



Rules for Electric Meter & Service Installations

Complete Set of Rules

**RULES FOR ELECTRIC METER
& SERVICE INSTALLATIONS**



LIST OF RULES - INDEX

<p>Rule 1 updated 07-29-2011</p>	<p>General</p> <ul style="list-style-type: none"> (a) PPL EU's Standard Service (b) Overhead System (c) Underground System (d) Meter Sequence (Hot/Cold) (e) Single Point of Service (f) PPL EU Specifies Service Characteristics, Method of Service/Supply and Point of Service (g) Notify PPL EU of Load Growth (h) Separate Point of Service (i) Separate Point of Service – Fire Pumps (j) Alternate Service (k) PPL EU Makes All Connections (l) Alteration of Interference with PPL EU's Property (m) Placement of Swimming Pools, Fountains and Similar Installations (n) Hazardous Locations (o) Electrical Equipment Covers
<p>Rule 2 updated 03-04-2011</p>	<p>Service Available At Secondary Voltage</p> <ul style="list-style-type: none"> (a) Standard Service Voltages (b) Non-Standard Service Voltages (c) Residential Service (d) Combine Three Phase and Single Phase Loads (e) Metering Equipment Not Used as Junction and/or Pull Box (f) Service Termination Compartment Not Used as Pull Box or to Connect Customer Equipment <p>NOTES:</p> <ol style="list-style-type: none"> 1. 2 Wire Service Limited 2. Residential Service at 120/208 Volts 3. Single Phase, 3 Wire Service 4. Three Phase, 4 Wire, 240 Volt, Delta Service 5. Three Phase, 3 Wire, 480 Volt, Delta Service 6. Three Phase, 4 Wire, 480Y Volt Service
<p>Rule 3 dated 03-22-2006</p>	<p>Service Available At High Voltage</p> <ul style="list-style-type: none"> (a) Service at Line Voltage (b) Service at Other Than Line Voltage (c) Standard Service Voltages (d) Transformer Voltage and Tap Specifications (e) Single Phase High Voltage Service

<p>Rule 4 dated 08-10-2006</p>	<p>Secondary Service - Service Drop and Point of Attachment Information</p> <ul style="list-style-type: none"> a) Method of Service (b) PPL EU Designates Point of Attachment (c) Point of Attachment (d) Maximum Length of Service Drop (e) Service Attachment (f) Attachment for Low Buildings (g) Attachment to Customer-Owned Service Pole
<p>Rule 4A dated 06-02-2006</p>	<p>Secondary Service - Clearance Information</p> <ul style="list-style-type: none"> (a) Clearances Over Areas and Buildings (b) Clearances Under Communication Company Lines (c) Clearances Between Gas Facilities and Electric Meters (d) Clearances Between Satellite Dish and PPL EU Facilities
<p>Rule 4B dated 08-02-2006</p>	<p>Secondary Service - Relocation and Temporary Service</p> <ul style="list-style-type: none"> (a) Relocating PPL EU's Facilities at Customers Request (b) Relocation of PPL EU's Facilities - Governmental Requirements (c) Temporary Service for Construction
<p>Rule 5 dated 05-03-2006</p>	<p>Secondary Service Up To 600 Volts - Service Entrance Conductors</p> <ul style="list-style-type: none"> (a) Capacity-Residential Units (b) Capacity-Commercial and Industrial Installations (c) Common Connection for Multiple Conductors (d) Weather Head Installation (e) Service Entrance Conduit and Conductors (f) Bare Grounded Neutral (g) Conductor With Higher Voltage To Ground for 3 Phase, 4 Wire, 120/240 Volt Delta Service (h) Grounding Conductor for 3 Phase, 3 Wire, 480 Volt Delta Service
<p>Rule 6 Updated 10-26-2011</p>	<p>Secondary Service - Underground Service From Overhead Distribution</p> <ul style="list-style-type: none"> (a) PPL EU Provides Lateral (b) Customers Service Pole for Alternative Method (c) Customer Specifications for Installation of Underground Facilities
<p>Rule 7 updated 04-17-2009</p>	<p>High Voltage Service - Exceeding 600 Volts Through 15 kV - Overhead Service From Overhead Lines</p> <ul style="list-style-type: none"> (a) Method of Service/Supply (b) Location of Customer's Service Pole or Structure (c) Customers Service Pole or Structure (d) Customer's Disconnecting Means (e) PPL EU's Specifies Characteristics (f) PPL EU' Service Wires (g) Alternate Service

