on the property relative to the property lines, any driveways and parking areas, and the distance to the nearest intersection. All elevations shall be shown for all structures and proposed installations. All details regarding land use shall be provided. This site plan drawing shall indicate all utility poles along the street(s) facing the project.

3.3.3.2 Site Services Plan

The locations of all services proposed and/or existing on the property, such as water, natural gas, storm and sanitary sewers, telephone, etc., shall be shown.

3.3.3.3 Landscaping Site Plan

One copy of the Landscaping Site Plan shall be provided for the property that shows the planned installation in the vicinity of HOB's plant or easements.

3.3.3.4 Electrical Site Plan

The preferred locations of the Electrical (Utility) Room, transformer (or vault), and preferred routing of the primary concrete-encased Duct Bank on the property shall be indicated.

3.3.3.5 Single Line Diagram

The Main Service entrance and switch capacity, required Supply Voltage, and the number and capacity of all Sub-services showing provisions for metering facilities shall be shown, including the connected load breakdown for lighting, heating, ventilation, air conditioning, etc. Sufficient information shall be provided for protection equipment, where coordination is required between HOB and Customer-owned equipment.

3.3.3.6 Secondary Switchboard

Three copies of any service entrance (switchboard) to be installed for HOB's approval shall be submitted, including any interlocking arrangement (if required).

3.3.4 Technical Considerations

3.3.4.1 Protective Equipment: Short-Circuit Ratings

- 44,000 V Supply: Customer's protective equipment shall have a three-phase, short-circuit rating of 1500 MVA symmetrical, or 32,000 A asymmetrical;
- 16,000/27,600 V Supply: Customer's protective equipment shall have a three-phase, short-circuit rating of 800 MVA symmetrical, or 26,000 A asymmetrical (1.6 factor used);
- 13,800 V Supply: Customer's protective equipment shall have a three-phase, short-circuit rating of 330 MVA symmetrical, or 25,000 A asymmetrical;
- 8,320 V Supply: Customer's protective equipment shall have a three-phase, short-circuit rating of 270 MVA symmetrical, or 25,000 A asymmetrical;
- 600/347 V Supply: Customer's protective equipment shall be capable of interrupting a fault current, as defined in HOB standard drawing #25-40, which is available from the HOB website at www.HydroOneBrampton.com;
- 208/120 V Supply: Customer's protective equipment shall be capable of interrupting a fault current, as defined in HOB standard drawing #25-40, which is available from the HOB website at www.HydroOneBrampton.com.

3.3.4.2 Primary Fusing

All equipment connected to HOB's Distribution System shall meet the short-circuit ratings specified in section 3.3.4.1. The Customer and/or its consultant shall specify the fuse link rating and demonstrate coordination with HOB's upstream protection, including station breakers and/or distribution fuses. The Customer shall also submit a coordination study to HOB for verification to ensure proper coordination with upstream protection, including station breakers and/or distribution fuses. The Customer shall maintain an adequate supply of spare fuses.

3.3.4.3 Ground Fault Protection

Where ground fault protection is required in compliance with the Ontario Electrical Safety Code, the method and equipment used shall be compatible with HOB's practice of grounding the transformer neutral terminals in vaults. Zero sequence sensing will normally apply.

Where ground strap sensing is used, the ground sensing devices shall operate at 600 A if transformer and switchboard buses are not bonded, and 400 A if the buses are bonded.

Ground fault protection proposals for dual secondary supply arrangements shall be submitted to HOB for approval before construction of the switchboard.

3.3.4.4 Lightning Arresters

Customer installations that are directly supplied from HOB's primary underground system may not be protected by lightning arresters. If the Customer wishes to install lightning arresters, they shall be located on the load side of the first protective devices. For Customer installations supplied from HOB's primary overhead system, HOB may install lightning arresters at the pole, and the Customer may install lightning arresters at the switchgear on the load side of the incoming disconnect device. The proposed diagram shall indicate the presence of such devices in the switchgear.

3.3.4.5 Basic Impulse Level

The Customer's apparatus shall provide a minimum Basic Impulse Level (BIL) in accordance with the following:

- a) 2,400/4,160 Supply Voltage: 75 kV BIL;
- b) 4,800/8,320 Supply Voltage: 95 kV BIL;
- c) 8,000/13,800 Supply Voltage: 95 kV BIL;
- d) 16,000/27,600 Supply Voltage: 150 kV BIL;
- e) 44,000 Supply Voltage: 250 kV BIL.

3.3.4.6 Unbalanced Loads

For three-phase service, the unbalance due to single-phase loads shall not exceed 20% of the Customer's balanced phase loading expressed in kilowatts (kW).

3.4 GENERAL SERVICE (ABOVE 1500 kW): CUSTOMER-OWNED SUBSTATIONS

All Customers requiring Electric Service with an anticipated average peak Demand of 1500 kW or greater shall be classified as Customers over 1500 kW. The Customer shall consult with HOB to confirm the primary voltage supply.

3.4.1 Initial Installation or Upgrade/Replacement

All Customer-owned transformers in a Customer-owned substation supplied with primary voltage at 27.6 kV or 44 kV shall have a Delta-connected primary and Wye-grounded secondary winding configuration:

- HOB's Technical Services Department shall issue a copy of its Protective Equipment Specifications at the time of confirming the characteristics of electrical

supply. The Customer shall be responsible for ensuring that primary fusing protects its high-voltage equipment and transformers;

- All Customer-owned transformers shall be metered at the secondary voltage, unless the Customer's proposed transformer losses exceed the limits prescribed by Canadian Standards Association Specification C802, including subsequent revisions. For transformer sizes not covered by C802, losses shall be as outlined in HOB standards #19-15, #19-16 and #19-17 (available from the HOB website at www.HydroOneBrampton.com);
- Upgrade/Replacement Installation: Consult with HOB's Technical Services Department prior to installation. HOB requirements (i.e., winding losses, pre-service, required drawings, etc.) shall apply equally to an upgrade/replacement transformer application;
- HOB requires that prior to energizing a Customer-owned substation, the substation shall pass a pre-service inspection by a qualified contractor approved by HOB and independent of the installing contractor. All results of such testing shall be presented to HOB's Technical Services Department at least one week prior to the expected date of energization. The Customer shall be responsible for all costs incurred during such testing. A copy of the required checklist is available from HOB upon request;
- HOB shall have Operating Control of the Customer-owned LIS, and switch operation shall be performed by HOB in radio communication with its control room;
- HOB shall lock all station access gates (if applicable).

HOB recommends that Customer transformers provide voltage taps in their primary windings, as shown in Table 5-7. Although transformers not listed in this table may also be suitable, they shall not be connected without written approval from HOB.

Customer-owned substations shall be inspected by both the Electrical Safety Authority and HOB. The Owner shall provide a pre-service inspection report to HOB. A contractor acceptable to HOB shall prepare a certified report for submission to HOB.

To facilitate and encourage the maintenance of Customer-owned equipment, HOB shall provide the Customer with one no-charge power interruption annually as a service to be scheduled during normal working hours (i.e., Monday to Friday), but will not necessarily be guaranteed. Customers shall be charged by HOB for arranging power interruptions at different times than indicated above.

3.4.2 Customer-Owned Substation with Customer-Owned 44 kV Transformer

Three copies of each substation drawing and transformer nameplate data shall be submitted to HOB's Technical Services Department for approval prior to ordering materials. These copies are required in addition to drawings submitted to the Electrical Safety Authority Inspection Department.

Protective equipment specifications follow.

3.4.2.1 Primary LIS

A 46 kV, 600 A, 250 BIL, 3 pole, double break outdoor type station structure-mounted load breaking switch equipped with an operating mechanism and operating handle shall be mounted at the bottom of the structure. The switch shall include provision for locking.

3.4.2.2 Fuses

The Customer and Electrical Safety Authority shall together determine the fuse ratings and specifications. Three spare fuses shall be maintained by the Customer at its location. The Customer shall advise HOB regarding the specifications of installed fuses.

3.4.2.3 Lightning Arresters

Lightning arresters shall be 39 MCOV (minimum 48 kV duty) and rated as intermediate class, with a housing consisting of non-fragmenting polymer material. These lightning arresters shall be mounted on the transformer and if not possible, on the load side of the Customer-owned primary fuses.

3.4.2.4 Maintenance

Maintenance of the transformer and associated primary protective equipment shall be the Customer's responsibility. However, access to this equipment and enclosure shall be provided to HOB. HOB shall install one of its locks on the enclosure gate.

The Customer shall also be responsible for the station installation of transformer primary leads, and transformer grounding. HOB shall connect the conductor ends to the transformer.

3.4.3 Customer-Owned Substation (U/G) with Customer-Owned 27.6 kV Transformer

Three copies of each substation drawing and transformer nameplate data shall be submitted to HOB's Technical Services Department for approval prior to ordering materials. These copies are required in addition to drawings submitted to the Electrical Safety Authority Inspection Department.

Protective equipment specifications follow.

3.4.3.1 Primary LIS

A 46 kV, 600 A, 250 BIL, 3 pole, double break outdoor type station structure-mounted load breaking switch equipped with an operating mechanism and operating handle shall be mounted at the bottom of the structure. The switch shall include provision for locking.

3.4.3.2 Fuses

The Customer and Electrical Safety Authority shall together determine the fuse ratings and specifications. Three spare fuses shall be maintained by the Customer at its location. The Customer shall advise HOB regarding the specifications of installed fuses.

3.4.3.3 Lightning Arresters

Lightning arresters shall be 17 kV MCOV (minimum 21 kV duty) rated intermediate class, with a housing consist of non-fragmenting polymer material. These lightning arresters shall be mounted on the load side of Customer-owned primary fuses.

3.4.3.4 Maintenance

Maintenance of the transformer and associated high voltage primary switchgear shall be the Customer's responsibility. However, access to this equipment and enclosure shall be provided to HOB.

3.4.3.5 General

The Customer-owned transformer shall be directly connected to a 34.5 kV high-voltage metal-clad primary switchgear.

Service Entrance Equipment: The Customer's Primary Service and Secondary Service entrance equipment shall be constructed according to the Ontario Electrical Safety Code.

3.4.4 Electrical Requirements

For electrical requirements, see section 0.

3.4.5 Technical Information & Considerations

The same information and considerations shall apply, as with other General Service Customers. For applicable requirements, see section 3.3.3 and section 3.3.4.

3.5 EMBEDDED GENERATION

3.5.1 Introduction

HOB Customers may choose to supply some or all of their electrical Energy needs by installing an on-site, Customer-owned generation facility. HOB shall provide Generators with non-discriminatory access to its Distribution System, and make every effort to respond promptly to a Generator's request for Connection. For the purposes of this document, a Generator requesting Connection to HOB's Distribution System shall be referred to as an "embedded Generator". Embedded Generators may either be net metered installations, or installations with parallel metering. Unlike net metered Generators, those Generators with parallel metering shall require a valid contract with the Ontario Power Authority before Connection can be facilitated. However, all other requirements for both types of embedded Generators are applicable, as described in these Conditions of Service.

The following outlines the typical technical requirements and procedural activities required by a prospective embedded Generator of 10 MW or less for connecting to HOB's electrical Distribution System to ensure safe and reliable Distribution System operations. Generation facilities of 10 MW or higher shall be reviewed on a case-by-case basis, because the Connection of such facilities is more difficult, resulting in significantly higher costs. This will also ensure compliance with Section 6.2 of the OEB's Distribution System Code, and Section 84 of the Ontario Electrical Safety Code by both HOB and embedded Generators. The Distribution System Code is available from the OEB website at www.oeb.gov.on.ca. The embedded Generator may also need to meet additional requirements of the Independent Electricity System Operator (IESO) and Hydro One Networks Inc.

An embedded Generator facility rated at 10 MW or higher shall require IESO review and approval to determine whether the facility will impact the bulk Transmission System, and whether additional Reactive Power compensation will be required. Such a facility shall meet the applicable IESO Performance Standards identified in Chapter 4 of the "Market Rules for the Ontario Electricity Market". These rules are available from the IESO website at www.IESO.com.

