Kingston Hydro Corporation

Electric Metering Specifications

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Approved By:

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See the Kingston Hydro Corporation web site for the latest revisions at www.kingstonhydro.com. Comments on this document can be emailed to info@utilitieskingston.com, or mailed to Measurement and Communications at P.O. Box 790, Kingston, ON, K7L 4X7. These specifications are for use by customers within the KHC service territory. This document does not replace notification and communication requirements for servicing.

Certificate of Approval

The installation work covered by this document meets the safety requirements of section 4 of regulation 22/04

Revision #	Date	Approved	Revision Notes
0	5-Jan-2015	KM	Initial Version
0.1	29-Jan-2015	KM	Updates based on N. Taylor's Comments
0.2	23-Feb-2015	KM	Updates based on S. Neilson's Comments
0.3	30-Mar-2015	KM	Updates based on K. McCauley's Review
1.0	30-Mar-2015	KM	Updated to Version 1.0, added effective date
2.0	14-Jan-2020	CD	Updated to Version 2.0, Updates based on Metering Department's comments

Contents

Preface

This specification prescribes the requirements for revenue metering equipment installations within the Kingston Hydro Corporation (KHC) service territory. It is the Customer's and/or their Electrician/Contractor's responsibility to familiarize themselves with these specifications.

KHC reserves the right to refuse to energize any part of the electrical plant that does not conform to these specifications. KHC assumes no responsibility whatsoever for the cost of repairs, or delays in energizing the system, incurred as a result of disregarding these specifications.

The latest edition of the Ontario Electrical Safety Code shall apply unless otherwise stated in these specifications. The Customer and its agents are to familiarize themselves with, and abide by, all relevant Provincial statues and Municipal By-Laws. Such relevant regulations include in part, the Occupational Health and Safety Act and Regulations for Construction Projects, Kingston Hydro Corporation Conditions of Service, and these specifications. Also applicable are City of Kingston By-Laws.

All customer/consumer electrical installations shall be inspected and approved by the Electrical Safety Authority (ESA), and shall meet KHC requirements. Utilities Kingston (UK) requires notification from the ESA of this approval prior to the installation of revenue metering, service upgrades, or change in electrical service, before the service can be energized.

KHC is regulated by the Ontario Energy Board (OEB) and complies with section 3 of the Distribution System Code, which outlines the requirements for connections and expansions.

Section 1 provides general KHC and customer responsibilities. Sections 2, and 3 provide technical requirements. Additional metering requirements are listed in the OEB's Distribution System Code. Metered Market Participants in the Independent Electricity System Operator (IESO) administered wholesale market must meet or exceed all IESO metering requirements. For water, or gas metering specifications please see the appropriate Utilities Kingston Metering Specification.

Generally, metering will be at utilization voltage. Where primary transformation is provided by KHC, primary metering will be allowed in special circumstances, following full review with UK. Primary transformation supplied and owned by the customer/consumer must be primary metered.

For both primary and secondary services in all customer classes, UK will designate a supply point at a nominal service voltage, as outlined in the KHC conditions of service. In all cases, the final supply point will be decided by UK.

In all installations, where the customer/consumer requests revenue metering remote from the secondary entrance equipment, or downstream from a customer/consumer owned dry-core

transformer, provisions are required for a bulk meter directly after the main switch. This bulk meter is required in addition to any public metering provisions, and provides a means of determining line and core loses.

In all cases, the Customer/Consumer shall consult with UK prior to the start of work to determine specific metering requirements. Meters will not be installed unless all applicable requirements have been met. The location of service entrance and meter bases must be determined in consultation with UK.

The most recent version of these metering specifications shall be enforced in the following situations;

- A service upgrade, where the customer/consumer changes from a fuse panel to a breaker panel, regardless if the service conductor or the standpipe are changed.
- Any services where the standpipe or conductor in the standpipe must be repaired, due to failure or storm damage.
- Any meter installations that have an A-base or A-frame meter type inside or outside, a small, or round aluminium meter socket base outside.

