

8. REVENUE METERING

8.1 Introduction

The purpose of this section is to outline requirements of the customer, as set forth herein by PSEG Long Island, as they pertain to Electric Revenue Metering at Primary and Secondary Level Service Installations. These requirements pertain to all revenue metering and associated equipment, and any other equipment that may be required, but is not specifically referenced herein, to provide for complete and operational revenue metering system installation.

- 8.1.1** The breaking of seals, tampering with meters, unmetered wiring, or removal of revenue metering equipment is prohibited. Section 165.15 of the New York State Penal Laws make such unauthorized tampering a misdemeanor, punishable by fine or imprisonment or both.
- 8.1.2** Under no circumstances shall a service entrance be left unmetered. Notify the Company if an unmetered service is encountered.
- 8.1.3** PSEG Long Island shall be the sole supplier of all revenue metering potential and current transformers, all electric revenue meters, and related accessories.
- 8.1.4** PSEG Long Island will furnish and install all meters and metering transformers required for billing purposes. However, the contractor will be responsible for installing window type current transformers.
- 8.1.5** All 480Y/277 volt installations shall be transformer rated, and require prior PSEG Long Island approval. Self-contained installations at this voltage will not be approved.
- 8.1.6** The Company shall be contacted for all primary level service metering and connections.
- 8.1.7** All single meter services must be hot sequenced.
- 8.1.8** In an underground secondary network area, all metering and fire pumps must be installed on the load side of the main switch.

8.2 Meter Location and Clearance Requirements

8.2.1 A suitably located and adequately protected meter location shall be provided to ensure meter accuracy, and to facilitate meter access, reading, and testing, without undue inconvenience. Meters shall be located on the front or side of the building. Meters installed on H-frames for rear property pole lines must be placed along the front or side of the building to facilitate meter access, not in the rear of the property. Other locations must be approved by PSEG Long Island.

8.2.2 On new installations, the meter location shall be outside the customer's building. While it is PSEG Long Island's general practice to require its meters to be installed outdoors, indoor installations may be allowed at the option of PSEG Long Island. However, residential meters must be outside. Clear path to meter and/or transformer must be maintained, free of plantings and obstructions.

8.2.3 Indoor meter installations shall be within 5 linear feet from the point where the conductors enter the building. Meters shall **not** be installed in the following locations:

- where they would be subjected to vibration or mechanical damage
- near moving machinery
- in transformer vaults, or attached to pad mount transformers, or in meter pits
- in hallways, stairways, or under stairways
- in bedrooms, attics, store windows, behind shelves, in bathrooms, or toilets
- in storage closets
- other areas deemed hazardous by PSEG Long Island

8.2.4 An unobstructed space of 12" on each side of the meter pan, 4' in front of each meter enclosure (floor to ceiling), and 2" between meter sockets must be provided. A 4" spacing must be maintained from the bottom of a self-contained meter pan to any obstruction. The height to the top of the meter glass shall not be less than 3', nor greater than 6', for self-contained meters, or in the case of Tran-S meter enclosures, the minimum height shall not be less than 4', nor greater than 6';. Meter pans must be clear of any window and/or window framing.

An obstruction is anything that has a greater profile than the metering equipment or restricts access to the metering equipment.

8.2.5 In multiple occupancy buildings, of three (3) or more stories above street level, the installation of unmetered risers, in rigid conduit, to a single approved accessible metering location, on alternate floors may be permitted in accordance with the latest adopted NEC. The disconnecting means, at the point of service entrance, must indicate the floor levels controlled. Under these circumstances, PSEG Long Island will not be responsible for maintaining an adequate voltage level beyond the service taps. PSEG Long Island reserves

the right to prohibit the installation of meter rooms, other than one (1) adjacent to the point of service entrance.

- 8.2.6** Meter pans may be installed above standard height requirements in flood area only if accommodations are made for accessibility that meet all required clearances and local building codes. All requirements for railings, clearances and stairs apply.

8.3 Equipment Requirements

Only PSEG Long Island approved metering equipment, identified in the latest edition of the “Electric Meter Enclosures and Accessories” list, shall be utilized. The customer shall be responsible for the procurement and installation of all equipment, as outlined herein. The PSEG Long Island “Electric Meter Enclosures and Accessories” list can be found on the PSEG Long Island website:

(<https://www.psegliny.com/buildingrenovationservices/codesandstandards>). The list will be revised and updated by PSEG Long Island, as necessary. PSEG Long Island gives no warranty, expressed or implied, as to the adequacy, safety, or other characteristics of any equipment, wiring of devices, and assumes no responsibility with respect thereto.

8.3.1 All metering enclosures and their associated assemblies used in the service area, shall be UL approved and bear the UL label. Metering enclosures and their associated assemblies used in the Fifth Ward of Queens, New York City, shall also meet the requirement of the Department of Public Works, Bureau of Gas and Electricity of the City of New York.