The Ontario Energy Board has defined four embedded generation classifications, as provided in Appendix F of the Distribution System Code (revised 13 June 2013) (see Table 3-1).

Table 3-1, EOB-Defined Embedded Generation Classifications

Generator Classification	Rating
Micro	≤10 kW
Small	≤500 kW connected on Distribution System voltage <15 kV ≤1 MW connected on Distribution System voltage ≥15 kV
Mid-Sized	≤10 MW but >500 kW connected on Distribution System voltage <15 kV >1 MW but ≤10 MW connected on Distribution System voltage ≥15 kV
Large	>10 MW

3.5.2 Renewable Energy Generators: MicroFIT & FIT

In 2009, the Province of Ontario directed the Ontario Energy Board to promote the use of Green Energy Generation options, and has enacted *Bill 150, The Green Energy Act 2009*. The Act is intended to encourage the installation of privately-owned Renewable Energy Generation facilities. At the present time, the Ontario Power Authority (OPA) is encouraging Renewable Energy Generation through its Feed-in-Tariff (FIT) program and MicroFIT program. HOB is committed to supporting Renewable Energy Generation. Both FIT and MicroFIT Generators are considered as embedded Generators.

Additional current information about these programs is available from the OPA website at www.powerauthority.on.ca, or the HOB website at www.hydroonebrampton.com.

Process for MicroFIT or Micro-Embedded Generation Connection: HOB shall respond to a proposal for a MicroFIT or Micro-embedded generation facility as follows, according to Section 6.2.6 of the Distribution System Code:

- 1) For a proposed micro-embedded generation facility located at an existing Customer Connection where a site connection and site assessment is not required, HOB shall make an “Offer to Connect” within 15 days of receiving the application, or provide reasons for refusing to connect the proposed generation facility;
- 2) For a proposed micro-embedded generation facility located at an existing Customer Connection where a site assessment is required, HOB shall make an “Offer to Connect” within 30 days of receiving the application, or provide reasons for refusing to connect the proposed generation facility. A Connection deposit shall be required for an “Offer to Connect” that requires a site visit;
- 3) For a proposed micro-embedded generation facility located other than an existing Customer Connection, the Distributor shall make an “Offer to Connect” within 60 days of receiving the application, or provide reasons for refusing to connect the proposed generation facility.

For details regarding small embedded generation facilities or FIT generation facilities, refer to Section 6.2.8 of the Distribution System Code, and consult the Ontario Power Authority website for updated rules related to the program.

Regardless of classification, the generation proponent shall contact HOB at FITMicroFIT@hydroonebrampton.com (or 1-905-452-5534 or 1-905-452-5685) to initiate the approval and Connection process. Alternatively, a proponent can visit the HOB website at www.hydroonebrampton.com to obtain more information on the FIT and MicroFIT programs, including the following relevant application forms:

- MicroFIT:
 - Form E: Pre-MicroFIT Consultation Application;
 - Form C: Micro Generation Connection Application;
 - Form D: MicroFIT Generation Facility Connection Agreement;

- Photovoltaic Cell Array Description.
- FIT:
 - Form A: Pre-FIT Consultation Application;
 - Form B: Connection Impact Assessment (CIA) Application;
 - CIA Study Agreement;
 - Photovoltaic Cell Array Description.

For a Sample Connection (Operating) Agreement (i.e., small FIT project), refer to Appendix 3B (see section 5.2).

Process for FIT Generation Connection: HOB shall respond to a proposal for a FIT generation facility as follows, according to Section 6.2.6 of the Distribution System Code:

- 1) OPA recommends the proponent to submit a Pre-FIT Consultation Application Form (Form A) to HOB to verify capacity availability and provide details on the feeder number, feeder voltage, transformer station name, and transformer station bus;
- 2) Proponent shall submit an application to the OPA for evaluation in alignment with the most recent program rules. If successful, a contract will be awarded;
- 3) Proponent with awarded OPA contract shall complete and submit Form B to HOB together with all required supporting documentation and payments, as detailed on HOB's website for conducting a Connection Impact Assessment (CIA) study;
- 4) "Offer to Connect" with estimated Connection cost shall be submitted to the proponent with the completed CIA study;
- 5) Proponent shall submit the CIA Study to the OPA, which in turn, shall issue a Notification to Proceed;
- 6) Proponent shall construct the FIT generation facility after receiving the OPA's Notification to Proceed in alignment with HOB's most recent standard requirement for Renewable Energy Generation facilities, and the Ontario Electrical Safety Code;
- 7) Proponent shall obtain the necessary Electrical Safety Authority approvals for the installation before HOB disconnects, reconnects and installs the Renewable Energy Generation (REG) meter;
- 8) HOB shall require a signed Connection Agreement with the proponent, and shall witness the necessary testing and commissioning procedures for the installation before final approvals are granted.

Process for MicroFIT Generation Connection: HOB shall respond to a proposal for a MicroFIT generation facility as follows, according to Section 6.2.6 of the Distribution System Code:

- 1) OPA recommends the proponent to submit a Pre-MicroFIT Consultation Application Form (Form E) to HOB to verify capacity availability and provide details on the feeder number, feeder voltage, transformer station name, and transformer station bus;
- 2) HOB shall issue a conditional "Offer to Connect" according to Form E upon confirmation of capacity;
- 3) Proponent shall submit an application to the OPA for evaluation in alignment with the most recent program rules. If successful, a contract will be awarded;

- 4) Proponent with an OPA contract shall complete and submit Form C to HOB together with all required supporting documentation and payments, as detailed on HOB's website;
- 5) Proponent shall construct the generation facility and obtain all necessary ESA approvals and permits before HOB disconnects, reconnects and installs the Renewable Energy Generation (REG) meter.

3.5.3 HOB Distribution System

Hydro One Networks Inc. (HONI) owns the high-voltage Transmission System, and four of the five transformer station facilities located in Brampton that supply power to HOB at 44.0 kV and 27.6/16 kV levels that HOB distributes, in turn, to various Customers throughout its electrical Distribution System. HOB owns and operates the fourth transformer station in Brampton. Due to this arrangement, an embedded Generator shall also comply with HONI requirements for Connection, because the embedded Generator can seriously impact HONI's system under fault conditions.

It is assumed that the embedded generating facility will be designed, constructed, owned and operated by a party independent of HOB. All embedded Generator interconnection arrangements shall be acceptable and approved by HOB, and for some specific relay protections shall also be approved by HONI.

3.5.4 HOB Utility Practices

3.5.4.1 Mid-Size & Large Embedded Generators

The major components of a utility Connection for an embedded generation facility with a nameplate rating in excess of 500 kW include a circuit breaker (switcher) for fault current interruption, a transformer for matching the generator and utility system voltages, a connecting line to utility facilities, and a fully-integrated HOB SCADA system for monitoring power quality, breaker/switch positions, generator operating condition, any other parameter that HOB may deem relevant, and for control purposes. Metering and protective relaying facilities are also necessary for both the embedded Generator and HOB operations. HOB shall have local and remote Operating Control of the circuit breaker (switcher) at the demarcation point between the embedded Generator and HOB's Distribution System.

Protection systems are required at the generation facility, and shall be capable of automatically isolating the embedded Generator from HOB's Distribution System. The embedded Generator should provide protection systems to cover the following conditions:

- Internal faults within the embedded Generator;
- External faults (i.e., faults within HOB's 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 HOB system, together with some load).

These Conditions of Service outline Connection and protection requirements that serve the following purposes:

- Considering the health and safety of the general public, and HOB employees in the performance of their duties;

- Preserving the security and reliability of HOB's distribution and HONI transmission systems;
- Preserving the acceptable quality of electrical supply to other HOB Customers;
- Ensuring HOB's operating flexibility during normal or Emergency conditions.

Once a prospective embedded Generator decides to proceed with the installation of a generation facility, it shall be responsible for reimbursing the cost as reasonably incurred by HOB in making an "Offer to Connect" a Generator. Costs that could be reasonably incurred by HOB include those associated with:

- Preliminary review for meeting Connection requirements;
- Detailed study to determine Connection requirements;
- Final proposal to connect the Generator.

This guideline is provided for one embedded Generator connected to a HOB distribution feeder. If a second embedded Generator will be connected to the same feeder, then consideration for total generation versus maximum feeder load shall be made, and the equipment protection package 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 modification costs.

An embedded Generator shall comply with all of Section 5.2 of the Distribution System Code regarding metering requirements for a generating facility. For an OEB-licensed Generator connected to HOB's system that sells Energy and settles through HOB's settlement process, the embedded Generator shall install a Four-Quadrant Interval Meter. HOB shall meter Customers with generation that do not require an OEB license, such as back-up capability or generation for load displacement in the same manner as other HOB load Customers.

An embedded Generator that wishes to be connected to HOB's Distribution System shall enter into a Connection (Operating) Agreement with HOB that will contain specific terms and conditions relating to Connection, operation, maintenance and communication requirements of both the Generator and HOB.

3.5.4.2 Small Embedded Generators

Small embedded Generators greater than 10 kW, but less than and including 500 kW, shall meet the same requirements as Generators discussed in section 3.5.4, in addition to the following clarifications:

- No mandatory requirements exist for installing circuit breaker protection, and fuse protection is permitted;
- All Generators shall install an automated disconnect switch within the demarcation point to be integrated with HOB's SCADA system;
- Generators rated 250 kW and greater shall install a power quality monitor with the capability for remote monitoring;
- Remote status monitoring of all switches (i.e., manual and automated) is mandatory.

All aspects regarding cost, justification and the Connection (Operating) Agreement as described in section 3.5.4 shall apply to small embedded Generators.

3.5.5 Small, Mid-Size & Large Embedded Generator Interconnection: Requirements & Procedure

Because Connection costs shall be paid by the generating facility (as outlined in the OPA FIT program), most applicants will need to determine the demarcation point and expected costs before committing to a project. This information can only be provided following a preliminary review conducted by HOB and HONI.

The preliminary review shall include a verification of the voltage and power ratings of the embedded Generator's installation to confirm whether they are compatible with HOB's Distribution System. Also assessed will be the impact of the proposed Connection on reliability, power quality, equipment and personnel safety, and the Generator's contribution to HOB's distribution system. Following the preliminary review, if the embedded Generator installation will be pursued further, a more detailed analysis in addition to specifications and information shall be provided to HOB by the embedded Generator.

Listed below are the recommended steps to be taken by an embedded Generator for connecting to HOB's electrical Distribution System.

3.5.5.1 Initial Contact & Embedded Generator Interconnection Application

- 1) Contact HOB to identify an interest in connecting a Generator to HOB's electrical Distribution System, and to obtain a copy of HOB's Conditions of Service, and its Embedded Generator Connection Review Form (i.e., Form A or Form B);
- 2) Provide HOB with a written request for Connection, including two copies of preliminary technical information describing the proposed embedded Generator facility. As a minimum, this would include the following information as pertaining to the Connection:
 - a) Site location, including a scaled map referencing the site with respect to existing lot lines, easements, road allowances and power lines that identify the facility location;
 - b) Completed copy of the Embedded Generator Connection Review Form (i.e., Form B);
 - c) 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 HOB to supplement its embedded Generator production and meet its total plant load Demand, a monthly estimate of this expected purchase should also be provided;
 - d) Short-term and long-term site development plans, installation schedule, and the preferred demarcation point to HOB's Distribution System;
 - e) Preliminary single-line diagram showing the generator(s), transformer(s), grounding arrangements and main isolating devices, one of which shall be external to the facility and available to HOB at all times. This switch shall be clearly labeled DG1;
 - f) Type and rating of main isolating device, generator(s), transformer(s), and nameplate data if available;
 - g) Proposed preliminary relay protection schemes;
 - h) Proposed revenue-metering equipment (i.e., Four-Quadrant Interval Meter).

After receiving the required information, HOB will begin its analysis by conducting a preliminary review of the embedded Generator's Connection requirements.