<p>Rule 8 dated 04-25-2006</p>	<p>High Voltage Service - Exceeding 600 Volts Through 15 kV - Underground Service From Overhead Lines</p> <ul style="list-style-type: none"> a) PPL EU Supplies Lateral (b) Location of Customer Service Pole or Structure for Alternative Method and General Specification for Customer's Installation
<p>Rule 9 dated 08-04-2006</p>	<p>High Voltage Underground Primary From Overhead - Secondary Voltage Service</p> <ul style="list-style-type: none"> (a) At Customer's Request (b) Type Equipment Used (c) Equipment Furnished by PPL EU (d) Facilities Furnished by Customer (e) Selecting Location for Transformers (Access) (f) Selecting Location for Three Phase Pad Mounted Transformers Foundation (g) Selecting Location for Overhead Transformers In Vault - NOT FOR NEW CONSTRUCTION (h) Customer Responsibility Regarding Location for Transformers (i) Lighting, Drains, Ventilation and Lock for Door Into Vaults - NOT FOR NEW CONSTRUCTION (j) Point of Service (k) Service Laterals (l) Location of Meters (m) Service Lateral Cables Terminating in Cubicles (n) Terminating Customer's Service Entrance Conductors In A Vault - NOT FOR NEW INSTALLATIONS
<p>Rule 10 dated 06-19-2006</p>	<p>Low Tension Network (LTN) - Service in Downtown Business Districts</p> <ul style="list-style-type: none"> (a) PPL EU Low Tension Network (LTN) Locations (b) PPL EU Establishes (c) Secondary Voltage and Load Criteria (d) Load Limitation for Existing Services (e) Point of Service (f) Location of Point of Service (g) Multiple Points of Service (h) High Voltage Service (i) Facilities Installed by PPLEU (j) Transformer Vault in Customer's Building
<p>Rule 11A dated 06-02-2006</p>	<p>Underground Distribution In Commercial Or Industrial Development Areas</p> <ul style="list-style-type: none"> (a) Development Defined (b) Underground System Defined (c) Agreement Conditions (d) PPL EU Installs Electrical System (e) Selecting Location for Vaults and Transformers (f) Service Laterals Installed After System is Completed

<p>Rule 11B Updated 10-26-2011</p>	<p>Underground Electric Service In Residential Developments</p> <ul style="list-style-type: none"> (a) Residential Development Defined (b) Ownership (c) Point of Service (d) Street Lighting (e) Standard Installation (f) Applicants Responsibility (g) Additional Costs (h) Tariff Rule (i) Conduit Requirement
<p>Rule 12 updated 07-29-2011</p>	<p>Meters – General</p> <ul style="list-style-type: none"> (a) Customer Provides Space (b) Capacity Determined by PPL EU (c) Customer Installs Meter Mounting (d) PPL EU Installs, Relocates or Removes All Meters (e) Metered and Unmetered Conductors Not In Same Raceway (f) Metering Equipment Not Used As Junction and/or Pull Box (g) Protective Barriers (h) Foreign Source/Power (i) Sealing of Equipment (j) Grounding
<p>Rule 13 Updated 10-26-2011</p>	<p>Meters - Secondary Service-Under 600 Volts-Location</p> <ul style="list-style-type: none"> (a) Meter Location-Outdoor (b) Mounting Height of Meter (c) Meter Location-Indoor (d) Working Space (e) Attachment Permit for Meters on PPL EU Pole (f) Aesthetic Meter Locations
<p>Rule 14 updated 06-10-2008</p>	<p>Meters - Secondary Service-Self Contained Installations</p> <ul style="list-style-type: none"> (a) Self-Contained Metering (b) Meter Bases (c) Location of Meter Base and Service Disconnect (d) By-Pass Facilities
<p>Rule 15 updated 03-04-2011</p>	<p>Meters - Secondary Service Under 600 Volts-Instrument Transformer Installations</p> <ul style="list-style-type: none"> (a) Instrument Transformers (b) Outdoor and Indoor Installations (c) Service Conductor Connection in Instrument Transformer Cabinet (d) Location of Metering (e) Switchgear (f) Current Limiting Fuses (g) Current Transformer Polarity (h) Meter Panel and Conduit

