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Brantford Power Inc. Contact Numbers

Metering	519-751-3522, Ext. 5672
Customer Services	519-751-3522

Scope of Metering Specification

This Metering Specification applies to all Brantford Power Inc. (BPI) metering locations as noted:

- Overhead and underground Residential services including Net Meter services, and
- Overhead and underground Commercial and Industrial services including Net Meter and Load Displacement generation services up to and including 800A;

Where the service voltage is one of the following:

- 120/240V, single-phase, 3-wire,
- 120/208V, single-phase, 3-wire,
- 120/208V, three-phase, 4-wire, or
- 347/600V, three-phase, 4-wire.

For services greater than 800A, contact BPI Metering at 519-751-3522, Ext. 5672 for metering requirements.

For Generator Services, contact BPI Metering at 519-751-3522, Ext. 5672 for metering requirements, before commencing construction.

BPI's **Specifications for Electrical Installations** references this **Metering Specification**. In the Subdivision and Townhome Developments specification, see the section related to *Service Installation and Metering on Residential Lots*. In the General Service Customers specification, see the section on *Service Entrance and Metering*. Copies of the current versions of these documents can be found on BPI's website, www.brantfordpower.com.

General Requirements for Installations

- All generator installations require a single line diagram for review by BPI prior to the scheduling of the connection of the generator to BPI's distribution system.
- All non-residential electrical installations (loads and/or generators) require a Single Line Diagram and load calculations prior to the scheduling of the connection of the generator to BPI's distribution system.
- All poly-phase meter sockets shall be installed inside of the building on the load side of the disconnecting switch supplying the service. ***For a proposed outdoor meter socket installation, contact BPI Metering at 519-751-3522, Ext 5672 before starting any construction.***

Meter Socket Requirements – Load Meters

120/240V, single phase loads, 3 wire services up to and including 200A (≤50 kW):

- Require 4 Jaw, square type, 200A meter socket base for any underground service. The minimum size for a 200A meter socket base shall be 17" x 10" x 5" (432mm x 254mm x 127mm).
- 4 Jaw, square type, 100A meter socket base may be used for an overhead, 100A service.
- All underground connected horizontal meter troughs (ganged meter bases) shall have an integral connector position (no meter base located here). The connector position shall be located at the left or right end of the meter trough. [EATON K2 or KN1 series; HYDEL HC2, HC4 or SDC series; Thomas & Betts BDA or BS4 series; or equivalent.]

120/240V, single phase loads, 3-wire services greater than 200A up to 400A (>50kW):

- Require 5 Jaw, 20A transformer type meter socket base, complete with self-shorting device on the left side, 400:5 current transformers and twin covers suitable for 120/240V single-phase service. [EATON TCC5-4; HYDEL CT4-4; Thomas & Betts JS4A; or approved equivalent.]
- The current transformers shall be located on load side of main disconnect switch, with the exception of an integrated meter base and CT installed outside prior to the entry point of the building.
- The current transformer Test Cards shall be delivered to BPI Metering dept. a minimum of ten (10) working days prior to the planned meter installation date.
- See Interval Metering and Data Acquisition Requirements section of this metering specification.

120/208V, single phase loads, 3 wire services up to and including 200A (≤50 kW):

- Require 5 Jaw, square type, 200A meter socket base where the 5th Jaw located in the 9 o'clock position.
- Meter sockets shall be installed inside of the building on the load side of the disconnecting switch supplying the service.

120/208V, 3 phase loads, 4 wire services up to and including 200A (≤50 kW):

- Require 7 Jaw, square-type, 100A meter socket base complete with an isolated neutral connection for service sizes 60 to 100A.
- Require 7 Jaw, square-type, 200A meter socket base complete with an isolated neutral connection for services greater than 100A.
- Poly-phase meter sockets shall be installed inside of the building on the load side of the disconnecting switch supplying the service. For a proposed, outdoor, poly-phase meter

installation, contact BPI Metering at 519-751-3522, Ext. 5672 before starting any construction.

120/208V, 3 phase loads, 4 wire services up to and including 200A (>50 kW):

- Require 7 Jaw, square-type, 100A meter socket base complete with an isolated neutral connection for service sizes 60A to 100A.
- Require 7 Jaw, square-type, 200A meter socket base complete with an isolated neutral connection for services greater than 100A.
- Poly-phase meter sockets shall be installed inside of the building on the load side of the disconnecting switch supplying the service. For a proposed, outdoor, poly-phase meter installation, contact BPI Metering at 519-751-3522, Ext. 5672 before starting any construction.
- See Interval Metering and Data Acquisition Requirements section of this metering specification.