3.5.5.2 Preliminary Review for Connection Requirements: Customer Request

- 1) Applicant shall be responsible for reimbursing HOB for all costs incurred in completing the preliminary review;
- 2) HOB shall review the preliminary information, including all supporting documentation. If insufficient information has been provided, HOB shall advise the embedded Generator of its requirements and place the review on hold until sufficient data is provided. In general, HOB's preliminary review will be conducted as follows:
 - a) Determine the acceptability of the proposed location and voltage level for Connection to HOB's Distribution System;
 - b) Determine the embedded Generator's plant capacity limitations with respect to the proposed Connection;
 - c) Confirm that voltage and power ratings of the embedded Generator's installation are compatible with HOB's distribution feeder. Where a mismatch between HOB's feeder and the embedded Generator's capacity ratings is identified, the feeder shall require upgrading. To determine this compatibility, the completed checks shall include feeder current rating, surge impedance loading, voltage regulation, reliability, power quality, and safety considerations;
 - d) Depending on the total generation proposed for Connection to HOB's distribution feeder and the minimum feeder load, remote trip protection facilities may be required between the transformer station (i.e., HONI or HOB supply) and the embedded Generator. HOB and HONI shall determine if such protection facilities are necessary;
 - e) Size and configuration of the generator and embedded Generator's transformer shall determine the requirements for feeder protection and/or modification at the HONI or HOB transformer station. This information will also help to determine any specific Connection and equipment requirements (e.g., requirement for a remote trip protection scheme).
- 3) HOB shall consult with HONI regarding any possible relay protection modifications or additions;
- 4) HOB shall provide the applicant with a written response within 30 calendar days of starting its preliminary review for the requested Connection, including a preliminary cost estimate for connecting the Generator to HOB's Distribution System;
- 5) Prospective embedded Generator shall confirm its acceptance of the preliminary review in writing to HOB, and provide HOB with a completed Connection Assessment Form (i.e., Form B) for proceeding with a detailed review. The prospective embedded Generator shall also commit to reimbursing HOB for reasonable costs incurred while completing its detailed review, as defined in the OPA FIT program. For large Generator projects, HOB shall request a Connection Impact Assessment (CIA) from the IESO. The Customer shall be responsible for costs incurred by HOB, HONI, and the IESO during the detailed review.

3.5.5.3 Connection Impact Assessment: Detailed Study to Determine Connection Requirements

HOB shall conduct a Connection Impact Assessment (CIA) for any embedded generation facility with a nameplate rated capacity greater than 10 kW to assess the impact of connecting the proposed facility to HOB's Distribution System, and where connection is feasible to specify the Connection requirements using an "Offer to Connect" that also includes a cost estimate. Generators are reminded that for projects subject to the Ontario Power Authority Program Rules for Renewable Energy Generation, a valid OPA contract is recommended before commencing the CIA study. The embedded Generator shall also submit the following to HOB before the CIA study can proceed:

- Completed Form B: Connection Impact Assessment (CIA) Application, signed and stamped by a Professional Engineer registered with the Professional Engineers of Ontario (PEO);
- Full deposit (i.e., cheque or money order) payable to HOB Networks Inc. (HOB);
- Signed CIA Study Agreement;
- Single line diagram signed and stamped by a Professional Engineer registered with the PEO.

HOB shall provide the embedded Generator with an "Offer to Connect", where feasible, within 60 calendar days of starting the detailed review, unless other necessary information outside of HOB's control is required before an offer can be made. The embedded Generator should also note the following:

- 1) HOB, in association with HONI, shall review the detailed electrical package to determine the acceptability of the interface design as it affects HOB and HONI systems, and to provide written comments to the embedded Generator;
- 2) Embedded Generator should not begin the procurement of electrical equipment until HOB, the Electrical Safety Authority and HONI (through HOB) have provided written notification regarding the acceptability of the embedded Generator's interface design;
- 3) After the embedded Generator has agreed to proceed with construction of the generating facility, it shall enter into various agreements with HOB;
- 4) In the case of Renewable Energy Generation (REG) projects, the Generator is responsible for obtaining a Notification to Proceed from the OPA before commencing construction.

Note: HOB shall not provide any consulting services to an embedded Generator, and will only evaluate the proposed generating facility with respect to how it may impact its Distribution System.

3.5.5.4 Agreements

Before a small, mid-size or large Generator installation can begin operation, the prospective embedded Generator (Owner) shall enter into various agreements with HOB that will clearly define the obligations and privileges of each party. The embedded Generator may be required to enter into all or some of the following agreements:

- **Construction Agreement:** This agreement between the embedded Generator and HOB shall detail the Connection requirements and cost recovery terms, and include a provision for the embedded Generator to reimburse HOB for any and all costs associated with Expansions and/or Enhancements of its Distribution

System and/or the HONI Transmission System that may be necessary to accommodate the embedded Generator's operation;

- **Construction Agreement (HONI):** In the event that HONI's transmission or Distribution System requires modifications to connect the embedded Generator, this agreement shall describe the obligations of both HOB and HONI to complete the Connection, and the cost recovery terms;
- **Customer Account Contract:** If the embedded Generator is also a load Customer of HOB, this contract shall describe the terms and applicable rates for General Service Customers, including standby power, and the conditions under which standby power is granted and revoked;
- **Connection (Operating) Agreement:** This technical document identifies the 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, relevant contact names and telephone numbers, and all necessary schematic diagrams for proper communication between HOB and the embedded Generator.

The Connection (Operating) Agreement shall include provisions for the safe and effective operation of the embedded Generator's equipment which is connected to HOB's Distribution System.

An embedded Generator shall enter into a Connection (Operating) Agreement with HOB. Until such an agreement has been executed between the embedded Generator and HOB, the embedded Generator shall be deemed to have accepted and agreed to be bound by these Conditions of Service, and any operational schedules delivered to the embedded Generator from time to time by HOB.

3.5.5.5 Commissioning

Before an embedded Generator's facility is connected to HOB's electrical Distribution System, HOB personnel (or representatives) shall review and witness the embedded Generator's commissioning tests as necessary to ensure the acceptable security of HOB's and HONI's Distribution Systems and Transmission Systems. The cost of witnessing the commissioning tests shall be paid by the embedded Generator.

3.5.6 General Responsibilities

3.5.6.1 Embedded Generator Responsibilities

- Design the generating facility's electrical and protection package to meet HOB, HONI and DSC Connection requirements, and Electrical Safety Authority inspection requirements. For electrical inspection requirements, refer to Section 84 of the Ontario Electrical Safety Code, ESA bulletins relevant to embedded Generators, CSA C22.3 No. 9-08 Interconnection of Distributed Resources and Electricity Supply Systems (latest edition), and IEEE Std 1547 Standard for Interconnection of Distributed Resources with Electric Power Systems (latest edition);
- Ensure that the generating facility produces no objectionable harmonics or voltage flicker on HOB's Distribution System. Should any objectionable harmonics or voltage flicker exist, the embedded Generator shall be responsible for modifying the generating facility to correct the problem;
- HOB's Distribution System is operated according to CSA Standard C235 Preferred Voltage Levels for AC Systems 0-50,000 Volts, which recommends

limits for voltage variation on Customer circuits. Any embedded Generator interconnected with HOB's supply system shall not cause any voltages measured at Customer service entrances to deviate more than indicated in CSA Standard C235;

- Embedded Generator output, when connected in parallel with HOB's supply system, shall not adversely affect the voltage, frequency or wave shape of HOB's electrical Distribution System;
- For any remote trip protection scheme and/or voltage supervision scheme that may be required by HONI or HOB, or HONI and/or HOB to operate or modify equipment at HONI-owned and/or HOB-owned transformer stations, the embedded Generator shall be responsible for covering reasonable costs that would be incurred;
- All embedded Generators with a nameplate rating greater than 10 kW shall require a remote trip protection scheme. Large Generators shall provide for, maintain and pay the leased circuit costs of any data communication circuits used to support such a scheme;
- HOB shall require the installation of a remote terminal unit (RTU) that will provide input data for HOB's SCADA system. HOB shall require the embedded Generator to provide space within its generation facility for the RTU, and to provide an AC supply circuit for the unit. The embedded Generator shall be responsible for the RTU cost, including its integration.

The embedded Generator shall detect and isolate any electrical faults or disturbances in HOB's Distribution System to protect HOB's system and other Customers connected to the Distribution System. Although the embedded Generator should consider the following as typical protection requirements when preparing the proposed protection package for review by HOB, these guidelines are not intended to take the place of any detailed final design(s) that should be completed by a competent Person or organization. The detailed final design(s) should consider the proposed power and protective equipment in addition to local conditions, including both existing and future equipment loading, and operating conditions.

The Connection and operation of a Customer's embedded Generator shall not endanger workers, jeopardize public safety, or adversely affect or compromise any equipment owned or operated by HOB. Furthermore, the security, reliability, efficiency and quality of electrical supply provided to other Customers connected to HOB's Distribution System shall not be adversely affected. If any damage or increased operating costs result from an embedded Generator's Connection, the embedded Generator shall be required to reimburse HOB for these costs.

The embedded Generator shall disconnect its equipment from HOB's Distribution System when:

- 1) Remote trip is included in the interface protection;
- 2) Any changes made by the embedded Generator to normal feeder arrangements as per the operating agreement executed between HOB and the embedded Generator;
- 3) Telecommunications link between the HONI (or HOB) transformer station control and the Generator is not operational.

A mid-size or large embedded Generator shall provide an incoming circuit breaker (switcher) of the required rating with sufficient protection for use as the first protective device, which shall be coordinated with HOB's protection. For a small embedded

Generator, an automated disconnect switch shall be required at the demarcation point that will be integrated with HOB's SCADA system.

When SCADA monitoring is required by HOB and a radio link is not used, the embedded Generator shall arrange for a Type 4, 4-wire (i.e., data line) data communications circuit for the SCADA unit, and shall pay the monthly charges for this leased circuit. HOB shall control and/or monitor the following, as a minimum:

- a) Status and control of the incoming circuit breaker or disconnect switch;
- b) Status of the generator circuit breaker;
- c) Status of any other switches or devices that may affect HOB's ability to operate;
- d) Metering of total Energy delivered by HOB (i.e., kW, kVA, PF);
- e) Metering of total Energy delivered by the Generator (i.e., kW, kVA, PF);
- f) Power quality parameters for Generators 250 kW and above.

The following additional responsibilities shall apply to embedded Generators.

- Large embedded Generator connected to HOB's Distribution System shall install its own meter according to HOB's metering requirements, and provide HOB with technical details of the meter installation;
- Embedded Generator's meter must be installed at the demarcation point;
- Embedded Generator must complete all SCADA and associated wiring and make this available to HOB at a designated point (i.e., termination cabinet). All wiring and equipment installation shall meet the standards and specifications of HOB, and the Ontario Electrical Safety Code;
- Embedded Generator's substation shall include space for a metering compartment for the installation of instrument transformers and other devices required for revenue metering;
- Embedded Generator shall forward a detailed electrical documentation package to the Electrical Safety Authority for its review of the proposed generation facility;
- Embedded Generator shall obtain all appropriate permits for the construction and operation of its generation facility (e.g., ESA approvals, Generator licenses, municipal construction permits, etc.);
- Embedded Generator shall advise HOB of the timetable for Generator commissioning tests in order for HOB (or representative) to review and witness the tests.

3.5.6.2 HOB Responsibilities

- Identify and explain its cost recovery policy to the prospective embedded Generator;
- Install, integrate, test and commission the Remote Terminal Unit and SCADA system;
- Review the embedded Generator's electrical design package and determine if it meets the minimum requirements for Connection to the HOB's Distribution System;
- Design and modify its facilities according to current HOB standards for connecting the embedded Generator;

- Discuss and review any relay protection modifications that may be required on its supply feeder(s) with HONI;
- HOB control room: Coordinate the parallel connection between the embedded Generator and HOB's electrical Distribution System;
- Initiate the preparation of agreements between the embedded Generator and HOB;
- Provide notification to the IESO regarding the embedded generation Connection, as required according to the defined "Market Rules for the Ontario Electricity Market".