<p>Rule 16 updated 04-14-2009</p>	<p>Meters - Secondary Service - Multi-Meter Installations</p> <ul style="list-style-type: none"> (a) Grouping (b) Identify Meters and Service Entrance Equipment (c) Method of Installing Self Contained Meter Bases (d) Method of Installing Self Contained and Secondary Metering (e) Common Service Entrance Conductors - Up to Six Meters (f) Common Service Entrance Conductors - Exceeding Six Meters (g) Multi-Meter Arrangement for a Single Service Installation
<p>Rule 17 dated 06-02-2006</p>	<p>Meters - Secondary Service - Indoor Meter Base Mountings</p> <ul style="list-style-type: none"> (a) When Required (b) Construction Material
<p>Rule 18 updated 12-23-2010</p>	<p>Meters and Metering Equipment - High Voltage Service Exceeding 600 Volts Through 15 kV</p> <ul style="list-style-type: none"> (a) PPL EU Specifies Equipment Location (b) Outdoor Pole Mounted Installation (c) Underground Service to Switchgear (d) Specifications for Switchgear (e) Specifications for Switchgear - Accessible Compartment for Current Transformers and Voltage Transformers (f) Meter Panel Mounting (g) Conduit for Metering Cable
<p>Rule 19 Updated 10-26-2011</p>	<p>Customer's Equipment – Inspection</p> <ul style="list-style-type: none"> (a) Requirements (b) Inspection and Approval (c) Inspection Exemption – Railroad Not Covered in NEC (d) PPL EU May Refuse to Connect to Customer's Facilities Which are Dangerous and Defective (e) PPL EU Is Not Responsible for Customer's Wiring or Equipment (f) Electrical Inspection Required After A Fire (g) Electrical Inspection Required After A Flood (h) Cut-In Card Documents
<p>Rule 20 dated 06-02-2006</p>	<p>Customer's Equipment – Grounding</p> <ul style="list-style-type: none"> (a) Grounding Neutral and Raceway (b) Grounding Meter Base (c) Grounding Metal Buildings and Vehicle Frames (d) Installation of Grounding Electrode Conductor (e) Communication Grounds
<p>Rule 21 dated 05-03-2006</p>	<p>Customer's Equipment - Service Disconnecting Equipment</p> <ul style="list-style-type: none"> (a) Requirements (b) Amperes Interrupting Capacity (AIC) Rating of Service Equipment (c) Secondary Lighting Arrestors (d) Current Limiting Fuses
<p>Rule 22 dated 05-03-2006</p>	<p>Customer's Equipment - Single Phase Motor Installations</p> <ul style="list-style-type: none"> (a) Voltage Drop and Flicker (b) Normal Limitation - 5 HP or Smaller (c) PPL EU Approval Above Normal Limitations - Above 5 HP (d) Recommended Voltage

	(e) Central Heating Systems
Rule 23 dated 06-02-2006	Customer's Equipment - Polyphase Motor Installations (a) Starting Current Limitations (b) Phase Reversal Protection (c) Three-Phase Motor Issues
Rule 24 dated 06-02-2006	Customer's Equipment - Welders, Arc Furnaces, Induction Furnaces And Similar Equipment (a) Installation Subject to PPL EU Approval
Rule 25 dated 06-13-2006	Customer's Equipment - Power Factor Corrective Equipment (a) Installation Subject to Company Recommendations (b) Methods of Switching Capacitors
Rule 25A updated 07-29-2011	Customer's Equipment - Electric Demand Control And Data Collection Equipment (a) Conditions for Providing Demand Pulses (b) Customer Owned Current Transformers Not Allowed
Rule 26 dated 01-25-2007	Customer's Equipment - Standby Generating Equipment (a) Standby Generators (b) Consult PPL EU Before Installation (c) Method of Installation (d) Emergency Lighting Systems
Rule 27 dated 06-02-2006	Customer's Equipment - Mobile Homes (a) Definition of Mobile Home (b) Mobile Home Service Equipment (c) Grounding
Rule 28 dated 06-02-2006	Customer's Equipment - Customer Owned Generation Operated in Parallel With PPL EU's System (a) Conditions for Interconnection - Permitted by PPL EU (b) Conditions for Interconnection - Customer Requirements (c) Detrimental Installation
Rule 32 dated 06-02-2006	Customer's Equipment - Harmonic Distortion (a) Customer Responsibility (b) PPL EU Specifies Harmonic Distortion Criteria (c) Customer is Responsible for Corrective Measures
Rule 33 dated 04-29-2010	Customer's Equipment - Quality Of Power (a) PPL EU Does Not Claim to Provide Disturbance Free Power (b) Customer Selects Power Conditioning Equipment (c) PPL EU Recommendations (d) Point of Use Tank Less Water Heaters (e) Power Quality (f) Harmonics (g) Harmonics: Criteria to Limit Voltage Distortion Due to Single Customer

Rule 34

dated 05-03-2006

Customer's Equipment - Fast Track Program

- (a) Fast Track Program
- (b) Applicable Service Upgrades
- (c) Electrical Contractors Authorized by PPL EU
- (d) Approved Connectors

10-2011

RULES FOR ELECTRIC METER & SERVICE INSTALLATIONS



RULE 1

- (a) PPL EU's Standard Service
- (b) Overhead System
- (c) Underground System
- (d) Meter Sequence (Hot/Cold)
- (e) Single Point of Service
- (f) PPL EU Specifies Service Characteristics, Method of Service/Supply and Point of Service
- (g) Notify PPL EU of Load Growth
- (h) Separate Point of Service
- (i) Separate Point of Service – Fire Pumps
- (j) Alternate Service
- (k) PPL EU Makes All Connections
- (l) Alteration or Interference with PPL EU Property
- (m) Placement of Swimming Pools
- (n) Hazardous Locations
- (o) Electrical Equipment Covers

RULE 1 - GENERAL

a. PPL EU's Standard Service:

PPL EU's standard service is single phase or three phase, 60 Hertz, phase rotation C-B-A (3-2-1) counter clockwise alternating current. All non-standard service is in the process of elimination and no new or additional non-standard service will be provided.

b. Overhead System:

PPL EU's distribution system is generally overhead and the normal method of service is by overhead wires. Service is supplied by underground service lateral from overhead distribution at the request of the customer in accordance with **Rules 6, 8 or 9**.

c. Underground System:

PPL EU has or may establish underground distribution in certain areas. Overhead service is not supplied within these underground service areas.

d. Meter Sequence (Hot/Cold):

Hot Meter Sequence is used for service provided at a service voltage below 600 Volts. The Metering equipment is installed ahead of the customer's service disconnect unless the National Electrical Code (NEC) or other applicable code requires the installation of a main disconnect ahead of the metering equipment.