8.3.2 Meter and current transformer mounting equipment, and its installation, shall meet, at a minimum, the requirements, as set forth in the following codes and standards as they may pertain:

- National Electrical Code (NEC) (latest adopted)
- National Electrical Safety Code (NESC)
- Local Municipal Code
- Federal Emergency Management Agency (FEMA)
- New York State Uniform Building Code

It is the responsibility of the customer to ascertain that this equipment meets the requirements of all other authorities having jurisdiction.

8.3.3 A triple neutral lug for a bonding conductor is required for all individual self-contained meter sockets.

8.3.4 Three Wire – Single Phase Service meter pans shall be ringless type equipped with:

- fifth jaw in the 9 o'clock position
- lever operated, jaw release bypass
- plastic safety shield over the jaws
- insulating barriers between the wiring terminals and bypass blades

8.3.5 Four Wire – 3-Phase Service meter pans shall be ringless type equipped with:

- seven (7) jaws
- lever operated, jaw release bypass
- plastic safety shield over the jaws (plastic may be clear or opaque)
- insulating barriers between the wiring terminals and bypass blades

- 8.3.6** Metering enclosures shall not be altered. Only factory supplied knockouts are permitted. Field-made knockouts, or any other field alterations, will void the UL approval, and will not be accepted.
- 8.3.7** Multi-stack meter mounting equipment shall be used, as allowed by the manufacturer's instructions. Field-made penetrations (knockouts) on multi-stack metering mounting equipment will be allowed, when made in accordance with manufacturer's factory specifications.
- 8.3.8** Meter equipment shall not be utilized as a raceway, junction, or splice point.
- 8.3.9** Outdoor metering equipment shall not be mounted to plywood.
- 8.3.10** All metering equipment shall be secured to an adequate building structure with stainless steel or galvanized lag screws, through bolts or anchors for masonry applications.
- 8.3.11** Interior and below grade meter rooms require a one-inch conduit from the room to an exterior wall at a minimum of one foot above grade to allow for an AMI antenna lead.
- Bends in conduit should be less than or equal to 45 degrees.
 - Total bends may not exceed 180 degrees.
 - Mule tape is required.
- 8.3.12** Line and Load Conductors:
- Shall not cross and shall not be located in the same trough. Load conductors shall not exit the top of a meter pan, except for Trans "S" enclosures.
 - Of horizontal and vertical meter bank assemblies of two (2) or more positions shall not be in the same raceway
 - Shall not be installed behind the bypass mechanism in a meter pan. It is permissible, however, to install an insulated neutral behind the bypass mechanism, on UNDERGROUND SERVICES ONLY.
 - Must be marked accordingly in the meter pan in all instrument rated services, including Trans "S" cabinets
- 8.3.13** Only the equipment manufacturers' cable lug kits, supplied with the equipment, shall be accepted for termination of the line and load conductors. The contractor shall be responsible for ensuring that the number and size of line and load conductors, their entry and exit, and the associated terminal lugs conform to the UL approved configurations listed by the equipment manufacturer.
- The substitution of non-listed cable sizes and the use of lug-adapters is prohibited, unless the contractor obtains written approval from the equipment manufacturer that the installation does not invalidate the equipment UL rating. Lugs shall not exceed the width of the bus, and may not be cut or altered. Back-to-back connections of lugs, or the use of step lugs, is prohibited.

8.4 Service Equipment Identification

- 8.4.1** In multiple meter installations (i.e., an apartment house, meter room, etc.), each meter enclosure, associated service disconnect, and distribution panel shall be permanently marked to properly identify the portions of the premises being served. The markings shall be on the inside and outside of the meter enclosure, the customer's distribution panel, and on all equipment covers.
- 8.4.2** Identification, in the case of apartment buildings, shall consist of the apartment number. In the case of a store or office building, the address and/or unit/suite number shall be utilized. Contact PSEG Long Island for the correct marking information, prior to starting any work.
- 8.4.3** Identification lettering shall be a minimum of 1" high and shall be done in indelible ink, paint or weather resistant adhesive labels. Magic markers are not acceptable.

8.5 Security of Service

- 8.5.1** All cabinets, conduit fittings, and equipment enclosures containing unmetered conductors shall be purchased and installed, with provisions, to allow PSEG Long Island to install a seal, as necessary.
- 8.5.2** All meters, meter facilities, and all points of access to unmetered wiring on the customer's premises will be sealed by PSEG Long Island.
- 8.5.3** To gain entry to sealed equipment, arrangements are to be made by contacting the Company during normal working hours, at least three (3) working days in advance of the need. Electrical contractors will be asked to provide their name, license number, and telephone numbers, in addition to the customer's name, address, and reason for requiring access to the metering equipment.
- The Company representative may require an "Addition of Electric Load" letter, prior to unlocking commercial services. Upon receipt of the above information, PSEG Long Island shall provide for the metering equipment locking devices to be removed in the following manner:
- 1) Permission shall be granted by PSEG Long Island to the licensed electrical contractor to remove the locking device(s)
- or, if the licensed electrical contractor does not want to remove the locking device,
- 2) A PSEG Long Island representative shall unlock the equipment, by the end of the third business day, following initial contact
- 8.5.4** Electrical contractors/customers requesting entry to the metering equipment shall, upon removal of the locking device, be responsible for such equipment. Responsibility will rest with the electrical contractor/customer until all work is completed, and the equipment is again made secure by PSEG Long Island. All unused revenue metering equipment shall be returned to PSEG Long Island. Electrical contractors/customers shall not dispose of, or retain any, PSEG Long Island revenue metering equipment.