3.5.7 Important Technical Requirements for Connecting Mid-Size & Large Embedded Generation Projects

The embedded Generator's electrical and protection package shall include the following:

- Three-phase, gang-operated, visible load breaking switch with provision for padlocking at the demarcation point of HOB's Distribution System that shall be accessible by HOB personnel (or representatives). HOB shall have Operating Control of this isolating point;
- Fault interrupting/synchronizing device with suitable rating for each Generator;
- Automatic Generator tripping for all faults on the embedded Generator side of the connection point;
- Automatic Generator tripping for all phase and ground faults on HOB's electrical Distribution System;
- Appropriate transformer connection between the embedded Generator and HOB's electrical Distribution System:
 - Preferred transformer connections for Generator units connected through a Customer-owned transformer rated higher than 1.5 MVA are: Primary (Delta), and Secondary (Wye-grounded);
- Suitable transformer protection;
- Protective relays installed to prevent the embedded Generator from delivering power to HOB's feeder line when that line has become isolated or islanded from the rest of HOB's system. This will usually include over/under frequency relays, and over/under voltage relays;
- Directional protection is required for embedded Generator load displacement projects that do not purchase power from HOB;
- Normal reclosure time of HOB's supply station feeder breaker could range from 0.1 to 0.5 seconds, with no intentional delay incorporated into the feeder breakers. This short time delay for reclosure will increase the risk of generator damage, and may emphasize the need for a remote trip protection and voltage supervision scheme to support the embedded Generator's islanding protection (response) that may be too slow;
- Remote trip may be required between the embedded Generator and the feeder circuit breaker. This feature will isolate the embedded Generator when certain faults or system disturbances are detected at the feeder circuit breaker (switcher) location, or when the communications link between HONI (or HOB) transformer station control and the Generator is not operational;
- Synchronizing facilities for each synchronous generator;
- Ground potential rise study to meet HOB and Electrical Safety Authority requirements for step/touch potential, and to meet the telecommunications

service provider's incoming voice/data circuit and personnel protection requirements;

- Telecommunications requirements for HOB's revenue metering, SCADA equipment and remote trip circuit shall be confirmed with HOB before installation;
- Induction generators shall provide a Power Factor (PF) greater than 0.9, which may require the installation of automatically disconnecting capacitors. Embedded Generators with synchronous generators shall be required to operate as near to unity Power Factor as possible.

Note: HOB continually strives to provide the most up-to-date information to its Customers, and therefore reserves the right to amend this guideline and related requirements at its sole discretion at any time.

3.5.8 Maintenance Schedules

Embedded Generators with nameplate ratings higher than 10 kW shall implement and follow a regular scheduled maintenance plan to provide assurance that all connection devices in addition to protection and control systems are operated and maintained in good working order. The provisions of this scheduled maintenance plan shall be included in the Connection (Operating) Agreement. The embedded Generator shall also perform a re-verification of its connection at least once every 48 months, or as specified in the Connection (Operating) Agreement, and provide a written report to HOB signed by a Professional Engineer licensed by the Province of Ontario and registered with the PEO.

HOB, at its sole discretion, may request at any time to witness the re-verification of any protections that could adversely impact HOB's distribution system. The embedded Generator shall pay HOB for this re-verification and provide a copy of the report to HOB containing the re-verification results.

3.5.9 Reporting Requirements

Embedded Generators with nameplate ratings higher than 100 kW shall report any and all significant events to HOB within five business days of their occurrence. The Connection (Operating) Agreement may include a list of events deemed significant, and a standard reporting format.

The embedded Generator shall maintain a written log with details regarding the operation of installed protections resulting from tripping interrupting devices. Upon request, the embedded Generator shall provide a copy of the log with the following information to HOB at a minimum:

- Dates and times of all protection operation events;
- Specific relay and/or protection feature of the relay initiating the trip;
- Conditions and unit output at the time of the trip event that may be related to operation (e.g., lightning, feeder outage, etc.);
- Event sequence records that may be available from the relay(s).

3.5.10 Disconnection of Embedded Generation Facility

HOB has the right to disconnect an embedded generation facility from its distribution system if, in the sole opinion of HOB, any of the following conditions exist:

- a) Material deterioration of the distribution system reliability resulting from the performance of an embedded Generator's equipment;

- b) Material negative impact on the quality of power provided to an existing or new Customer resulting from the performance of equipment at the embedded generation facility;
- c) Embedded Generator has failed to re-verify its protection and control systems at least once every 48 months or as specified in the Connection (Operating) Agreement, or has failed to submit the report to HOB within 30 days;
- d) Embedded Generator's report on the re-verification of protection and control systems indicates unacceptable deficiencies;
- e) Embedded Generator has made material changes to the embedded generation facility's capacity and/or mode of operation and/or protective devices without obtaining prior written consent from HOB;
- f) Embedded generation facility does not meet one or more of the technical requirements specified in Appendix F2 of the Distribution System Code, or any relevant CSA and IEEE requirements and OESC standards;
- g) Embedded Generator has failed to cease generating electricity at a capacity greater than allocated by HOB upon completion of its Connection Impact Assessment within 15 days of being notified by HOB in writing of the excess generated output.

3.6 EMBEDDED MARKET PARTICIPANT

An Embedded Market Participant is a Customer who is registered as a market participant with the IESO, and whose facility is not directly connected to the IESO-controlled grid, but is connected to the distribution system. Once approved by the IESO, all embedded market participants within the service jurisdiction of HOB shall inform HOB of their approved status in writing at least 60 days prior to their participation in the IESO-administered market.

A Connection (Operating) Agreement, which includes an operating schedule, shall be required between each embedded market participant and HOB.

An embedded market participant shall be responsible for the ownership, installation and maintenance of the meter, and contracting the services of a registered meter service provider. Responsibility for an existing meter installation shall be transferred from HOB to the embedded market participant upon the meter seal expiry date.

3.7 EMBEDDED DISTRIBUTOR

All embedded Distributors within HOB's service jurisdiction shall inform HOB regarding their status in writing at least 30 days before Energy supply is provided by Hydro One Brampton. Applicable terms and conditions for connecting an embedded Distributor shall be included in the Connection (Operating) Agreement with HOB.

3.8 UNMETERED CONNECTIONS

3.8.1 General

- 3.8.1.1 There are certain instances where the service may be connected to Hydro One Brampton's distribution system without being metered. These unmetered connections typically draw a small and uniform electrical load. Hydro One Brampton reserves the right to review all cases for eligibility for such unmetered service, and to determine, at its sole discretion, whether to allow an unmetered connection or require that a meter be installed at the connection.
- 3.8.1.2 Examples of services that are considered for unmetered supply include but are not limited to street lighting, traffic signals, pedestrian cross-walk signals/ beacon, bus shelters, telephone booths, signs and miscellaneous unmetered loads.
- 3.8.1.3 Unmetered connections are mainly intended for use within the road right-of-way and are permitted at the discretion of Hydro One Brampton. This type of service offering is specifically made available to companies that are in good standing with Hydro One Brampton and licensed for equipment access with the road authority, such as telecommunication companies and government agencies.
- 3.8.1.4 Customers with existing unmetered connections, or requiring new unmetered connections are subject to the terms and conditions identified herein.
- 3.8.1.5 Where an unmetered customer wishes to affix its attachments to Hydro One Brampton's assets, Hydro One Brampton must approve the method of attachment and location of installations and the owner must enter into an additional customer-specific Joint Use Agreement.
- 3.8.1.6 The ownership demarcation point is:
- for overhead service, the top of the Customer's service standpipe/mast; and
 - for underground service, the secondary spades of the transformer.

3.8.2 Rate Structure

- 3.8.2.1 As established in Hydro One Brampton's Tariff of Rates and Charges, all unmetered loads fall under two Rate Structures: Street Lighting Service Classification and Unmetered Scattered Load Service Classification.
- 3.8.2.2 The Street Lighting Service Classification includes all electric service supplied to roadway lighting equipment, owned by or operated by the City of Brampton, the

Regional Municipality of Peel or the Ministry of Transportation, and are controlled by photo cells.

- 3.8.2.3 The Unmetered Scattered Load Service Classification includes traffic signals, pedestrian cross-walk signals/ beacon, bus shelters, telephone booths, signs and miscellaneous unmetered loads.

3.8.3 Customer(s) Obligations

- 3.8.3.1 The Customer shall comply with the requirements of Hydro One Brampton's standards and the *Ontario Electrical Safety Code* to ensure public safety. Further, the Customer shall provide an ESA Connection Authorization prior to the service being connected.
- 3.8.3.2 The Customer shall provide approved documentation, duly signed and stamped by a professional engineer registered with the Professional Engineers of Ontario (PEO), indicating electrical demand and consumption of the proposed unmetered load. A completed load study acceptable to Hydro One Brampton may be required for determination of load and hours of usage.
- 3.8.3.3 The Customer shall retain all information provided to and by Hydro One Brampton pursuant to the terms in *Section 3.8.6 "Data Quality Auditing Requirements and Records Retention"*. Hydro One Brampton may choose not to retain record details with each unmetered connected service and thus will not be held responsible for any incomplete records.
- 3.8.3.4 The Customer shall notify Hydro One Brampton in writing prior to making any changes to existing equipment or adding new equipment that is to be supplied from the Hydro One Brampton distribution system.
- 3.8.3.5 Unmetered Load Customers cannot allow other Customers to use unmetered electrical power from their system without the written consent of Hydro One Brampton.
- 3.8.3.6 The Customer shall provide timely and accurate energy consumption data. Accepted energy consumption is based on either:
- The maximum continuous calculated load, or
 - The results of a Hydro One Brampton accepted audit.
- 3.8.3.7 Where installations involve Hydro One Brampton owned poles, the method and location of attachment are subject to the approval of Hydro One Brampton. Hydro

One Brampton may, in its sole discretion, require the Customer to enter into agreement with Hydro One Brampton governing such attachments.

- 3.8.3.8 The Customer might be asked to relocate, at the Customer's expense, the secondary conductors of an unmetered service to another designated Supply Point at Hydro One Brampton's request.
- 3.8.3.9 The Customer shall construct, at its expense, the civil infrastructure (including but not limited to poles, UG conduits, tap boxes) on public road allowances or private property that is deemed required by Hydro One Brampton to house or support Hydro One Brampton's electrical equipment. These civil infrastructures shall be in accordance with Hydro One Brampton current standards, practices, specifications and this Conditions of Service and are subject to inspection and acceptance by Hydro One Brampton. The customer shall own and maintain any equipment after the demarcation point.

3.8.4 Distributor Obligations

- 3.8.4.1 All unmetered connections to Hydro One Brampton's distribution facilities are permitted at the sole discretion of the distributor.
- 3.8.4.2 Hydro One Brampton shall assign an Unmetered Service Load (USL) energy account and Site Number, or increase the number of connections for an existing energy account for each new connection load.
- 3.8.4.3 Hydro One Brampton shall assign an Unmetered Scattered Load (USL) energy account and Site Number, or increase the number of connections for an existing energy account for each new connection load.
- 3.8.4.4 Hydro One Brampton shall ensure that unmetered service billing information accurately reflects the calculated electrical consumption by unit, quantity, load profile and demand.
- 3.8.4.5 Hydro One Brampton will provide reasonable notice in accordance with the Conditions of Service and any other third party agreement to the unmetered customer should the supply point require relocation.
- 3.8.4.6 Hydro One Brampton reserves the right to undertake its own electrical usage profile study of any unmetered loads customers. If any deviations from the agreed usage detected, the Customer shall be responsible for all costs incurred as the result of this study. This cost includes both the study and the variance in the agreed upon energy usage.
- 3.8.4.7 In the process of preparation of its rate rebasing application, Hydro One Brampton will engage all unmetered load customers in stakeholder sessions in order to allow the

customers to understand the assumptions used in the application and the resulting impact.

3.8.5 Data Requirements

- 3.8.5.1 New unmetered connected load services shall meet with the data quality requirements described in *Section 3.8.6 “Data Quality Auditing Requirements and Records Retention”*.
- 3.8.5.2 New unmetered customers shall provide Hydro One Brampton with the necessary information to complete each unmetered connected service layout.
- 3.8.5.3 Throughout the lifecycle of the unmetered connected service, unmetered customers are required to submit updated and accurate data to Hydro One Brampton when it becomes known by the unmetered customer that there have been changes to the connections, or is requested by Hydro One Brampton.