Cold Meter Sequence is used for certain Network services; 277/480 Volt self-contained service and for service exceeding 600 Volts. The metering equipment is installed on the load side of the customer's main disconnect.

e. Single Point of Service:

PPL EU installs, owns and maintains its lines and equipment to furnish one source of service to a premises at a single point of service and does not install or maintain any lines, equipment or apparatus, except meters and meter accessories, beyond that point.

f. PPL EU Specifies Service Characteristics, Method of Service and Point of Service:

The customer, before planning wiring or purchasing electrical equipment shall obtain from PPL EU, the exact characteristics of service available, the method of service, and point of service to assure prompt connection of service. This is equally important for service upgrades as well as for new installations.

g. Notify PPL EU of Load Growth:

PPL EU's service wires, transformers, meters and other equipment are installed to provide for the customer's requirements at that time and have a limited excess capacity.

Therefore, to assure satisfactory operation of the customer's equipment and to protect both customer's and PPL EU's facilities against damage, the customer or customer's contractor shall notify PPL EU as far in advance as possible of any major additions to customer's connected load so that adequate facilities can be provided.

See "**Applying for Electric Service**" for more information.

h. Separate Point of Service:

PPL EU furnishes a metered separate point of service to the premises of a customer when requested by the customer, at the customers' expense. Examples include a location remote from the present point of service, a fire pump service or an isolated

load requiring a different service voltage, when such separate point of service is justified as determined by PPL EU. The separate point of service is furnished only under a separate service contract and rate application.

The customer provides a minimum distribution revenue guarantee for the separate service equal to the estimated cost of installing and removing all facilities for the line and service extension less salvage, less any payment for excess costs.

i. Separate Point of Service - Fire Pumps:

See NEC Article 695 for Electric Utility Service Connection information pertaining to separate service for Fire Pumps.

Fire Pump Installations – It is the responsibility of the Customer to determine how they will comply with the requirements of NEC Article 695, NFPA 20, its local fire authority and any other applicable code. PPL EU recommends the Customer consider a separate dedicated service to fire pump installations, as well as customer owned on-site emergency standby generator(s) as described in NEC Article 695 and NFPA 20. PPL EU does not guarantee continuity of service and assumes no liability if/when firepumps operate or do not operate due to lack of electric service.

j. Alternate Service:

PPL EU furnishes an alternate service to a premises when requested by the customer. The alternate service is used to serve during interruption to the normal service. At times, PPL EU may require the customer to take service normally from both sources.

The customer agrees, under a service contract with an initial 5-year term, to pay annually in advance and in addition to the electric service bill, a facility charge based on PPL EU's estimated cost of all additional facilities installed and maintained for the alternate source.

k. PPL EU Makes All Connections:

PPL EU personnel make the connections between PPL EU's service drop or service lateral and customer's service entrance conductors for temporary or permanent services.

Electrical contractors, authorized to participate in PPL EU's Fast Track program (Rule 34), may make permanent connections to PPL EU's distribution system for upgrades to existing single phase, 3 wire, overhead electrical services up to 200 Amperes, for homes and small businesses, using approved connectors provided by PPL EU.

l. Alteration or Interference with PPL EU's Property:

The customer or customer's contractor shall not alter, interfere with, attach to, install additional (internal or external) devices, or permit alteration or interference with meters, meter bases, seals, other metering equipment (including but not limited to CT cabinets, current transformers, voltage transformers) or other property of PPL EU.

PPL EU is in no way held accountable for the removal of any attachments or obstructions. It is the customers' responsibility to make any repairs or cover any costs to PPL EU if an attachment or obstruction has been removed or caused damage to PPL EU or customer equipment.

Electrical contractors, authorized to participate in PPL EU's Fast Track program, may use special meter base seals provided by PPL EU for use in the Fast Track program only.

m. Placement of Swimming Pools, Fountains and Similar Installations:

The customer shall contact PPL EU to discuss clearances to electric service facilities **before installing** a swimming pool, fountain and similar installation. See also NEC Article 680:

- (1) under overhead service conductors or cables,
- (2) where the edge of the pool would be within 25 feet horizontally of the overhead service conductors or cables, or
- (3) where any part of the pool or its auxiliary equipment would be within five feet horizontally of any underground service cables.

n. Hazardous Locations:

For underground service, the customer shall provide a point-of-service external to locations defined as Class I by NEC Article 500. These are hazardous locations which flammable gases or vapors are or may be present in the air in quantities sufficient to produce explosive or ignitable mixtures.