347/600V, 3 phase loads, 4 wire services up to and including 60A (≤50 kW):

- Require 7 Jaw, square-type, 100A meter socket base complete with an isolated neutral connection.
- Poly-phase meter sockets shall be installed inside of the building on the load side of the disconnecting switch supplying the service. For a proposed, outdoor, poly-phase meter installation, contact BPI Metering at 519-751-3522, Ext. 5672 before starting any construction.

347/600V, 3 phase loads, 4 wire services over 60A up to and including 200A (>50 kW):

- Require 7 Jaw, square-type, 100A meter socket base complete with an isolated neutral connection for services greater than 60A to 100A, or a 200A meter socket base complete with an isolated neutral connection for services greater than 100A up to 200A.
- Poly-phase meter sockets shall be installed inside of the building on the load side of the disconnecting switch supplying the service. For a proposed, outdoor, poly-phase meter installation, contact BPI Metering at 519-751-3522, Ext. 5672 before starting any construction.
- See Interval Metering and Data Acquisition Requirements section of this metering specification.

Meter Socket Requirements – Generator Meters

120/240V, single phase generators, 3 wire services for Net Metered Generators up to 200A:

- Require 4 Jaw, square type, 200A meter socket base for any Net Metered, 120/240 Volt service. The minimum size for a 200A meter socket base shall be 17" x 10" x 5" (432mm x 254mm x 127mm).
- Contact BPI Metering at 519-751-3522, Ext. 5672 before starting any construction.

120/208V or 347/600V, 3 phase, 4 wire services for all Generators ≤ 200A:

- Require 7 jaw, square type, 200A meter socket base complete with an isolated neutral connection.
- Poly-phase meter sockets shall be installed inside of the building on the load side of the disconnecting switch supplying the service,
- See Interval Metering and Data Acquisition Requirements section of this metering specification.
- Contact BPI Metering at 519-751-3522, Ext. 5672 before starting any construction.

120/208V or 347/600V 3 phase, 4 wire services for all Generators >200A:

- Require Remote Meter Socket and Instrument Transformer Cabinet, as outlined in this section; or
- Require Remote Meter Socket and provision for current transformers and potential transformers in the switchgear.
- Require a full size neutral available from an isolated terminal block in the Instrument Transformer Cabinet, or
- Require a #12 AWG neutral available from an isolated terminal block in the Utility section of the switchgear.
- Poly-phase meter sockets shall be installed inside of the building on the load side of the disconnecting switch supplying the service
- Require a ground wire connection point, bonded to the system ground, in the Instrument Transformer Cabinet or in the Utility section of the switchgear.
- See Interval Metering and Data Acquisition Requirements section of this metering specification.
- Contact BPI Metering at 519-751-3522, Ext. 5672 before starting any construction.

General notes on meter socket requirements:

- Meter mounting height shall be 5'8" (1.7 m) from final grade to centre of meter.
- Meter sockets shall use tunnel type lugs only or be fitted with stud to tunnel type adaptor on the line side of the meter socket.
- The Customer/contractor shall permanently and legibly identify all metered services with respect to municipal address and/or unit number. Individual units being serviced shall be clearly marked to match the identification provided at the meter base. BPI does not consider ink-based marker as permanent identification of meter bases. BPI considers labels riveted to the meter base, permanent 'peel and stick' labels as examples of permanent marking.
- The identification shall be applied to all disconnect switches and meter sockets before contacting BPI for placement of the meters. BPI will not connect services/install meters unless service identification on the disconnect switches and meter sockets correspond to the appropriate addresses and unit numbers on the customers' account. Owners of multiple unit buildings are required to inform BPI Customer Services at 519-751-3522 of any changes made to municipal address and/or unit numbers.

Commercial and Industrial Metering Requirements

Where required by this Metering Specification, the owner shall supply, install and maintain a Meter Cabinet to BPI specifications.