3.8.6 Data Quality Auditing Requirements and Records Retention

In the event that Hydro One Brampton or the unmetered customer identifies or causes a billing error, Hydro One Brampton will rectify the matter consistent with this section and the OEB Retail Settlement Code. The unmetered customer shall meet the following data requirements:

3.8.6.1 Data Quality Requirements

- 3.8.6.1.1 The unmetered Customer shall collect and retain accurate GPS coordinates and provide such to Hydro One Brampton when requested.
- 3.8.6.1.2 Electrical profile, power quality, and usage accuracy studies are required when new unmetered equipment is introduced or when these are requested by Hydro One Brampton. The unmetered customer, has two options with which to develop and provide the information to Hydro One Brampton:
 - an in-house test plan (covering scope, applicability, conditions, quality control, measurement devices, timing, staff competencies, control documents, error resolution process, and external references) for Hydro One Brampton approval.

Final results and report shall be signed and sealed by a Professional Engineer of Ontario; or

- a signed and sealed certified test report from the Standards Council of Ontario or ANSI compliant laboratory having competencies in electrical equipment testing.

Costs for either option will be borne by the unmetered Customer.

3.8.6.2 Data Auditing Requirements

3.8.6.2.1 Hydro One Brampton may initiate an audit at regular intervals or on notice.

3.8.6.3 Records Retention

3.8.6.3.1 The unmetered customer shall retain information provided to and by Hydro One Brampton for a minimum period of seven years.

3.8.6.3.2 The retained information shall include the information discussed in this section 3.8.6.3 and any other relevant correspondence or agreements regarding the unmetered connected service, including the associated service connections and load.

3.8.6.3.3 If the unmetered Customer does not retain such records, Hydro One Brampton may incur costs associated with research and reconstruction of the missing information as described in *Section 3.8.10 "Audit Costs"* and *Section 3.8.11 "Error Costs"*. Hydro One Brampton reserves the right to recover all of such costs from the unmetered customer.

3.8.7 Unmetered Load Types Defined

The method of determining, and the location of Supply Points may vary for each unmetered service connection application and shall be established based on consultation with Hydro One

Brampton. The following sections outline the types of unmetered service connections, each of which has specific requirements captured within each section.

3.8.7.1 **Street Lighting**

- 3.8.7.1.1 This section pertains to the distribution and supply of electrical energy for street lighting. Street lights are devices owned by or operated for the road authority and/or the municipal corporation.
- 3.8.7.1.2 The energy consumption for street lights is based on Hydro One Brampton's profile for street lighting load, which provides the hours for each month when the street lights are operating. The energy charge is based on installed load.
- 3.8.7.1.3 Street lighting plant, facilities, or equipment owned by the unmetered customer are subject to the requirements of the Electrical Safety Authority.
- 3.8.7.1.4 The unmetered Customer is responsible for paying the Actual Cost of the work related to the connection of Street Lighting performed by Hydro One Brampton. Streetlights attached on Hydro One Brampton's line poles will require the owner to enter into an agreement to use such poles. The location and method of attachment is subject to Hydro One Brampton approval. Hydro One Brampton will make the electrical service connection of all streetlights to the Distribution System.
- 3.8.7.1.5 The unmetered customer will provide the secondary conductor to the supply point. Hydro One Brampton will install and connect the service conductor at the supply point.

3.8.7.2 **Telecommunication Power Supplies**

- 3.8.7.2.1 This section pertains to the distribution and supply of electrical energy for telecommunication power units. The standard service with no accessories (heaters or air conditioners, etc.) can be unmetered. A completed load study will be required; otherwise the account will be set up on full name plate rating. Energy

consumption will be based on connected wattage on the line side power supply and based on twenty-four hours of use.

3.8.7.2.2 Power units that have additional accessories such as heaters or air conditioners, etc. shall require metering.

3.8.7.2.3 Each power supply will be set up as an individual account.

3.8.7.2.4 The method, location, service voltage and size will vary and will be established for each application through consultation with Hydro One Brampton.

3.8.7.3 **Traffic Signals**

3.8.7.3.1 This section pertains to the distribution and supply of electrical energy for traffic signals and crosswalks. These are the devices owned and maintained by the road authority and/or the municipal corporation.

3.8.7.3.2 The service may be unmetered for small intersections, while larger loads may require metering. Energy consumption will be based on the connected wattage and the calculated hours of use.

3.8.7.3.3 The method, location, service voltage and size will vary and will be established for each application through consultation with Hydro One Brampton.

3.8.7.3.4 The unmetered customer will provide the secondary conductor to the supply point. Hydro One Brampton will install and connect the service conductor at the supply point.

3.8.7.4 **Decorative Lighting**

3.8.7.4.1 This section pertains to the distribution and supply of electrical energy for decorative street lighting installations. Such installations could be lighting for

festive occasions or streetscaping. These are privately owned and maintained and subject to Electrical Safety Authority and Hydro One Brampton service conditions.

3.8.7.4.2 This section does not apply to street lighting that is owned by or operated by the road authority and/or the municipal corporation.

3.8.7.4.3 Hydro One Brampton shall determine whether metering is required on a case-by-case basis by considering the demand, load profile, location, accessibility, duration of the Connection, and municipal agreement.

3.8.7.4.4 The method, location, service voltage and size will vary and will be established for each application through consultation with Hydro One Brampton.

3.8.7.5 **Other Small Services**

3.8.7.5.1 Telephone booths, small power supplies, communication amplifiers and antennas, road and utility cathodic protection, railway signals, flasher beacons, and similar small unmetered Customer loads within the public road right-of-way may qualify for unmetered connected servicing.

3.8.8 **Service Costs**

There are three life cycle states for an unmetered connected load service. They are as follows:

- i. Proposed;
- ii. In-service; or
- iii. Permanently removed.

In each state, the minimum billing period remains as one month regardless of when the unmetered connected load service lifecycle state changes. Also, billing of the energy and fixed charges continues monthly in all lifecycle states until the service has been permanently removed.

3.8.8.1 **Proposed**

3.8.8.1.1 On request of a new connection, the unmetered customer's proposal will initiate the service point as "Proposed" for a period of up to 90 days.

3.8.8.2 **In-Service**

3.8.8.2.1 An unmetered connected load service is deemed to be "in-service" when it has been energized or it has been electrically isolated (removed from any electrical

energy source) at any time between being energized or permanently removed. The two in-service lifecycle states are described as follows:

(i) Energized

An existing unmetered connected load service that has been physically connected to the Hydro One Brampton distribution network is deemed to be “Energized”.

(ii) Electrically Isolated

An existing unmetered connected load service that has been physically detached from the Hydro One Brampton distribution network is deemed to be “Electrically Isolated”. Isolation of the unmetered connected load service may be initiated by Hydro One Brampton for power quality, outage events, or data issues or by the unmetered Customer through written request.

In this lifecycle state, Hydro One Brampton continues to calculate the bill (energy and fixed charges) on a per month basis for not more than six consecutive months. Following the sixth month of being “electrically isolated”, the unmetered connected load service must be either placed back “in-service” or “permanently removed” from service. Hydro One Brampton retains the right to disconnect the service per the terms defined in Section 2.2.

3.8.8.3 Permanently Removed

- 3.8.8.3.1 An unmetered connected load service is deemed “permanently removed” following the sixth consecutive month in the “electrically isolated” state, or when the unmetered customer requests that the unmetered connected load service be permanently cancelled and physically detached from the Hydro One Brampton distribution network energy source.
- 3.8.8.3.2 When an unmetered connected load service has been deemed “permanently removed”, billing charges (energy and fixed charges) shall cease as of the next scheduled billing date.
- 3.8.8.3.3 Re-energization of an unmetered connected load service in this lifecycle state shall be treated as a new unmetered connected load service and be subject to the

requirements contained within this document for new unmetered connected load service requests.

3.8.9 Work by Hydro One Brampton

Hydro One Brampton's connection, isolation and re-energization fees will apply. Note that extra work by Hydro One Brampton beyond a simple, basic connection onto the overhead or underground system is at the unmetered customer's expense.

3.8.10 Audit Costs

Any costs or expenses that are incurred by the unmetered customer in supporting or responding to the requirements of a Hydro One Brampton audit shall be the responsibility of the unmetered customer.

3.8.11 Error Costs

3.8.11.1 Hydro One Brampton encourages voluntary data error disclosure and data quality improvement.

3.8.11.2 Recurring data errors, or data quality problems, may result in an unmetered Customer being "electrically isolated" or "permanently removed" from the Hydro One Brampton distribution network, with the option for the unmetered Customer to upgrade to a metered service from a Hydro One Brampton designated supply point.

3.8.11.3 When an unmetered customer volunteers corrected or improved data before commencement of a joint audit, the unmetered customer will be held responsible for the corrected consumption usage.

3.8.11.4 To improve the quality of the unmetered connected load service data, Hydro One Brampton encourages the unmetered customer to cooperate in a joint audit as described in *Section 3.8.6 "Data Quality Auditing Requirements and Records Retention"*. In this case, the unmetered customer will be responsible for the associated costs and the corrected consumption usage.

3.8.11.5 If the unmetered Customer provides Hydro One Brampton unmetered data that is of insufficient quality (i.e. not meeting audit standards), no data, or late data, the unmetered customer shall pay Hydro One's Brampton field verification and data correction costs, equivalent costs per each unmetered connected load service, and the corrected consumption usage.

4 GLOSSARY OF TERMS

Specific terms used in this document are listed below and defined according to the following sources:

- A *Electricity Act, 1998, Schedule A, Section 2 Definitions;*
- MR *Market Rules for the Ontario Electricity Market, Chapter 11 Definitions;*
- TDL *Transitional Distribution License, Part I Definitions;*
- TTL *Transitional Transmission License, Part I Definitions;*
- DSC *Distribution System Code Definitions;*
- RSC *Retail Settlement Code Definitions.*

Accounting Procedures Handbook means the handbook approved by the Board and in effect at the relevant time, which specifies the accounting records, accounting principles and accounting separation standards to be followed by the distributor; (TDL, DSC)

Affiliate Relationships Code means the code, approved by the Board and in effect at the relevant time, which among other things, establishes the standards and conditions for the interaction between electricity distributors or transmitters and their respective affiliated companies; (TDL, DSC)

Ancillary services means services necessary to maintain the reliability of the IESO-controlled grid; including frequency control, voltage control, reactive power and operating reserve services; (MR, TDL, DSC)

Apartment building means a structure containing four or more dwelling units having access from an interior corridor system or common entrance;

Apparent power means the total power measured in kilovolt Amperes (kVA);

Application for service means the agreement or contract with HOB under which electrical service is requested;

Bandwidth means a distributor's defined tolerance used to flag data for further scrutiny at the stage in the VEE (validating, estimating and editing) process where the current reading is compared to a reading from an equivalent historical billing period. For example, a 30 percent bandwidth means a current reading that is either 30 percent lower or 30 percent higher than the measurement from an equivalent historical billing period that will be identified by the VEE process as requiring further scrutiny and verification; (DSC)

Billing Demand means the metered demand or connected load after necessary adjustments have been made for power factor, intermittent rating, transformer losses and minimum billing. A measurement in kilowatts (kW) of the maximum rate at which electricity is consumed during a billing period;

Board or OEB means the Ontario Energy Board; (A, TDL, DSC)

Building means a building, portion of a building, structure or facility; and "complex metering installation" means a metering installation where instrument transformers, test blocks, recorders, pulse duplicators and multiple meters may be employed; (DSC)

Conditions of Service means the document developed by a distributor in accordance with subsection 2.4 of the Code that describes the operating practices and connection rules for the distributor; (DSC)

Connection means the process of installing and activating connection assets in order to distribute electricity to a Customer; (DSC)

Connection Agreement means an agreement entered into between a distributor and a person connected to its distribution system that delineates the conditions of the connection and delivery of electricity to that connection; (DSC)

Connection Assets means that portion of the distribution system used to connect a Customer to the existing main distribution system, and consists of the assets between the point of connection on a distributor's main distribution system and the ownership demarcation point with that Customer; (DSC)