PPL EU will not install underground electric service facilities within or under Class I locations.

o. Electrical Equipment Covers:

PPL EU does not, under any circumstance, permit the use of any type of electrical equipment cover, for landscaping or any other purposes. The electrical equipment mentioned includes but is not limited to, pad-mount transformers, submersible transformers, secondary splice boxes and/or manhole covers.

PPL EU is in no way held accountable for the removal of any obstructions or covers from the work area (see **Sketch 55**, **Sketch 55A** and **CRS 6-14-125** for more information). It is the customers responsibility to make any repairs (including but not limited to the replacement of satellite dishes, trees, shrubs, landscaping, etc to a location outside of the working area, re-seeding of grass, etc.) if an obstruction has been removed.

In the event of an equipment failure, where the equipment has been covered, the customer is responsible for reimbursing PPL EU for any and all costs to replace and repair the damaged equipment.

7-29-2011

RULES FOR ELECTRIC METER & SERVICE INSTALLATIONS



RULE 2

- (a) Standard Service Voltages**
- (b) Non-Standard Service Voltages**
- (c) Residential Service**
- (d) Combine Three Phase and Single Phase Loads**
- (e) Metering Equipment Not Used As Junction and/or Pull Box**
- (f) Service Termination Compartments Not Used as Pull Box or to Connect Customer Equipment**

NOTES:

- 1. 2 Wire Service Limited**
- 2. Residential Service at 120/208 Volts**
- 3. Single Phase, 3 Wire Service**
- 4. Three Phase, 4 Wire, 240 Volt, Delta Service**
- 5. Three Phase, 3 Wire, 480 Volt, Delta Service**
- 6. Three Phase, 4 Wire, 480Y Volt Service**

RULE 2 - SERVICE AVAILABLE AT SECONDARY VOLTAGE

a. Standard Service Voltages

Secondary service is provided from the nearest suitable distribution line and, where required, PPL EU installs, owns and maintains one transformation from line voltage to one of the following standard secondary service voltages:

Phase	Wires	Nominal Voltage	Reference
1	2	120	Note 1
1	3	120/208	Note 2
1	3	120/240	Note 3
3	4	208Y	Note 2
3	4	240 - Single Phase 120/240	Note 4
3	3	480	Note 5
3	4	480Y	Note 6

b. Non-Standard Service Voltages:

Phase	Wires	Nominal Voltage	Reference
1	3	240/480 – single phase	Note 5
1	3	277/480* - single phase	Note 6

*Available at customers expense – two additional transformers may be required.

c. Residential Service:

An individual service under a residential service rate schedule is provided only by a three wire, 120/208 or 120/240 Volt service.

d. Combined Three Phase and Single Phase Loads:

PPL EU has different ways of providing combined three phase power and single phase lighting loads for service to Industrial and Commercial services.

For this reason each proposed new or additional load of this type shall be referred to PPL EU for full information on the kind of service to be provided.

e. Metering Equipment Not Used as Junction Box and/or Pull Box:

See **Rule 12** – for detailed information on Junction Box and/or Pull Box

f. Service Termination Compartments Not Used as Pull Box or to Connect Customer Equipment:

Service termination compartments shall not be used as pull boxes or to connect customer equipment. Taps and bugs are not permitted.

Customer equipment shall not be installed or connected in service termination compartments. Only service entrance conductors can be connected in service termination compartments.

Foreign energy sources shall not be connected in the service termination compartment. (See **Definitions Page** for more information on what PPL EU defines as Foreign Energy Source and Service Termination Compartment.)

NOTES:

1. 2 Wire Service Limited:

Single phase, 2 wire, 120 Volt service is available only for limited loads of approximately 3000 Watts or less which are served through a single 30 Ampere branch circuit, such as traffic signals, small signs and cable television amplifier installations.

2. Residential Service at 120/208 Volts:

In areas where the secondary distribution system is 208Y Volts, three phase, 4 wire (grounded neutral), residential buildings with one or two dwelling units are served through a single phase, 3 wire, 120/208 Volt common service.

Residential buildings with three or more dwelling units are served through a three phase, 4 wire, common service and the individual single phase, 3 wire, 120/208 Volt sub-services to the individual dwelling units shall be balanced as nearly as possible on the three phases.

All services, other than residential, are served through three phase, 4 wire services except small establishments with limited loads requiring a service of 100 Ampere or less capacity. They may be supplied through a single phase, 3 wire service.

3. Single Phase, 3 Wire Service:

Single phase, 3 wire (grounded neutral) service is generally available for residential and general light and power service.

4. Three Phase 4 Wire, 240 Volt, Delta Service:

Three phase, 4 wire (grounded neutral), 240 Volt delta connected service is provided for commercial and industrial service where multi-phase distribution is available.