All revenue metering installations shall be inspected and approved by UK prior to being energized.

1.0 Responsibilities

1.1 Kingston Hydro Corporation

KHC shall own revenue meters, instrument transformers, interconnecting wiring, ancillary devices, secondary wiring, seals, and other related equipment for revenue metering.

1.2 1425445 Ontario Limited (Utilities Kingston)

Utilities Kingston (UK), when requested, shall supply and maintain revenue meters, instrument transformers, interconnecting wiring, ancillary devices, secondary wiring, seals, and other related equipment for revenue metering in a timely manner and in compliance with applicable legislation, KHC's Metering Specification, and KHC's Conditions of Service.

1.3 The Customer/Consumer

1.3.1 The Customer/Consumer shall comply with these specifications for each type of electrical service listed, KHC's Conditions of Service and all applicable legislation.

1.3.2 Detailed power riser diagrams and drawings showing metering provision and arrangement for all commercial services with mains in excess of 600A and/or 600V and services with meter centers shall be submitted to KHC/UK for approval before construction begins.

1.3.3 Prior to issuing a service order to have the metering equipment installed and the service energized, the customer must contact KHC/UK's Service Advisor group (613-546-1181 x2285) and sign the "Electrical New Service & Service Change Request" form.

1.3.4 The customer/consumer shall be responsible for the care and safekeeping of KHC's revenue meters, wire and ancillary equipment on the customer's premises. If any KHC equipment on the customer's premises is damaged, destroyed, or lost, other than by ordinary wear and tear, tempest or lightning, or during any and all phases of construction in the area of a KHC meter installation, the customer/consumer will be held responsible. The customer/consumer shall ensure that the meter is suitably protected while work is being done adjacent to the meter. The customer/consumer shall be entirely responsible/liable for all costs incurred relating to materials and labour for repairing or replacing a damaged meter, or metering equipment that has been damaged through the customer/consumer's action or neglect.

1.3.5 The customer/consumer shall ensure that the customer owned equipment is properly identified and connected for metering and operation purposes. The customer must take whatever steps necessary to correct any deficiencies, in particular cross wiring situations, in a timely fashion. If the customer/consumer does not take such action within a reasonable time, Utilities Kingston will take action, up to and including, disconnecting the supply of power to the customer/consumer.

1.3.6 The customer/consumer shall be responsible for payment to KHC/UK for the provision of revenue meters, instrument transformers, interconnecting wiring, ancillary devices, and secondary wiring. The customer/consumer will not own this equipment.

2.0 General

This section refers to the general metering requirements applicable in the majority of service applications. Further details and requirements are given in Section 3.

2.1 Access

2.1.1 UK shall have access to Customer/Consumer property to install, read, and maintain metering equipment on behalf of KHC, in accordance with these requirements and Section 40 of the *Electricity Act*.

2.1.2 The Customer/Consumer must provide or arrange free, safe, and unobstructed access during regular business hours to an authorized representative of KHC or UK for the purpose of meter reading, meter changing, or meter inspection. Where the premises are closed during KHC/UK's normal business hours, the Customer must, on reasonable notice, arrange such access at a mutually convenient time.

2.1.3 In the event of a meter center/room, the Customer shall be responsible for supplying a key to UK. UK may request that the lock be keyed to KHC/UK specifications.

2.1.4 If KHC/UK staff must enter the building and access the electrical panel other than on the main floor, there must be a proper stairway with a handrail, and proper/sufficient lighting that leads to the location of the electrical panel.

2.1.5 No person, except those authorized by KHC, may remove, connect, or otherwise interfere with KHC's meters, wires, ancillary equipment or seals. The Customer will be responsible for the care and safekeeping of KHC meters, wires, and ancillary equipment on the Customer's premises. For deliberate damage to, or negligence of KHC equipment, other than by ordinary wear and tear, wind or lightning; the Customer will be liable to pay KHC/UK the value of such equipment, or at the option of KHC/UK, the cost of repairing the same.