120/208V, 3 phase, 4 wire services over 200A:

- Require Remote Meter Socket and Instrument Transformer Cabinet, as outlined in this section, or
- Require Remote Meter Socket and provision for current transformers in switchgear.
- Require a full size neutral available from an isolated terminal block in the Instrument Transformer Cabinet, or
- Require a #12 AWG neutral available from an isolated terminal block in the Utility section of the switchgear.
- Require a ground wire connection point, bonded to the system ground, in the Instrument Transformer Cabinet or in the Utility section of the switchgear.
- See Interval Metering and Data Acquisition Requirements section of this metering specification.

347/600V, 3 phase, 4 wire services over 200A:

- Require Remote Meter Socket and Instrument Transformer Cabinet, as outlined in this section; or
- Require Remote Meter Socket and provision for current transformers and potential transformers in the switchgear.
- Require a full size neutral available from an isolated terminal block in the Instrument Transformer Cabinet, or
- Require a #12 AWG neutral available from an isolated terminal block in the Utility section of the switchgear.
- Require a ground wire connection point, bonded to the system ground, in the Instrument Transformer Cabinet or in the Utility section of the switchgear.
- See Interval Metering and Data Acquisition Requirements section of this metering specification.

Remote Meter Socket

- The Customer/contractor shall supply a 13 Jaw, transformer rated meter socket complete with test switch compartment. [EATON TSU13, HYDEL CTS130PW, Thomas & Betts CT113 or approved equivalent.]
- The Customer/contractor shall install a 1 ¼ " (35mm) conduit from the instrument transformers to the Remote Meter Socket complete with a minimum of ¼" poly pull rope.
- The Remote Meter Socket location shall be less than 50' (15.2m) from the current transformers.

Instrument Transformer Cabinet

Services up to 800A require a 36" (914mm) w x 36" (914mm) h x 12" (305mm) d, CEMA / NEMA-1 Instrument Transformer Cabinet. When BPI has approved an outdoor installation the cabinet must be rated NEMA-3 or NEMA-3R. The cabinet shall be complete with provisions for padlocking/utility sealing and securely mounted to pole or structure.
Contact BPI Metering at 519-751-3522, Ext. 5672 for the requirements for services greater than 800A.

General notes on Instrument Transformer Cabinet requirements:

- Instrument Transformer Cabinet shall be installed indoors on the load side of the main disconnect switch.
- The top of Instrument Transformer Cabinet shall be mounted at a height of 6' (1.8m) from final grade.
- Instrument Transformer Cabinet location shall be less than 50' (15.2m) from the Remote Meter Socket.
- The location of the Instrument Transformer Cabinet shall be readily accessible to, and approved by, BPI.
- The Customer/contractor shall be responsible for the installation of the Instrument Transformers in the Instrument Transformer Cabinet.
- The Customer/contractor shall supply, install and connect conductor termination lugs onto current transformers.
- For instrument transformers to be mounted in switchgear, shipping instructions shall be provided to BPI at least ten (10) working days prior to the construction of the switchgear at the manufacturer's location. Otherwise, the Customer/contractor shall be responsible for the mounting of the instrument transformers in the switchgear.
- When not already installed in cabinets or switchgear, the Customer/contractor shall supply and install a ground lug and a neutral lug (solderless and suitable for # 12 wire) in the cabinet or utility compartment of the switchgear.
- The Customer/contractor shall install a 1 ¼ " (35mm) conduit from the Instrument Transformer Cabinet to the Remote Meter Socket, complete with a minimum of ¼" poly pull rope.

- Cabinets shall be C.S.A. approved for their location and conditions; constructed from sheet steel, minimum 12 AWG, and have a baked enamel paint finish.

The following table indicates typical Meter Cabinet sizes required. Contact BPI Metering at 519-751-3522, Ext. 5672 for the requirements for services greater than 800A.

METERING CABINET DIMENSIONS

Service Size Amps	Voltage Volts	Phase	Wire	Minimum Cabinet size
>200 & ≤ 400	120/240	1	3	30x20x8
>200 & ≤ 800	120/208	3	4	36x36x12 with Remote Meter Socket
CTs in switchgear	120/208	3	4	Remote Meter Socket
>200 & ≤ 800	347/600	3	4	36x36x12 with Remote Meter Socket
CTs and PTs in switchgear	347/600	3	4	Remote Meter Socket

Meter Requirements

The following tables indicate typical metering used by BPI. In all cases the type, number, size and location of metering must be approved by BPI. Contact BPI Metering at 519-751-3522, Ext. 5672 for the requirements for services not listed in the tables.