8.6 Connection

- 8.6.1 Metering will be connected to the service entrance conductors on the line side of service equipment.

EXCEPTIONS:

Where a main switch is installed in multi-metered installation, metering shall be connected on the load side of the main switch. Fire pumps may be connected on the line side of the main switch and metered separately.

In an underground secondary network area, all metering and fire pumps must be installed on the load side of the main switch.

- 8.6.2 PSEG Long Island will make final connections to the meter, metering instrument transformers, and test switch.

8.7 Trans "S" Installations – Additional Requirements

- 8.7.1 Application of Trans "S" equipment is limited to single and 3-Phase services, ranging from 100 to 800 amperes, for either indoor or outdoor metering points.
- 8.7.2 Where metering equipment is installed on the load side of a switch with ground fault protection, neutral terminals of meter equipment must be isolated. The bonding bracket/strap of the neutral bus must be disconnected (see Drawing D29).
- 8.7.3 Only manufacturer supplied lug kits shall be used to connect conductors to landing pads. Lugs shall not exceed the width of the bus and may not be cut or altered. Back-to-back connections of lugs or step lugs is prohibited.
- 8.7.4 Entry and exits of cables will only be acceptable if they meet these criteria:
- in the top and out the top
 - in the bottom and out the bottom
 - in the top and out the bottom
 - in the bottom and out the top
- 8.7.5 The maximum allowable wire size shall be 500 KC mil.
- 8.7.6 The use of SEU cable in a Trans "S" is not allowed.
- 8.7.7 In addition to clearances outlined in Section 8.2, a 12" clearance from the left side of a Trans "S" enclosure must be maintained from any obstruction including walls, metering equipment, or other electrical equipment.
- 8.7.8 Only the right hand side of a Trans "S" shall be used for line or load conductors.
- 8.7.9 A 5' +/- 12" height, from top of meter glass to finished grade, is required.

- 8.7.10** Conductors must be properly inserted in the connectors, so as to facilitate ease of installation and removal of bar type current transformers.
- 8.7.11** All final termination of control wiring will be done by PSEG Long Island personnel.
- 8.7.12** Trans "S" cabinets shall be secured to an adequate building structure, with stainless steel or galvanized lag screws, through bolts or anchors for masonry applications.
- 8.8 Instrument Transformer Socket Meter**
- 8.8.1** An approved ringless socket type transformer rated meter enclosure, with an approved test switch, shall be used. Entry through the hub opening at the top of the meter enclosure will not be permitted.
- 8.8.2** The contractor shall furnish and install the required control cable from the instrument transformer compartment to the metering location. Splicing of control cable is prohibited.
- 8.8.3** Remote meter installations shall utilize a ten (10) conductor control cable, as specified in Section 8.9. Maximum distance of meter socket from CT cabinet shall be determined by PSEG Long Island.
- 8.8.4** Remote meter enclosures cannot be attached to switchgear unless it is manufactured in that configuration AND is UL listed.
- 8.9 Control Wire and Cable**
- Insulated multi-conductor type 20/10-control cable for installation for all secondary wiring of instrument transformers as follows:
- 8.9.1** 600 V, 10 conductor #12 AWG, Class "C" stranding (19/25), soft drawn, annealed copper, color coded; blue, black, red, orange, white with black trace, green, white, red with trace, green with trace, and orange with trace. Each conductor shall be insulated with an extruded 20 mil wall of virgin high molecular weight polyethylene, with a melt index of .2 to .4, and a 75° C heat and moisture resistant 60 mil polyvinyl chloride jacket over the polyethylene insulation. Cable shall be flame resistant, and comply with IEEE 383 Vertical Tray Flame Test. Sizes other than #12 must have prior approval. Single phase control cable shall be 7-conductor and 3-Phase shall be 10-conductor (see Drawings D36,D37 & D38).
- 8.9.2** For instrument transformer control cable lengths in excess of 25', contact the Company to determine proper wire size.
- 8.9.3** Control cable for totalized meter installations shall consist of four (4) triad 16 AWG stranded copper conductors, with individual triad shield, and an overall cable shield. Conductor and cable jacket PVC installation shall be rated 90°C, 600 V. Triads shall be color-coded with tracers.
- 8.9.4** PSEG Long Island may require bollards if it is determined the Trans-S is in an area subject to vehicular traffic.