2.1.6 An adequate working space in front of equipment, with a radius not less than 1m (39") and a minimum ceiling height of 2.1m (83") for the full width of the installation shall be maintained at all times. The floor surface shall be solid and flat with no more than a five degree slope. This space shall not be used for storage, etc. Noticeable, repetitive obstruction of this working space can be remedied by KHC/UK notifying the Fire Department and Electrical Safety Authority (ESA).

2.1.7 Unobstructed working space in front of equipment shall be maintained, free from or protected against, the adverse effects of moving machinery, vibration, dust, moisture, or fumes.

2.1.8 Metering equipment can not be located in space that could become a confined space.

2.1.9 Any compartments, cabinets, boxes, sockets, or other work-space provided by the Customer for the installation of KHC's metering equipment shall be for the exclusive use

of KHC. No equipment, other than that provided and installed by KHC/UK, may be installed in any part of the KHC metering workspace.

2.1.10 Where there is the possibility of danger to KHC/UK employees or damage to equipment from moving machinery, dust, fumes, moisture, vandalism, etc., protective arrangements satisfactory to KHC/UK and the ESA shall be made.

2.1.11 All site installations will be considered as “Safe Work Site Areas”. A safe work site area will be determined when the meter installer is on location. If a work site is deemed unsafe or there are safety concerns by the installer, there will be a delay in the installation of the meter.

2.1.12 If, in the opinion of KHC/UK, building additions, alterations, fencing, tree growth, or obstruction, etc. render the meter inaccessible for reading and/or servicing, the meter will be relocated to a KHC/UK approved location at the Customer’s expense. Where such a condition exists, the Customer will be granted 30 days to relocate the meter to ensure suitable access.

2.1.13 The location of metering equipment must allow for service access from the outside, or main hallway, and not from an adjoining room. Service access must be readily accessible to KHC/UK employees, and agents, during business hours in order to permit meter reading, and the changing, or maintenance of meters and metering equipment. Access to the metering equipment must be equipped with a locking system acceptable to KHC/UK. A key may be left with UK for access. Alternatively, the customer/consumer shall install a secure dual-pad bolt locking arrangement, so that KHC’s padlock can be installed alongside the customer/consumer padlock.

2.2 Location

2.2.1 All meters and meter cabinets shall be mounted level in the horizontal and vertical planes.

2.2.2 Meters are to be mounted at a height of 1.7m (5’6”) +/- 100mm (4”) when measured from finished grade to the centre of the meter face.

Outdoor (Single Phase Only):

2.2.3 Meter bases shall be mounted on the exterior of the building within 3m (10’) of the front corner of the building. The front of the building is that which is the closest point of supply as determined by the UK Service Advisor.

2.2.4 No part of the meter base is permitted to be above central air conditioners, window wells or any obstacles that prevent access to meter (i.e., Fences).

2.2.5 No part of the meter base is permitted within 1m of a gas meter.

2.2.6 A temporary finished grade may be permitted only if the KHC/UK meter installer agrees the grade is acceptable and the surface area is safe to work on. This temporary grade

condition must still meet the terms of item 1.10 and 1.22. This is only a temporary condition until final grading can be completed. The “permanent” finished grade should not be altered in any way after the meter had been installed.

Indoor:

2.2.7 If a metering centre is used, the minimum height allowed for the bottom row of meters is 610mm (24”) and the maximum height allowed for the top row of meters is 1.7m (5’6”) +/- 150mm (6”) as shown in Drawing EMS-5. Both dimensions are measured from finished floor elevation to the centre of the meter face.

2.2.8 Metering cabinets, if required, shall be mounted at 1.83m (6’) +/- 50mm (2”) with the exception of a 1200mm x 1200mm x 300mm (48” x 48” x 12”) meter cabinet which shall be mounted at 1.98m (6’6”) +/- 50mm (2”) from the finished floor elevation to the top of the metering cabinet. All cabinets to be mounted with the right door opening first. Cabinets shall be NEMA 4 rated or better.