Consumer means a person who uses, for the person's own consumption, electricity that the person did not generate; (A, MR, TDL, DSC)

Customer means a person that has contracted for or intends to contract for connection of a building. This includes developers of residential or commercial subdivisions; (DSC)

Demand means the average value of power measured over a specified interval of time, usually expressed in kilowatts (kW). Typical demand intervals are 15, 30 and 60 minutes; (DSC)

Demand Meter means a meter that measures a Customer's peak usage during a specified period of time; (DSC)

Developer means a person or persons owning property for which new or modified electrical services are to be installed;

Disconnection means a deactivation of connection assets that results in cessation of distribution services to a Customer; (DSC)

Distribute, with respect to electricity, means to convey electricity at voltages of 50 kilovolts or less; (A, MR, TDL, DSC)

Distribution losses means energy losses that result from the interaction of intrinsic characteristics of the distribution network, such as electrical resistance with network voltages and current flows; (DSC)

Distribution loss factor means a factor or factors by which metered loads must be multiplied, such that when summed equal the total measured load at the supply point(s) to the distribution system; (RSC)

Distribution Services means services related to the distribution of electricity and the services the Board has required distributors to carry out, for which a charge or rate has been approved by the Board under section 78 of the Ontario Energy Board Act; (RSC, DSC)

Distribution System means a system for distributing electricity, and includes any structures, equipment or other things used for that purpose. A distribution system comprises the main system capable of distributing electricity to many Customers, and the connection assets used to connect a Customer to the main distribution system; (A, MR, TDL, DSC)

Distribution System Code means the code, approved by the Board and in effect at the relevant time, which among other things establishes the obligations of the distributor with respect to the services and terms of service to be offered to Customers and retailers, and provides minimum technical operating standards of distribution systems; (TDL, DSC)

Distributor means a person who owns or operates a distribution system; (A, MR, TDL, DSC)

Duct Bank means two or more ducts that may be encased in concrete used for the purpose of containing and protecting underground electric cables;

Electricity Act means the Electricity Act, 1998, S.O. 1998, c.15, Schedule A; (MR, TDL, DSC)

Electrical Safety Authority or “ESA” means the person or body designated under the Electricity Act regulations as the Electrical Safety Authority; (A)

Electric Service means the Customer’s conductors and equipment for energy from HOB;

Embedded distributor means a distributor who is not a wholesale market participant and that is provided electricity by a host distributor; (RSC, DSC)

Embedded generator or “embedded generation facility” means a generator whose generation facility is not directly connected to the IESO-controlled grid, but instead is connected to a distribution system; (DSC)

Embedded retail generator means an embedded generator that settles through a distributor’s retail settlements system, and is not a wholesale market participant; (DSC)

Embedded wholesale Customer means a Customer who is a wholesale market participant whose facility is not directly connected to the IESO-controlled grid, but is connected to a distribution system; (DSC)

Embedded wholesale generator means an embedded generator that is a wholesale market participant; (DSC)

Emergency means any abnormal system condition that requires remedial action to prevent or limit loss of a distribution system or supply of electricity that could adversely affect the reliability of the electricity system; (DSC)

Emergency backup means a generation facility that has a transfer switch that isolates it from a distribution system; (DSC)

Energy means the product of power multiplied by time, usually expressed in kilowatt-hours (kWh);

Energy Competition Act means the Energy Competition Act, 1998, S.O. 1998, c. 15; (MR)

Energy Diversion means the electricity consumption unaccounted for but that can be quantified through various measures upon review of the meter mechanism, such as unbilled meter readings, tap off load(s) before the revenue meter or meter tampering;

Enhancement means a modification to an existing distribution system that is made for the purposes of improving system operating characteristics, such as reliability or power quality or for relieving system capacity constraints resulting, for example, from general load growth; (DSC)

Expansion means an addition to a distribution system in response to a request for additional Customer connections that otherwise could not be made; for example, by increasing the length of the distribution system; (DSC)

Extreme operating conditions means extreme operating conditions, as defined in the Canadian Standards Association (“CSA”) Standard CAN3-C235-87 (latest edition);

Four-Quadrant Interval Meter means an interval meter that records power injected into a distribution system, and the amount of electricity consumed by the Customer; (DSC)

General Service means any service supplied to premises other than those designated as Residential and less than 50 kW, Large User, or Municipal Street Lighting. This

includes multi-unit residential establishments, such as apartments buildings supplied through one service (bulk-metered);

Generate, with respect to electricity, means to produce electricity or provide ancillary services other than ancillary services provided by a transmitter or distributor through the operation of a transmission or distribution system; (A, TDL, DSC)

Generation facility means a facility for generating electricity or providing ancillary services other than ancillary services provided by a transmitter or distributor through the operation of a transmission or distribution system, and includes any structures, equipment or other things used for that purpose; (A, MR, TDL, DSC)

Generator means a person who owns or operates a generation facility; (A, MR, TDL, DSC)

Geographic distributor, with respect to a load transfer, means the distributor that is licensed to service a load transfer Customer, and is responsible for connecting and billing the load transfer Customer; (DSC)

Good Utility Practice means any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry in North America during the relevant time period; or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good practices, reliability, safety and expedition. Good utility practice is not intended to be limited to the optimum practice, method or act to the exclusion of all others; but rather to be acceptable practices, methods or acts generally accepted in North America; (MR, DSC)

Host distributor means the registered wholesale market participant distributor who provides electricity to an embedded distributor; (RSC, DSC)

House service means that portion of the electrical service in a multiple occupancy facility which is common to all occupants (i.e., parking lot lighting, sign service, corridor and walkway lighting, etc.);

IEC means International Electrotechnical Commission;

IEEE means Institute of Electrical and Electronics Engineers;

IESO means the Independent Electricity Market Operator established under the Electricity Act; (A, TDL, DSC)

IESO-controlled grid means the transmission systems with respect to which, pursuant to agreements, the IESO has authority to direct operation; (A, TDL, DSC)

Interval Meter means a meter that measures and records electricity use on an hourly or sub-hourly basis; (RSC, DSC)

Large User means a Customer with a monthly peak demand of 5000 kW or greater, regardless of whether the demand occurs in peak or off-peak periods, averaged over 12 months;

Load factor means the ratio of average demand for a designated time period (usually one month) to the maximum demand occurring in that period;

Load transfer means a network supply point of one distributor that is supplied through the distribution network of another distributor, and where this supply point is not considered a wholesale supply or bulk sale point; (DSC)

Load transfer Customer means a Customer that is provided with distribution services through a load transfer; (DSC)

Main Service refers to HOB's incoming cables, bus duct, and disconnecting and protective equipment for a Building or from which all other metered sub-services are taken;

Market Rules means the rules made under section 32 of the Electricity Act; (MR, TDL, DSC)

Measurement Canada means the Special Operating Agency established in August 1996 by the Electricity and Gas Inspection Act, 1980-81-82-83, c. 87., and Electricity and Gas Inspection Regulations (SOR/86-131; (DSC)

Meter service provider means any entity that performs metering services on behalf of a distributor; (DSC)

Meter installation means the meter and, if so equipped, the instrument transformers, wiring, test links, fuses, lamps, loss of potential alarms, meters, data recorders, telecommunication equipment and spin-off data facilities installed to measure power past a meter point, provide remote access to the metered data, and monitor the condition of the installed equipment; (RSC, DSC)

Meter socket means the mounting device for accommodating a socket type revenue meter;

Metering services means installation, testing, reading and maintenance of meters; (DSC)

MIST meter means an interval meter from which data is obtained and validated within a designated settlement timeframe. MIST refers to "Metering Inside the Settlement Timeframe"; (RSC, DSC)

MOST meter means an interval meter from which data is only available outside of the designated settlement timeframe. MOST refers to "Metering Outside the Settlement Timeframe"; (RSC, DSC)

Multiple dwelling means a Building which contains more than one self-contained dwelling unit;

Municipal Street Lighting means all services supplied to street lighting equipment owned and operated for a municipal Corporation;

Non-competitive electricity costs means costs for services from the IESO that are not deemed by the Board to be competitive electricity services plus costs for distribution services, other than Standard Supply Service (SSS); (RSC)

Normal operating conditions means the operating conditions that comply with the standards set by the Canadian Standards Association ("CSA") Standard CAN3-C235- 87 (latest edition);

Ontario Energy Board Act means the Ontario Energy Board Act, 1998, S.O. 1998, c.15, Schedule B; (MR, DSC)

Operational Demarcation Point means the physical location at which a distributor's responsibility for operational control of distribution equipment, including connection assets, ends at the Customer; (DSC)

Ownership Demarcation Point means the physical location at which a distributor's ownership of distribution equipment, including connection assets, ends at the Customer; (DSC)

Performance Standards means the performance targets for the distribution and connection activities of the distributor, as established by the Board pursuant to the Ontario Energy Board Act, and the Rate Handbook; (DSC)

Person includes an individual, a corporation, sole proprietorship, partnership, unincorporated organization, unincorporated association, body corporate, and any other legal entity;

Physical distributor, with respect to a load transfer, means the distributor that provides physical delivery of electricity to a load transfer Customer, but is not responsible for connecting and billing the load transfer Customer directly; (DSC)

Plaza means any Building containing two or more commercial business tenants;

Point of Supply, with respect to an embedded generator, means the connection point where electricity produced by the generator is injected into a distribution system; (DSC)

Power Factor means the ratio between Real Power and Apparent Power (i.e., kW/kVA);

Primary Service means any service which is supplied with a nominal voltage greater than 50 volts;

Private property means the property beyond the existing public street allowances;

Rate means any rate, charge or other consideration, and includes a penalty for late payment; (TDL, DSC)

Rate Handbook means the document approved by the Board that outlines the regulatory mechanisms that will be applied in the setting of distributor rates; (RSC, DSC)

Reactive Power means the power component which does not produce work but is necessary to allow some equipment to operate, and is measured in kiloVolt Amperes Reactive (kVAr);

Real power means the power component required to do real work, which is measured in kiloWatts (kW);

Regulations means the regulations made under the Ontario Energy Board Act, or the Electricity Act; (TDL, DSC)

Residential Service means a service which is less than 50 kW supplied to single-family dwelling units for domestic or household purposes, including seasonal occupancy. At HOB's discretion, residential rates may be applied to apartment buildings with six units or less by simple application of the residential rate, or by blocking the residential rate by the number of units;

Retail, with respect to electricity means:

- A) to sell or offer to sell electricity to a Customer;
- B) to act as agent or broker for a retailer with respect to the sale or offering for sale of electricity; or
- C) to act or offer to act as an agent or broker for a Customer with respect to the sale or offering for sale of electricity. (A, MR, TDL, DSC)

Retail Settlement Code means the code approved by the Board and in effect at the relevant time, which, among other things, establishes a distributor's obligations and responsibilities associated with financial settlement among retailers and Customers, and provides for tracking and facilitating Customer transfers among competitive retailers; (TDL, DSC)

Retailer means a person who retails electricity; (A, MR, TDL, DSC)

Secondary Service means any service which is supplied with a nominal voltage less than 750 Volts;

Service Agreement means the agreement that sets out the relationship between a licensed retailer and a distributor, in accordance with the provisions of Chapter 12 of the Retail Settlement Code; (RSC)

Service Area with respect to a distributor, means the area in which the distributor is authorized by its license to distribute electricity; (A, TDL, DSC)

Service Date means the date that the Customer and HOB mutually agree upon to begin the supply of electricity by HOB;

Standard Supply Service Code means the code approved by the Board and in effect at the relevant time, which among other things, establishes the minimum conditions that a distributor must meet in carrying out its obligations to sell electricity under section 29 of the Electricity Act; (TDL)

Sub-service means a separately metered service that is taken from the main Building service;

Supply Voltage means the voltage measured at the Customer's main service entrance equipment (typically below 750 Volts). Operating conditions are defined in the Canadian Standards Association ("CSA") Standard CAN3-C235 (latest edition);

Temporary Service means an electrical service granted temporarily for such purposes as construction, real estate sales, trailers, etc.;

Terminal pole refers to HOB's distribution pole on which the service supply cables are terminated;