Lighting and single phase power at 120/240 Volts are served through the common service drop from the transformer with the grounded center tap.

On underground residential distribution systems, delta served load shall be limited to those loads which can be provided by an open Wye-open delta transformer bank.

5. Three Phase, 3 Wire, 480 Volt, Delta Service:

Three phase, 3 wire, 480 Volt delta connected service is provided only for commercial and industrial service.

PPL EU can provide single phase, 3 wire service at 240/480 Volts for special applications, such as street lighting, highway lighting and special electric heating equipment at the customers expense.

6. Three Phase, 4 Wire, 480Y Volt Service:

Three phase, 4 wire, 480Y Volt service is provided for commercial and industrial services when 12 KV service is available.

The maximum transformer bank on a single pole cluster mounted overhead installation is limited to a capacity of 500 KVA.

See **Rule 9** for details and specifications for installation of distribution type transformers in a vault or a pad mount three phase transformer.

PPL EU can provide single phase, 3 wire service at 277/480 Volts for special applications, such as street lighting, highway lighting and special electric heating equipment.

03-04-2011

RULES FOR ELECTRIC METER & SERVICE INSTALLATIONS



RULE 3

- (a) Service at Line Voltage
- (b) Service at Other Than Line Voltage
- (c) Standard Service Voltages
- (d) Transformer Voltage and Tap Specifications
- (e) Single Phase High Voltage Service

RULE 3 - SERVICE AVAILABLE AT HIGH VOLTAGE

a. Service at Line Voltage:

High voltage service is provided at line voltage from the nearest suitable high voltage line and the customer installs, owns and maintains all equipment necessary to transform the voltage.

b. Service Voltage Less Than Line Voltage:

When a customer requests service at a standard high voltage which is lower than that of the available line voltage, the customer may take service under a rate schedule which provides for PPL EU to install, own and maintain one transformation from line voltage.

c. Standard Service Voltages:

PPL EU's standard high voltages at which service is provided, depending on availability of lines, are:

Phase	Wires	Nominal Voltage	Reference
3	3	2,300	Note 1
3	4	4160Y/2400	Note 1
3	3	4,600	Note 1
3	4	12470Y/7200	-----
3	4	23,000	Note 2
3	3	69,000	Note 2
3	3	138,000	Note 2

d. Transformer Voltage and Tap Specifications:

The above voltages are nominal and PPL EU reviews customer selected high-side voltage and transformers taps (prior to purchase) to be furnished and installed by the customer to provide the service voltage. All loads shall be balanced as nearly as possible on the three phases.

e. Single Phase High Voltage Service:

PPL EU will provide single phase service at 7,200 volts under certain conditions.

Note 1 Distribution lines at these voltages are in the process of elimination and no new or additional service is provided directly from such distribution lines.

Note 2 For voltages 23KV and above. The Rules in REMSI apply in general; however, PPL EU issues specifications for each installation as referenced in the Point of Contact Requirements for High Voltage Customer - Owned Facilities.
www.pplelectric.com/Business+Partners/Tools+and+Reference+Center/High+Voltage+Customer+Owned+Facilities/

A copy of the document can be obtained by going to PPL EU's Web site at *www.pplelectric.com*.

03-22-2006

RULES FOR ELECTRIC METER & SERVICE INSTALLATIONS



RULE 4

- (a) Method of Service
- (b) PPL EU Designates Point of Attachment
- (c) Point of Attachment
- (d) Maximum Length of Service Drop
- (e) Service Attachment
- (f) Attachment for Low Buildings
- (g) Attachment to Customer-Owned Service Pole

RULE 4 - SECONDARY SERVICE — SERVICE DROP AND POINT OF ATTACHMENT INFORMATION

a. **Method of Service:**

The usual method of connection from PPL EU's distribution system to the customer's service entrance conductors is by an overhead service drop from PPL EU's pole to the customer's building or service support.

PPL EU generally provides only one service drop for one premises.

b. **PPL EU Designates Point of Attachment:**

PPL EU designates the point of attachment of the service drop on the customer's building or service support at the most practical location accessible from PPL EU's line and where the connections to the customer's service entrance conductors can be made from a ladder placed on the ground.

The customer is responsible for paying any the additional cost to move the point of attachment from PPL EU's preferred point, see **Tariff Rule 4A(5)** and **Tariff Rule 8A(1)** for more details.

c. **Point of Attachment:**

The point of attachment to a building or service support shall be below the service head and so located that the bottom wire of the service drop is not less than the clearances specified in **Rule 4B(a)**, nor more than 22 feet above finished grade.