2.2.9 The Customer’s main switch shall be installed so that the top of the switch is 1.83m (6’) or less from the finished floor elevation. The Customer’s main switch shall permit the sealing and padlocking of the handle in the “open” position and the cover or door in the “closed” position. Operation of the Customer’s main switch shall be the Customer’s responsibility.

2.3 Technical Requirements

2.3.1 Metering will typically be done on the low voltage side of the KHC or customer owned transformer (secondary metering). Primary metering may be provided at the discretion of KHC/UK. For primary metering details, refer to section 3.5.

2.3.2 In order to preserve the integrity and accuracy of KHC’s metering systems, no devices other than those required for KHC’s purposes shall be permitted to be connected to the metering circuits. Any metering or load control equipment required by the Customer must be connected to the Customer’s own current and voltage transformers which must be installed on the load side of KHC’s metering equipment. Any secondary arresters, power factor correction capacitors, ground fault indicator lights, or other Customer equipment must also be connected on the load side of KHC’s metering equipment. All Customer connections shall be made to the load side of KHC’s metering.

2.3.3 Customer owned metering or load control equipment cannot be installed in the same metering cabinet or metering switchgear cell, as those of KHC.

2.3.4 The Customer is required to supply, install, and maintain a KHC approved meter socket for the use of KHC’s self-contained socket meters.

2.3.5 The Customer is required to supply, install, and maintain a KHC approved meter cabinet for the use of KHC’s transformer rated meters.

2.3.6 All meter bases must be equipped for terminations approved for KHC's copper or aluminum cables and be equipped with a security ring.

2.3.7 Any conduits for the exclusive use of KHC shall have no more than three 90° bends. No fittings with removable covers are permitted. The customer or contractor shall install nylon or poly rope pull line in the conduit with an excess of 200mm (8") loop at each end.

2.3.8 For overhead services, the meter base must meet the requirements of the ESA.

2.3.9 For underground services, the meter base must meet the requirements of the ESA and be on the approved KHC list. For the current list of approved meter bases for underground services refer to Tables 1, 2, and 3.

2.3.10 Meter mounting devices for use on Commercial/Industrial accounts shall be installed on the load side of the Customer's main switch and located indoors. The Customer is required to supply and install a 4, 5, 7, or 13-jaw, CSA approved meter socket. Where a neutral connection to the meter socket is required, it shall be not less than #12 AWG copper or equivalent and made directly to the neutral bus.

2.3.11 Barriers are required in each section of switchgear or service entrance equipment between metered cell and all adjacent cells.

2.3.12 Side-hinged doors shall be installed over all live electrical equipment where KHC/UK personnel may be required to work (i.e., line splitters, un-metered sections of switchgear, breakers, switches, metering compartments, meter cabinets and enclosures). These hinged doors shall have a metal latch with provision for sealing and padlocking. Where bolts are used, they shall be of the captive knurled type. All outer-hinged doors shall open no less than 135°. All inner-hinged doors shall open to a full 90°.

2.3.13 Each detached, semi-detached, or row housing unit (freehold or condominium) will be separately metered by a meter that is located outside. For condominium row housing, all meter bases for each block must be installed using KHC/UK approved ganged meter bases located on one end of each block (as per the design drawing). The Customer is responsible for the extension of the unit services from the meter to the individual units. The individual units must be numbered and identified in accordance with Section 2.5 and Drawing XXX. Refer to section 3.2 for further details on multi-unit metering.

2.3.14 Meter base / cabinets shall be installed downstream (on the load side of) the main disconnect for three phase services.

2.3.15 Meter bases shall be upstream (on the line side of) the main disconnect switch for single-phase services.

2.3.16 Meters for new or upgraded residential services will be mounted outdoors on a meter socket approved by KHC/UK (Tables 1 and 2). The meter base cover plate must be removable (i.e. not enclosed) in order to allow KHC/UK maintenance access.