Total losses means the sum of distribution losses and unaccounted for energy; (DSC)

Transformer Vault means an isolated enclosure built to applicable codes to house transformers and associated electrical equipment;

Transmission System means a system for transmitting electricity, and includes any structures, equipment or other things used for that purpose; (A, MR, TDL, DSC)

Transmission System Code means the code approved by the Board that is in force at the relevant time, which regulates the financial and information obligations of the Transmitter with respect to its relationship with Customers, as well as establishing the standards for connection of Customers to and expansion of a transmission system; (DSC)

Transmit, with respect to electricity, means to convey electricity at voltages higher than 50 kiloVolts; (A, TDL, DSC)

Transmitter means a person who owns or operates a transmission system; (A, MR, TDL, DSC)

Unaccounted for energy means all energy losses that cannot be attributed to distribution losses. These include measurement error, errors in estimates of distribution losses and unmetered loads, energy theft, and non-attributable billing errors; (DSC)

Unmetered loads means electricity consumption that is not metered, and is billed based on estimated usage; (DSC)

Validating, estimating and editing (VEE) means the process used to validate, estimate and edit raw metering data to produce final metering data, or to replicate missing metering data for settlement purposes; (MR, DSC)

Wholesale buyer means a person that purchases electricity or ancillary services in the IESO-administered markets or directly from a generator; (TDL, DSC)

Wholesale market participant means a person that sells or purchases electricity or ancillary services through the IESO-administered markets; (RSC, DSC)

Wholesale settlement cost means costs for both competitive and non-competitive electricity services billed to a distributor by the IESO or a host distributor, or provided by an embedded retail generator or by a neighboring distributor; (RSC, DSC)

Wholesale supplier means a person who sells electricity or ancillary services through the IESO-administered markets or directly to another person, other than a Customer. (TDL, DSC)

5 APPENDICES

5.1 APPENDIX A

This appendix contains reference tables and related information forming part of these Conditions of Service. Additional details are provided in supporting notes.

For external appendices, see section 5.2.

Table 5-1, Demarcation Points & Charges for Connection Assets & Disconnection for Class 1 Residential: Single Service & Rural Service

Rate / Customer Class	Operational & Ownership Demarcation Point	Standard Allowance (Basic Connection)	Basic Connection Fee (for Standard Allowance)	Capital Contribution Fee	Additional Services Charged to Customer	Service Disconnection Fee (Initiated by Customer Request)
Residential Overhead	Top of Customer's Service Mast	Up to 30 m OH service lines from Distributor's "feed" pole or lines. Include connections at feed poles or lines, at Customer's service mast	Recovered through Distributor's rates	Customer charged Actual costs for Connection Assets beyond Standard Allowance	Customers requesting an UG service in OH areas shall be required to pay 100% connection costs less the Standard Allowance for an OH service	Recovered through Distributor's Tariffs or rates
Rural Overhead Primary Connection	Primary Connection point at Distributors pole line	See Residential Overhead	Customer charged actual costs for Connection of assets	Customer charged Actual costs for Connection Assets beyond Standard Allowance	See Residential Overhead	Recovered through Distributor's Tariffs or rates
Rural Overhead Secondary Connection	Top of Customer's Service Mast	See Residential Overhead	Recovered through Distributor's rates	Customer charged Actual costs for Connection Assets beyond Standard Allowance	See Residential Overhead	Recovered through Distributor's Tariffs or rates
Underground	Line side of Customer's Meter base	Equivalent of above is credited to underground service	Equivalent of above is credited to underground service	Customer charged Actual costs for Connection Assets, including street crossing. If the Customer's load requires transformation facilities on the Customer's property, refer to "General Service" Rate Class category for Underground service with Transformation	N/A	Recovered through Distributor's Tariffs or rates

Table 5-2, Demarcation Points & Charges for Connection Assets & Disconnection for Class 2 Customers: General Service (0-50 kW)

Rate / Customer Class	Operational & Ownership Demarcation Point	Capital Contribution Fee	Additional Services Charged to Customer	Service Disconnection Fee (Initiated by Customer Request)
Overhead Single Service	<ul style="list-style-type: none"> Top of Customer's Service Mast 	<ul style="list-style-type: none"> Customer charged Actual costs for Connection Assets 	<ul style="list-style-type: none"> Additional or redesign due to changes in Customer initial proposal, or electrical inspections more than expected 	<ul style="list-style-type: none"> Recovered through Distributor's Tariffs or rates
Underground Single Service	<ul style="list-style-type: none"> Connection point at property line 	<ul style="list-style-type: none"> Customer charged Actual costs for Connection Assets 	<ul style="list-style-type: none"> Additional or re-design due to changes in Customer initial proposal, or electrical inspections more than expected, and all civil inspections 	<ul style="list-style-type: none"> Recovered through Distributor's Tariffs or rates

Table 5-3, Demarcation Points & Charges for Connection Assets & Disconnection for Class 3 Customers Not Requiring Transformation Facility on Private Property: Class 3A General Service (50 kW to 1499 kW)

Rate / Customer Class	Operational & Ownership Demarcation Point	Capital Contribution Fee	Additional Services Charged to Customer	Service Disconnection Fee (Initiated by Customer Request)
Overhead Single Building (Not requiring Transformation Facilities on private property)	<ul style="list-style-type: none"> Top of Customer's Service Mast 	<ul style="list-style-type: none"> Customer charged Actual costs for Connection Assets 	<ul style="list-style-type: none"> Additional or redesign due to changes in Customer initial proposal, or electrical inspections more than expected 	<ul style="list-style-type: none"> Customer charged actual costs associated with Disconnection and/or removal of Connection Assets up to the demarcation point
Underground Single Building (Not requiring Transformation Facilities on private property)	<ul style="list-style-type: none"> Line side of Customer's Service Conductor Connection point at the property line 	<ul style="list-style-type: none"> Customer charged Actual costs for Connection Assets, including cable, chamber(s) and U/G conduits as required 	<ul style="list-style-type: none"> Additional or re-design due to changes in Customer initial proposal, or electrical inspections more than expected, and all civil inspections 	<ul style="list-style-type: none"> Customer charged actual costs associated with Disconnection and/or removal of Connection Assets up to the demarcation point

Table 5-4, Demarcation Points & Charges for Connection Assets & Disconnection for Class 3 Customers Requiring Transformation Facilities on Private Property: Class 3B General Service (50 kW to 1499 kW)

Rate/ Customer Class	Operational & Ownership Demarcation Point	Capital Contribution Fee	Additional Services Charge to Customer	Service Disconnection Fee (Initiated by Customer Request)
Overhead Single Building (Requiring Transformation Facilities on private property) (existing Building only)	<ul style="list-style-type: none"> ▪ Load side of Distributor's transformer (secondary U/G) or top of Customer's service mast (secondary OH) 	<ul style="list-style-type: none"> ▪ Customer charged Actual costs for Connection Assets including, associated switching equipment, transformer poles(s), cable chamber(s), U/G conduits as applicable. 	<ul style="list-style-type: none"> ▪ Additional or redesign due to changes in Customer initial proposal; or electrical inspections more than expected allowance and all civil inspections and related feeder switching/scheduling. 	<ul style="list-style-type: none"> ▪ Customer charged actual costs associated with the Disconnection and/or removal of Connection Assets, including cables, transformers and related vault equipment up to demarcation point, and related feeder switching and scheduling.
Underground Building (Requiring Transformation Facilities on private property)	<ul style="list-style-type: none"> ▪ Load side of Distributor's transformer 	<ul style="list-style-type: none"> ▪ Customer charged actual costs for Connection Assets including, TX connections, associated switching equipment, u/g conduits and cable and road crossings (as applicable). 	<ul style="list-style-type: none"> ▪ Additional or redesign due to changes in Customer initial proposal: or electrical inspections more than expected and all civil inspections and related feeder switching/scheduling 	<ul style="list-style-type: none"> ▪ Customer charged actual costs associated with the Disconnection and/or removal of Connection Assets, including cables, transformers and related vault equipment up to demarcation point, and related feeder switching and scheduling.

Table 5-5, Demarcation Points & Charges for Connection Assets & Disconnection for Class 4 Customers: Class 4 General Service (1500 kW & Above)

Rate/Customer Class	Operational & Ownership Demarcation Point	Capital Contribution Fee	Additional Services Charge to Customer (p/o Var. Connection)	Service Disconnection Fee (Initiated by Customer Request)
Underground or overhead (Requiring Transformation Facilities on private property)	<ul style="list-style-type: none"> ▪ 27.6 kV at line side of Customer's primary HV switch ▪ 44 kV Overhead at the point where Customer's primary HV aerial cable connects to Distributor's circuit; or ▪ 44 kV Underground at line side of Customer's Primary HV switch 	<ul style="list-style-type: none"> ▪ Customer charged actual costs for Connection Assets, including connections, fusing, fault indicators associated with switching equipment, and SCADA 	<ul style="list-style-type: none"> ▪ Additional or redesign due to changes in Customer initial proposal, electrical inspection more than Standard Allowance and all civil inspections and related feeder switching / scheduling 	<ul style="list-style-type: none"> ▪ Customer charged actual costs associated with the Disconnection and/or removal of Connection Assets, including cables and related equipment up to the demarcation point, and related feeder switching and scheduling

Table 5-6, Street Lighting Service: Points of Demarcation & Connection Charges

Type of Street Lighting, Distribution Systems	Operational & Ownership Demarcation Point	Capital Contribution Fee
Municipality-owned lights attached to Distributor's pole and connected to distributor's 120/240 V "house lighting" secondary bus/lines via photocell	<ul style="list-style-type: none"> ▪ a) Line side of fuse ▪ b) If no fuse, point of connection on Distributor's feed pole/lines 	▪ Customer charged actual costs for Connection Assets
Municipality-owned street lighting "controlled" circuits, poles, and equipment/lights (i.e., municipality-owned street light distribution plant) totally separate from Distributor's system	<ul style="list-style-type: none"> ▪ First point of connection past Distributor's system. ▪ Overhead: First Point of connection at Municipal owned plant. ▪ Underground: Line side of the first protective device (e.g., fuse) 	▪ Customer charged actual costs for Connection Assets

Table 5-7, Customer-Owned Transformers (Article 3.4)

Transformer Voltage		Recommended Primary Tap Voltage					
Primary	Secondary	+5%	+2.5%	0	-2.5%	-5%	-7.5%
44000 Delta	Less than 750	46200	45100	44000	42900	41800	
27600 Gnd. Delta	Less than 750						
		28980	28290	27600	26910	26220	
27600	2400/4160 Y		28290	27600	26910	26220	25530

Table 5-8, Meter Sockets (Article 2.3.7.1.2)

Self-Contained Socket Metering				
Voltage	Phase	Wire	Maximum Service Switch Size Rating Amperes	Number of Jaws Socket
120/240	1	3	200	4
208/120	3	3	200	5
208/120	3	4	200	7
600/347	3	4	200	7
600*	3	3	200	5

*Used only where grounded supply is not available

Notes:

- 1) A list of approved meter sockets is available upon request.
- 2) Meter sockets must be mounted so that the midpoint of the meter is set at 1650 mm above the finished floor.
- 3) Where the supply is grounded 600 V, metering must be 4-wire. Where the Customer does not require a neutral, a full-size neutral conductor sized in accordance with Table 17 of the Ontario Electrical Safety Code must be provided for all meter cabinets or sockets. The neutral conductor must be terminated in the socket (or cabinet) on an insulated block at the bottom centre of the cabinet, approximately 50 mm from the front edge as per the Ontario Electrical Safety Code.