120/240-VOLT METERS

Service Amp rating	Voltage	Phase	Wire	Interval (>50 kW)	Meter Requirements
≤200	120/240	1	3	No	S22R15F, 200A, 1.5 el., form 2 – 4 Jaw socket meter base
400	120/240	1	3	Yes	T10WVMCI, 20A, 1 el., form 3 – 5 Jaw socket, transformer rated socket meter base

120/208-VOLT METERS

Service Amp rating	Voltage	Phase	Wire	Interval (>50 kW)	Meter Requirements
≤200	120/208	1	3	No	S22N20F, 200A, 2 el., form 12 – 5 Jaw socket meter base. The 5th jaw is to be located at the 9 o'clock position and bonded to the neutral lug via #12 AWG.
≤200	120/208	3	4	No	S32Y30F, 200A, 3 el., form 16 – 7 Jaw socket meter base
≤200	120/208	3	4	Yes	S32Y30MCI, 200A, 3 el., form 16 – 7 Jaw socket meter base
>200	120/208	3	4	Yes	Metering cabinet and Remote Meter Socket. T30WVMCI, 20A, 3 el., form 9 - 13 jaw, transformer rated type with provision for test switch

347/600-VOLT METERS

Service Amp rating	Voltage	Phase	Wire	Interval (>50 kW)	Meter Requirements
≤60	347/600	3	4	No	S32Y30F, 200A, 3 el., form 16 – 7 Jaw socket meter base.
>60 and ≤ 200	347/600	3	4	Yes	S32Y30MCI, 200A, 3 el., form 16 – 7 Jaw socket meter base.
>200	347/600	3	4	Yes	Metering cabinet and Remote Meter Socket. T30WVMI, 20A, 3 el., form 9 - 13 Jaw, transformer rated type with provision for test switch

Totalized Metering Requirements

Contact BPI Metering at 519-751-3522, Ext. 5672 for details.

Metering Pulses

BPI may make available pulse outputs, excluding a timing signal, only if in the utility's opinion it is technically feasible and inventory is available. The Customer making the request shall be responsible for 100 % of the actual labour and material costs incurred to provide this service. To acquire this service the owner or contractor shall make application to BPI for the supply of metering signals. Contact BPI Metering at 519-751-3522, Ext. 5672 for details.

Interval Metering and Data Acquisition Requirements

BPI performs Interval Metering data collection using cellular technology, and analog telephone lines, when the anticipated peak demand will exceed 50 kW. Cellular technology will be used on any new service installation as of January 1, 2019. Where an existing meter uses an analog telephone line for data collection, the customer shall maintain the telephone line until the time BPI upgrades the metering to cellular technology. BPI will upgrade the meter to cellular technology when the Measurement Canada seal has expired and the meter is required to be changed.

Where Interval Metering is required, the Customer is to contact BPI at least ten (10) working days prior to the planned date for energizing to schedule the meter installation.

Where BPI requires an analog telephone line for the purpose of interval metering the customer shall:

- maintain the ongoing monthly costs of operating the telephone line required to communicate with the interval meter.
- maintain a dedicated true analogue telephone circuit to a demarcation point located at the meter socket. Where the meter socket is located outside the building, a ½" conduit is required from the demarcation point to the meter socket.
- maintain the grommet and strain relief connector for the entry of the telephone line into the cabinet or remote meter base.

If the service location has an automated telephone attendant, the true analogue telephone line can be provided via their telephone switch. When using an automated telephone attendant the new extension must be directly accessible for inbound telephone calls using a "back door" number with a unique extension.

If an automated telephone attendant is not available, it may be feasible to share the true analogue telephone circuit for an existing fax line with the use of a line-sharing device (often called a

"Stick"). The Customer shall not use any other ports on a BPI supplied line-sharing device. The Customer shall provide a 120-volt, single-phase receptacle at the line-sharing device location. In either case, the Customer's telephone contractor must supply and install the necessary programming services and equipment including a telephone circuit from their main telephone room (telephone switch) to the new meter cabinet/base. The telephone circuit must be terminated at an RJ11 modular telephone jack.

BPI normally, uses this telephone circuit to contact its meter once daily for less than two (2) minutes. This call is usually made between the hours of midnight and 6AM. BPI may, on occasion, attempt to contact the meter during normal business hours to troubleshoot a problem with either the meter or the telephone equipment.

Where BPI has provided interval metering over a telephone line, failure of the Customer to maintain reliable telephone service to the meter may result in disconnection of the Customer's electrical service.