2.3.17 When a residential customer is upgrading their service capacity, and the meter is inside, it must be moved outside to a KHC/UK approved location at the Customer's expense.

2.4 Meter Rooms

2.4.1 Lighting levels of at least 6 lux (65 footcandles) shall be maintained.

2.4.2 No water, gas, sewer, or other pipes, communications wire or equipment will be permitted to encroach on the safe working space requirements, as viewed by KHC/UK, of the metering. Where a meter room is provided, no items in the vicinity of the room can present a hazard to KHC/UK employees or agents.

2.4.3 Meter rooms, for multi-unit metering, shall be accessible to KHC/UK via an outside lockable door at grade level. The minimum door dimensions shall be 2000mm x 810mm (6'8" x 2'8"). The Customer shall be responsible for supplying a key for the door to KHC/UK. KHC/UK may request that the lock be keyed to KHC/UK specifications.

2.4.4 In specific instances and at the sole discretion of KHC/UK, the requirement for an outside door may be waived (i.e. a high rise apartment building where meter rooms may be required to be located on more than one floor).

2.5 Service Identification

2.5.1 Customers shall permanently and legibly identify all metered services with respect to unit number and/or civic address. The units, meter bases, and main panel disconnect switches must have permanent unit numbers installed prior to the installation of any metering apparatus according to drawing EMS-1.

2.5.2 The Customer must inform KHC/UK in writing if changes are made to unit numbering and will be liable to pay KHC/UK any incurred costs as a result of unit re-numbering. Customers may initiate this process through the UK Service Advisor department.

3.0 Equipment Requirements

3.1 Single Phase

3.1.1 For servicing details, refer to Drawings EMS-3, EMS-4, EMS-6.

3.1.2 For underground or overhead service meter relocations refer to drawing EMS-3, EMS-4.

3.1.3 Each detached, semi-detached, or linear row housing unit shall be separately metered, see further details in section 3.2.

3.2 Multi-Unit Sites

3.2.1 The customer shall consult with Utilities Kingston before construction of the building begins to determine the metering requirements.

3.2.2 The customer or a representative must be present at the time of meter installation and assist in the verification of each unit. Utilities Kingston needs to be notified to arrange a day and time (during normal business hours) to meet on site.

3.2.3 The developer and/or electrician shall provide KHC/UK with the following, prior to the service being energized:

a) All keys required to gain access to the metering room.

b) A copy of the building layout, indicating the municipal address and permanent unit numbers, for each floor if applicable, duly signed by the electrician or developer as correct.

c) A copy of the meter panel layout, indicating the correct corresponding permanent unit numbers, for each floor if applicable, duly signed by the electrician or developer as correct.

3.2.4 The units, doors, meter bases and main disconnect switches must have permanent unit numbers installed prior to the installation of any metering apparatus according to drawing EMS-1.

3.2.5 Examples of the equipment layout for multi-unit metering are shown in drawings EMS-3, EMS-4, EMS-5, EMS-6, EMS-8.

3.2.6 The current list of approved 120V/240V single-phase meter bases for multi-unit services is in Table 1.

3.2.7 Ideally all condominium dwelling units including high rise buildings will be metered individually, other solutions and or arrangements for bulk or individual unit metering may be available upon customer’s request.

3.2.8 All new apartment buildings will be individually metered by KHC. For all existing apartment buildings, the owner may choose to switch from bulk metering to KHC individual metering. There will be no cost to building owners for unit meters, or the installation of said meters into meter sockets.

3.2.9 For row housing (condominium) all meter sockets for each block must be ganged. The owner is responsible for the unit services from the meter to the individual units. Contact UK for alternate installation possibilities and approval.

3.2.10 For a shopping plaza and industrial mall metering, each separate store, shop, or industrial unit located in that shopping plaza shall be individually metered.

3.2.11 The demarcation point between KHC and the customer, on multi-unit sites, shall be the secondary lugs of the distribution transformer.