Table 5-9, Meter Cabinets (Article 2.3.7.1.2)

Meter Cabinet Sizes for Transformer Rated Metering				
Voltage	Phase	Wire	Amperage	Cabinet Requirement
120/240	1	3	201 to 400	Meter base with built-in current Tx***
120/240	1	3	401 to 800	48"x48"x12"
120/240	1	3	Over 800	48"x48"x12"+30"x30"x12"
120/208	3	3	201 to 400	48"x48"x12"
120/208	3	3	401 to 800	48"x48"x12"
120/208	3	3	Over 800	48"x48"x12"+30"x30"x12"
120/208	3	4	201 to 400	48"x48"x12"
120/208	3	4	401 to 800	48"x48"x12"
347/600	3	4	201 to 400	48"x48"x12"
347/600	3	4	401 to 800	48"x48"x12"
347/600	3	4	Over 800	48"x48"x12"+30"x30"x12"
600*	3	3	201 to 400	48"x48"x12"
600*	3	3	401 to 800	48"x48"x12"
600*	3	3	Over 800	48"x48"x12"+30"x30"x12"

Notes:

- 1) Owner must supply and install a meter cabinet to contain HOB's metering equipment for main switch ratings and Supply Voltages, as shown in Table 5-9 (above).
- 2) Any service over 600 amps with more than 2 conductors per phase requires a second meter cabinet 30" x 30" x 12' connected to the first by a 1 1/4" conduit.
- 3) *Use only where grounded supply is not available (consult with HOB's Technical Services Department).
- 4) HOB will supply only the following lugs for connections to current transformers:
 - a) 250 mcm single conductor;
 - b) 250 mcm double conductor;
 - c) 350 mcm double conductor;
 - d) 500 mcm single conductor.
- 5) For all other wiring arrangements the Customer is required to supply the lugs. Contractors will supply IlSCO or Burndy Allen screw mechanical lugs, with a 3/8" hole for services 400 A and under and with a 0.5 hole for over 400 A.
- 6) ***If residential application, use 400 A socket identified in TS-08.
- 7) A meter cabinet must conform to the following specifications:
 - a) Fabricated from minimum 16 gauge steel;
 - b) Equipped with steel back plate of minimum 12 gauge, and more than 3 inches shorter than cabinet height;
 - c) Back plate must be removable and mounted to provide a clearance of 0.5 inches behind the plate;
 - d) Side-hinged doors opening at the centre;
 - e) Equipped with three-point latching and provision for padlocking;

- f) Where the Customer wishes to view meter readings, cabinet doors may be equipped with wired glass viewing windows installed in the upper door section.
- g) All meter cabinets must be installed 1.8 meters to the top (i.e., from the finished floor).

Table 5-10, Meter Load Centres (Article 2.3.7.1.2)

Ref.	Meter Load Centre Specifications (Rated 750 V or Less)
1	Side-hinged doors or panels must be installed over all sections of the switchboard where HOB may be required to work, such as un-metered sections and those sections containing breakers, switches and meter mounting devices. Hinged doors or panels must include provision for sealing and padlocking in the closed position. Where bolts are used, they must be of the captive knurled type
2	Breakers or switch handles must include provision for positive sealing and padlocking in the "OFF" position
3	Meter-mounting devices must be wired to be on the "load" side of breakers or switches
4	Each combination meter socket and breaker panel must provide adequate space for permanent Customer identification of street address and/or unit number
5	Centre of the bottom row of meter sockets must be not less than 600 mm from the finished floor, and centre of the top row of meter sockets must not exceed 1800 mm above the finished floor
6	Distance between adjacent meter socket rims in the horizontal plane must not be less than 152 mm
7	Distance between adjacent meter socket rims in the vertical plane must be as follows:
8	(a) For 100 A, 4 or 5-jaw, not less than 76 mm
9	(b) For 100 A, 7-jaw, not less than 152 mm
10	Meter mounting socket and sealing ring must be acceptable to HOB
11	Where a neutral is required, the meter-mounting device must include a pre-wired, ungrounded neutral connection to the 5th or 7th terminal. The connection, if not made directly to the neutral bus, must not be less than 12 AWG copper or equivalent
12	Meter Centre must be securely mounted to the floor and wall (site-specific), and braced to prevent movement
13	Load centres must be have HOB approval prior to purchasing

Note: Meter load centres rated 750 V or less must meet the specifications according to Table 5-10 (above).

Table 5-11, Motors: Starting Current Limitations

System Supply Voltage	Maximum Permissible Starting Current
120 V (1 Phase)	40 A
240 V (1 Phase)	75 A
208 V (3-Phase)	Starting current specified upon application to the Technical Services Department
600 V (3-Phase)	As above
4160 V (3-Phase)	As above
8320 V (3-Phase)	As above
13800 V (3-Phase)	As above
27600 V (3-Phase)	As above
44000 V (3-Phase)	As above

Notes:

- 1) Motors are subject to the starting current limitations shown in Table 5-11 (above).
- 2) Incremental starters may be used provided that current increments occur at not less than one second intervals, and do not exceed the specified limits for starting current.

Table 5-12, Welders: Starting Current Limitations

Supply Voltage	Welder Type	Maximum Permissible Nameplate Rating
120/240 V	1-Phase Resistance	9 kVA
120/208 V	3-Phase Resistance	Determined upon application to the Technical Services Department
600 V, 600/347 V	3-Phase Resistance	As above
4160 V, 8320 V	3-Phase Resistance	As above
13800 V, 27600 V	3-Phase Resistance	As above
44000 V	3-Phase Resistance	As above

Notes:

- 1) Due to their lower Demand and operating characteristics, in general arc welder installations do not cause flicker problems. However, installations with a significant number of arc welders should be reviewed by HOB prior to installation by the Customer.
- 2) Resistance welders are subject to kVA nameplate limitations as per Table 5-12 (above).
- 3) Due to the continuous fluctuations caused by the operation of arc furnaces, Customers are required to submit design features for arc furnaces to HOB's Technical Services Department for review and approval before installation.

Table 5-13 (A), Maximum Losses for Power Transformers: 3001 kVA to 5000 kVA (Min. Low Voltage of 600 V & High Voltage 44 kV & Lower

Rating		Impedance Voltage Range (%)		Maximum Loss (W)	
KVA	Minimum Low Voltage (V)	Min.	Max.	No Load (NL)	Load (L)
3001-3500	600	5	7.5	6300	18650
3501-3750	600	5	7.5	6700	19400
3751-4000	600	5	7.5	7000	20500
4001-4500	600	5	7.5	7700	22600
4501-5000	600	5	7.5	8400	24750

Table 5-14 (B), Maximum Losses for Power Transformers: 501 kVA to 5000 kVA (Min. Low Voltage of 480 V & High Voltage 44 kV & Lower)

Rating		Impedance Voltage Range (%)		Maximum Loss (W)	
KVA	Minimum Low Voltage (V)	Min	Max.	No Load (NL)	Load (L)
501-750	480	5	7.5	2200	5900
751-1000	480	5	7.5	2700	7200
1001-1500	480	5	7.5	3500	9800
1501-2000	480	5	7.5	4200	12200
2001-2500	480	5	7.5	5000	14100
2501-3000	480	5	7.5	5600	16200
3001-3500	480	5	7.5	6300	18650
3501-3750	480	5	7.5	6700	19400
3751-4000	480	5	7.5	7000	20500
4001-4500	480	5	7.5	7700	22600
4501-5000	480	5	7.5	8400	24750

5.2 APPENDIX B

The external appendices listed below contain reference material, sample agreements and other supporting information for use by HOB Customers and Developers according to these Conditions of Service. These appendices are available from HOB's website at www.hydroonebrampton.com, or by contacting HOB's Technical Services Department (see section 5.2.1).

- Appendix 1B Methodology & Assumptions for an Economic Evaluation;
- Appendix 2B Sample Offer to Connect (Residential Subdivision);
- Appendix 3B Sample Embedded Generator Connection Agreement;
- Appendix 4B Reference Guides & Technical Services (Standards/Drawings for Commercial/Industrial Services);
- Appendix 5B Reference Guides/Standards for Residential Subdivision Construction;
- Appendix 6B Sample Offer to Connect (Commercial/Industrial Subdivision);
- Appendix 7B Sample Offer to Connect (Condominium Townhouse Subdivision).

5.2.1 Guide to Appendices

The following guide provides a high-level summary of the appendices listed above.

Appendix 1B Methodology & Assumptions for an Economic Evaluation: HOB recovers the cost of expanding its distribution system according to calculations approved by the Ontario Energy Board. This appendix provides explanations for those calculations, including the rationale behind them, and explores the variables to consider for adding Commercial Industrial loading. Also included are descriptions of revenue forecasting, capital costs, expense forecasting, specific parameters/assumptions, and net present value (NPV).

Refer to this appendix before undertaking the initial design of a Commercial/Industrial project.

Appendix 2B Sample Offer to Connect (Residential Subdivision): This appendix (similar to Appendix 7B, but more specific to Residential Subdivisions) provides information on meter base locations, and servicing options. HOB provides Developers with two options (i.e., either Option A or Option B) for connecting new Residential Subdivisions.

- Option A: Turnkey Design & Installation by HOB;
- Option B: Alternative Bid Design & Installation by Developer.

The sample Residential Subdivision "Offer to Connect" explains each option and its obligations, including financial responsibilities and required commitments, enabling Developers to choose the most suitable option.

Refer to this appendix before undertaking the initial design of a Residential Subdivision.

The Underground Subdivision Data Form must be completed and submitted to the Engineering and Development Department before initiating a new Residential Subdivision project. Space is provided for contact details and other information required for a new project.

Appendix 3B Sample Embedded Generator Connection Agreement: This appendix contains an agreement which establishes the contractual relationship between HOB and

the Generator, and describes the responsibilities of each party in addition to those described in these Conditions of Service.

Refer to this appendix before completing the application to connect embedded generation within HOB's service territory.

The contacts and other information provided in this agreement will assist the Generator during the process. For additional information on embedded generation and the OPA-managed FIT/MicroFIT program, visit HOB's website at:

<http://www.hydroonebrampton.com/FIT.html>

<http://www.hydroonebrampton.com/microFIT.html>

or email HOB: fitMicroFIT@hydroonebrampton.com.

Appendix 4B Reference Guides & Technical Services (Standards/Drawings for Commercial/Industrial Services): This appendix provides HOB's requirements regarding transformers, transformer pads, Duct Banks, and metering if applying for a new Commercial/Industrial service, or upgrading the electricity supply capacity of an existing facility. Guidelines and descriptions are provided for overhead and underground supply, Transformer Vaults, and other information that Customers will need to know before initiating a new Commercial/Industrial project.

Refer to this appendix before undertaking the initial design of a Commercial/Industrial project.

The Customer Commercial & Industrial Data Form (TS-01) must be completed and submitted to HOB's Technical Services Department before initiating a project. This form will provide HOB with details regarding Customer electrical requirements.

Appendix 5B Reference Guides/Standards for Residential Subdivision Construction: This appendix provides a chart of applicable "Standards and Design Criteria for Underground Residential Subdivisions" that Developers and/or their consultants must consider when designing new Residential Subdivisions.

Refer to this appendix before undertaking the initial design of a Residential Subdivision.

Appendix 6B Sample Offer to Connect (Commercial/Industrial Subdivision): This appendix contains a sample agreement which describes the Developer's obligations, including financial responsibilities and required commitments, when requesting the installation of primary distribution feeders in a Commercial/Industrial Subdivision, and includes additional information on financial arrangements.

Refer to this appendix before undertaking the initial design of a Commercial/Industrial Subdivision.

The Underground Subdivision Data Form must be completed and submitted to HOB's Engineering and Development Department before initiating a new Commercial/Industrial Subdivision project. This form will provide HOB with details regarding Customer electrical requirements.

Appendix 7B Sample Offer to Connect (Condominium Townhouse Subdivision): This appendix (similar to Appendix 2B, but more specific to townhouse subdivisions) provides information on meter base locations, and servicing options. HOB provides Developers with two options (i.e., either Option A or Option B) for connecting new Condominium Townhouse subdivisions.

- Option A: Turnkey Design & Installation by HOB;
- Option B: Alternative Bid Design & Installation by Developer.

The sample Condominium Townhouse “Offer to Connect” explains each option and its obligations, including financial responsibilities and required commitments, enabling Developers to choose the most suitable option.

Refer to this appendix before undertaking the initial design of a Condominium Townhouse Subdivision.

The Underground Subdivision Data Form must be completed and submitted to the Engineering and Development Department before initiating a new Condominium Townhouse Subdivision project. Space is provided for contact details and other information required for a new project.