In addition, the attachment shall be so located to provide minimum clearances at the building as follows:

	Minimum
Clearance, in any direction from the outside perimeter of building openings such as windows, doors, porches, decks, balconies, fire escapes or similar locations	36 inches
Vertical Clearance from floor of porches, decks, balconies, etc. accessible to pedestrians	10 feet
Telephone service drop, radio, television lead-in, or satellite dish, etc.	12 inches
Rainspout, gutter, vent pipe or ventilator opening	12 inches

See **Sketch # 1** Triplex service drop attachment on building

d. Maximum Length of Service Drop:

The customer, where necessary, provides space on customer's property for PPL EU to install its pole, transformer structure or substation at such location so that the length of PPL EU's overhead service drop does not exceed the following approximate lengths:

Service Drop	Maximum
#4 Triplex Aluminum	150 feet
#1/0 Triplex Aluminum	125 feet
#4/0 Triplex Aluminum and #2/0 or #4/0 Quadruplex Aluminum	100 feet
Open 3 wire, #4/0 or 350 kcmil Copper and 350 kcmil or 500 kcmil Aluminum	60 feet
Open 3 wire, 500 kcmil or larger Copper and 750 kcmil Aluminum	60 feet
Open 4 wire, #4/0 or larger Copper and 350 kcmil or larger Aluminum	60 feet

e. Service Attachment:

When the building construction does not lend itself to satisfactory attachment point for a service bracket, see **Sketch #1A**. The customer shall install additional reinforcement to support the service drop attachment.

PPL EU supplies the three phase service rack to be installed by customer for new building construction or remodeling.

f. Attachment for Low Buildings:

When the building is of insufficient height to provide adequate clearances for the service drop, the customer furnishes, installs and maintains a support of sufficient height to provide the necessary clearance.

This support may be structural steel, steel pipe, or wood attached or not attached to the building. The support material shall be painted, finished, or treated to prevent significant deterioration over the anticipated life of the service and shall be sufficient strength, either by itself or with bracing, to support the service drop without permanent deformation. Any installation that does not follow the REMSI Sketches must be pre-approved by PPL EU.

Threaded galvanized rigid or intermediate steel conduit may be used for the mast shown on **Sketch #3** or **Sketch #3A**, **Sketch #3B**; see these sketches for minimum diameter.

Where conduit coupling is required, it shall not be installed above the roof line. Aluminum conduit is not acceptable.

g. Attachment to Customer-Owned Service Pole:

The service drop attachment may be made on a customer-owned service and meter pole when the customer desires connection in this manner, see **Sketch #5**, **Sketch #5A**, **Sketch #6**, **Sketch #10**, **Sketch #10A**, **Sketch #11**, **Sketch #13**.

The customer furnishes, installs and maintains this pole, and other supporting structures as needed on customer's property, of sufficient height to provide all necessary service drop clearances specified under paragraph (e) above.

The pole or structure shall be ANSI Class 5 minimum, preservative treated, and installed at specified depth in accordance with **Sketch #47**. Whenever the pole must be guyed to offset the pull of PPL EU's service drop or the customer's secondary distribution wires, the guy(s) is furnished, installed and maintained by the customer.

08-10-2006

RULES FOR ELECTRIC METER & SERVICE INSTALLATIONS



RULE 4A

- (a) Clearances Over Areas and Buildings
- (b) Clearance Under Communication Company Lines
- (c) Clearances Between Gas Facilities and Electric Meters
- (d) Clearances Between Satellite Dish and PPL EU Facilities

RULE 4A - SECONDARY SERVICE — CLEARANCE INFORMATION

a. Clearances Over Areas and Buildings:

Per the National Electrical Safety Code (NESC), cabled service drop, 600 Volts and less, shall have a minimum clearance above:

- (1) Roads, Streets, Alleys, Parking Lots subject to truck traffic - **16 feet**. Pennsylvania State highways - **18 feet**. (Note - Service drops shall not cross limited access highways or the PA Turnpike).
- (2) Lands traversed by agricultural vehicles such as cultivated, grazing, forest, orchard, etc. - **16 feet**.
- (3) Roofs accessible to vehicular traffic - **16 feet**.
- (4) Signs, Chimneys, Antennas, Tanks, etc. - **42 inches**.
- (5) Communication conductors, cables, and messengers on same structure - **40 inches**.
- (6) Residential driveways and commercial areas not subject to truck traffic - **16 feet, 12.5 feet¹, 12 feet²**.
- (7) Spaces accessible to pedestrians only - **12 feet, 10.5 feet¹, 10 feet²**.
- (8) Roofs and balconies accessible to pedestrians - **11 feet, 8 feet³**.
- (9) Roofs and projections **not** accessible to pedestrians - **3.5 feet, 3 feet³, 18 inches⁴, 36 inches⁵**.
- (10) Sloping Roofs per NEC/IRC
 - a. **8 feet** minimum if slope is less than 4 inches to 12 inches ratio.
 - b. **3 feet** minimum if slope is greater than or equal to 4 inches to 12 inches ratio.