3.4 Metering Cabinets

3.4.1 Without Switchgear

a) The customer will supply and install a 900mm x 900mm x 300mm (36” x 36” x 12”) or a 1200mm x 1200mm x 300mm (48” x 48” x 12”) depending on service size, metering instrument cabinet indoors, after the main disconnect for the services. The instrument cabinet shall be complete with a removable backplate and two (2) side hinged opening doors.

b) Customer will supply and install a CT 113 meter base connected to the Meter instrument cabinet with 38mm (1.5”) continuous run of EMT conduit with a maximum length of 65’.

c) The customer will supply and install a #6 copper bonding conductor with green insulation, and a suitable bonding lug. This bond must be connected to the main service ground point. Within 150mm to 200mm (6” to 8”) after entering the instrumentation cabinet, connect the bond at the bonding lug and continue a tail long enough to reach the lower right corner of the backplate. Routing and connection of this bond is shown in drawing EMS-2

d) Bar type current transformers will be used when the main switch is located more than 12” from the instrument cabinet. The Customer’s electrician shall supply all necessary lugs, and connection hardware.

e) The customer or contractor will contact UK to arrange a time for backplate drop-of during regular business hours. Allow 10 working days for KHC/UK staff to build and install the metering equipment. Upon completion, Utilities Kingston will notify the Customer or contractor and arrange a day and time (during normal business hours) to meet on site for delivery of the backplate. It is the customer’s or contractor’s responsibility to install the backplate at the time of delivery.

f) Within 10 working days of meter backplate installation, the customer will supply and install a grounded 120VAC duplex receptacle, fed from a dedicated 15A single-pole breaker, routed via EMT. Wiring to receptacle to be kept to minimum length.

g) Interval meters will be installed for all new or upgraded services where the monthly average peak demand over a calendar year is forecast to be 200KW or greater.

3.4.2 With Switchgear

For three-phase services greater than 200 amperes with switchgear:

a) Refer to drawing EMS-9 for equipment requirement and layout details.
b) The Customer shall provide at least 2 sets of original switchgear drawings from the manufacturer. Any discrepancies between the submitted drawings and the

equipment on-site will require re-submittal of new drawings. KHC/UK will not provide comment on “as-built” switchgear drawings. Any deficiencies caused as a result of not coordinating switchgear drawing approval beforehand must be remedied by the Contractor/Customer at their expense. All switchgear drawings are subject to approval by KHC/UK, and must also include the following manufacturer contact information:

a. Project and Job Number
b. Complete shipping address for the instrument transformers
c. Full name and phone number(s) of the contact person(s)

c) The Customer will provide a separate lockable instrument transformer compartment on the load side, and immediately adjacent to the main disconnect. This compartment is to be permanently identified “For Supply Authority Use Only”.
d) The metering cabinet shall be complete with a removable backplate and two (2) side-hinged, centre opening doors. Mounted with the right door opening first. The cabinet shall be NEMA 4 rated or better.
e) KHC/UK will provide the necessary current and potential transformers and these can either be shipped to the switchgear manufacturer (with reasonable notice) or installed locally by the Customer/Contractor. KHC/UK will not be responsible to install these transformers or perform any bus modifications.
f) The Customer will supply and install a #6 copper bond conductor with green insulation, and a suitable bonding lug. This bond must be connected to the main service ground point. Within 150 to 200mm (6” to 8”) after entering the metering cabinet, connect the bond at the bonding lug and continue a tail long enough to reach the lower right corner of the backplate. Routing and connection of this bond is shown in drawing EMS-2.
g) The Customer will supply and install a grounded 120VAC duplex receptacle, fed from a dedicated 15A single-pole breaker, routed via EMT. Wiring to receptacle to be kept to a minimum length.
h) An approved 13-jaw meter socket base shall be supplied and installed by the customer/consumer in an approved location. The customer/consumer shall supply a 38mm (1.5”) conduit from the 13-jaw meter socket base to the instrument transformer compartment. If this distance is greater than 20m (65’) then a 50mm (2”) conduit shall be installed to accommodate larger sized metering wire, to a maximum of 30m (100’).
i) The Customer or contractor will contact UK when all conduit work is completed, IT, meter cabinet, and 120VAC duplex receptacle are installed. Allow 10 working days for KHC/UK staff to build and install the metering equipment.
j) Interval meters will be installed for all new or upgraded services where the monthly average peak demand over a calendar year is forecast to be 200kW or greater.

3.5 Primary Metering

3.5.1 Primary metering may be a requirement of KHC. A deposit payable in full to KHC is required before KHC/UK orders such equipment. KHC will retain ownership of primary metering equipment.

3.5.2 Each primary metered service is reviewed thoroughly and on an individual basis. The Customer and/or its agent shall submit to KHC/UK all required switchgear and electrical single line drawings in a timely manner to allow for KHC/UK's reviews and comments. Drawing submissions in hardcopy only unless electronic copies specified.

3.5.3 Primary metering potential transformers in customer-owned switchgear shall be installed in a manner that permits fuse and/or PT replacement, while service is energized via:

a) PT's and fuses mounted on a tilt-out drawer or slide-out tray, or

b) Fuses mounted on a slide-out tray with PT's in a separate compartment,

Allowing for all of the following positions:

a) Connected
b) Isolated
c) Grounded

Provisions for padlocking to be provided for the connected and grounded positions.

3.5.4 The PT/fuse compartment(s) must be fully barricaded from remaining compartments to permit servicing of PT or fuses while the remainder of switchboard is energized.

3.5.5 All clearances as per the Electrical Safety Code and field modifications are subject to Electrical Inspection by the ESA.

3.5.6 Contact KHC/UK early in the design stage to begin the review as additional standards and requirements for primary metering may apply. Please note that KHC/UK does not stock either PMU's (Primary Metering Unit) or PMT's (Primary Metering Transformer) and that this equipment typically has long lead times.

3.6 Interval Metering

3.6.1 Interval meters will be installed for all new or upgraded services where the monthly average peak demand over a calendar year is forecast to be 200 kW or greater. For any other customer, please contact KHC/UK for availability. The customer will be responsible for the installation and ongoing monthly costs of operating the communications system required to communicate with the interval meter.

3.6.2 The customer may contact KHC/UK to obtain access to interval data provided via an internet accessible website.

3.6.3 All customers installing new or upgraded three phase services sized at 225Amperes or greater (at 600V), 800 Amperes or greater (at 120/208V) and any primary service, are required to supply and maintain a dedicated 15Amp receptacle.

3.6.4 The following requirements should be reviewed with the person(s) responsible for the service's internal telephone system;

The owner/customer must provide KHC/UK with 24 hr / 365 day telephone line access to the electric meter. Options in order of preference are;

a) Dedicated, direct-access ANALOG line bypassing any switchboard or call processing equipment (No DSL on line).
b) Dedicated ANALOG extension if going through the customers automated switch. Digital extensions are allowed if there is a by-pass available. The customer's system must provide 24hr / 365 day access to the meter.

Shared ANALOG voice or telephone lines with alarm monitoring equipment (fire, break-in, equipment failure, etc.) will be considered with consultation with Utilities Kingston. Carrier provided features such as Call Display, Call Answer, or DSL service are not acceptable.

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 meter cabinet. The telephone circuit must be installed in a 12.7mm (½") conduit from the telephone room to the meter cabinet and terminated with a RJ11 modular telephone jack. The RJ11 jack must be mounted inside the meter cabinet within 150mm (6") of the electric meter. Refer to drawing EMS-9.

3.6.5 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. The extension must be labelled "For Use by KHC Equipment" only in the main telephone room.

3.6.6 KHC/UK's normal use of this telephone line will not burden the telephone switch or fax line with many calls. KHC/UK normally uses this telephone circuit to contact its meter one time daily for less than five minutes. This call is usually made between the hours of 8am and noon. KHC/UK may, on occasion, attempt to contact the meter during normal business hours to troubleshoot a problem with either the meter or the communications equipment.

3.6.7 At all existing locations the customer shall have a working phone line for the electric meter when the service is energized.

3.7 Pulse Outputs

3.7.1 Customers may request access to KHC's real time meter data for the purpose of supplying inputs to their energy management systems. For most three-phase services greater than 200 Amperes, KHC will provide the customer access to certain KY metering pulse output(s) after completing a site review and quotation for the Customer. There may be long lead times on this equipment.

3.7.2 KHC requires isolation between its metering equipment and the customers equipment. The customer will be required to purchase a barrier board to provide this isolation.

3.7.3 The customer will be responsible for all costs associated with supplying the metering pulse outputs. Any damage to UK's metering equipment as a result of being connected for pulse outputs or other will be the responsibility of the customer for equipment replacement costs and labor to repair damage.

3.7.4 The "KHC Metering Pulse Output(s) Access Agreement" must be completed

3.8 Fire Equipment

3.9.1 If a separate service for a fire pump has been deemed necessary to comply with legislation, codes, or regulations under emergency conditions involving a fire, KHC will offer it subject to the following additional requirements;

a) A single line diagram showing the connection of the fire pump and meter base voltage and current ratings shall be submitted to KHC/UK.

b) The main disconnect and meter base for the fire pump service shall be located in the same room as the main breaker for the overall service.

c) Laminated warning cards must be located at both the main disconnect for the fire pump service and at the main disconnect for the main secondary service (permanently affixed). They must be red and white lettering and the lettering must be a minimum of 12.7mm (½") in size. Wording on these cards must be "Fire Pump Installed Ahead of Main Breaker. Two (2) separate points of secondary supply exist in this room. There is a possibility of electrical back feed."

APPENDIX A – Metering Pulse Output(s) Access Agreement

I have the authority to bind the customer;

Name	
Signature	
Title	
Date	
Address	
Account Number	
Phone Number	
E-Mail	
Authorized Representative	

For Utilities Kingston, On behalf of Kingston Hydro Corporation;

Name	
Signature	
Date	
Meter(s)	

Once the completed and un-signed Agreement is mailed or emailed to Utilities Kingston, a detailed summary of the metering information required to enable the Customer/Assigned Representative to have isolated access to the metering installation will be emailed to the Customer. This summary will include details on equipment and costs that the customer shall pay.

The customer shall indicate acceptance of the summary and obligation to pay by signing this agreement and emailing it back to Utilities Kingston.

APPENDIX B – Tables

Table 1 – Approved Individual Single-Phase Meter Bases

Capacity	Service	Manufacturer	Model
200 Amp	Overhead	N/A	Must be 4 jaw, approved by the ESA
200 Amp	Underground	Cutler-Hammer (Eaton) Microelectric (Thomas & Betts) Hydel	LM2 or LU2 BS2-TCV or BS2-TV EK400RO or EK400TO
200 Amp	Multi-Unit Residential	Cutler-Hammer (Eaton) Microelectric (Thomas & Betts) Hydel	2KU4CLX to 6KU4CLX BSC42-VG to BSC46-VG MSC820TW to MSC860TW
400 Amp	Overhead & Underground	Cutler-Hammer (Eaton) Microelectric (Thomas & Betts) Hydel Durham/Jesstec	TCC5 JS4A-TW CT4 SSV410DT

Table 2 – Approved Commercial 7-Jaw Meter Socket Bases

Capacity	Service	Manufacturer	Model
200 Amp	Overhead	Cutler-Hammer (Eaton) Hydel	P27-IN2 STC703RK
200 Amp	Overhead & Underground	Microelectric (Thomas & Betts)	PL27-IN-TCV

Table 3 – Approved Commercial 13-Jaw Meter Socket Bases

Capacity	Manufacturer	Model
>225 Amp	Cutler-Hammer (Eaton) Microelectric (Thomas & Betts) Hydel Durham	TSU13 CT113 CTS130PW RSTS13-2A

APPENDIX C – Drawings