NOTES:

- 1 Limited to 300 Volts to ground.
- 2 Limited to 150 Volts to ground.
- 3 Conductors attached to building.
- 4 Where service does not pass over more than **48 inches horizontal** of the overhang/eaves portion of the roof, and the service is terminated at a through-the-roof raceway or approved support.
- 5 Where service does not pass over more than **72 inches horizontal** of the overhang/eaves portion of the roof, and the service is terminated at a through-the-roof raceway or approved support.

b. Clearances Under Communication Company Lines:

Where a service drop crosses under communication conductors, cables, or messengers which are on different supporting structures, the vertical clearance shall be **24 inches** minimum.

c. Clearances Between Gas Facilities and Electric Meters:

These required separations are taken from the NFPA National Fuel Gas Code Section 5.7.2.3 and NFPA Liquefied Petroleum Gas Code Table 3.2.2.2 (d):

- (1) Gas meters shall be located at least 3 ft. (0.9 m) from sources of ignition.
- (2) LP-Gas or propane cylinders that are exchanged (not filled on site), 5 ft. separation from external sources of ignition; PPL EU requires 6 ft.
- (3) For larger cylinders filled on site, 10 ft. separation from a source of ignition.

See Sketch #55

d. Clearances Between Satellite Dish and PPL EU Facilities:

- (1) PPL EU Requires a Satellite Dish be a minimum of 3 feet from PPL EU's facilities and maintain 50 inches of clearance space in front of the meter base. No attachments are permitted to the service entrance, conduit or mast. **See Sketch #55A** for more information.
- (2) PPL EU also requires a 10 foot clearance from the front and 4 foot clearance from the back and sides of a ground transformer case. **See CRS 6-14-125** for more information.

06-02-2006

RULES FOR ELECTRIC METER & SERVICE INSTALLATIONS



RULE 4B

- (a) Relocating PPL EU's Facilities at Customers Request
- (b) Relocation of PPL EU's Facilities - Governmental Requirements
- (c) Temporary Service for Construction

RULE 4B - SECONDARY SERVICE — RELOCATION AND TEMPORARY SERVICE

a. Relocating PPL EU Facilities at Customers Request:

After service has been established, any change in the location of the service drop attachment, requested by the customer, requiring a change in PPL EU's facilities, is made by PPL EU when feasible, but only at the customer's expense.

b. Relocation of PPL EU Facilities – Governmental Requirements:

Whenever PPL EU is required to make any change in the location of its facilities and in the point of service to comply with governmental requirements, the customer shall make such changes in his wiring and service entrance at his expense as are thereby made necessary.

c. Temporary Service For Construction:

When temporary service from either an overhead or underground distribution system is required for construction purposes, the customer provides a service entrance which meets all the requirements of a permanent service insofar as clearances, grounding and safety are concerned.

The temporary structure shall be installed in accordance with the appropriate sketch at a location designated by PPL EU which is accessible to PPL EU bucket trucks. **Sketch #4** is for overhead temporary service and **Sketch #4A** is for underground temporary service from an underground distribution system.

The interrupting capacity of the service equipment for temporary service shall be greater than the available short circuit current at the service terminals, but in no case shall be less than 10,000 Amperes.

06-02-2006

RULES FOR ELECTRIC METER & SERVICE INSTALLATIONS



RULE 5

- (a) Capacity-Residential Installations
- (b) Capacity-Commercial and Industrial Installations
- (c) Common Connection for Multiple Conductors
- (d) Weather Head Installation
- (e) Service Entrance Conduit and Conductors
- (f) Bare Grounded Neutral
- (g) Conductor With Higher Voltage To Ground for 3 Phase, 4 Wire, 120/240 Volt Delta Service
- (h) Grounding Conductor for 3 phase, 3 wire, 480 Volt Delta Service

RULE 5 — SECONDARY SERVICE — UP TO 600 VOLTS — SERVICE ENTRANCE CONDUCTORS

a. **Capacity — Residential Installations:**

The National Electrical Code (NEC) or any other applicable code prescribes a minimum size of service entrance conductors for residential customers. Experience has proven that service equipment installed to meet only minimum requirements becomes inadequate as additional load is added to the service. PPL EU recommends installing excess capacity initially in anticipation of load growth.

b. **Capacity Commercial and Industrial Installations:**

Commercial and industrial customers should size service entrance equipment to accommodate load growth, either by installing excess capacity initially or by making provisions for future paralleling of service conductors.

c. **Common Connection for Multiple Conductors:**

The customer owns, installs, and maintains the equipment required to terminate all conductors at a common connection (for each phase and the neutral) when there are 2 or more conductors per phase, or for multi meter installation. See **Sketches #8B, 14C, 14D, 28, 48, 49, and 49A.**

For overhead service only, this rule applies to installations involving more than two 200 Ampere service entrances.

d. **Weather Head Installation:**

The weather head shall be located approximately 12 inches above the designated point of service drop attachment. The service entrance conductors shall extend at

least 18 inches out of the weather head.

e. **Service Entrance Conduit and Conductors:**

The service entrance conductors of an individual service shall be continuous without joints or splices from the weather head to the metering equipment. Service entrance conductors shall be either service entrance cable or conductors installed in PVC Schedule 40, threaded galvanized rigid or intermediate steel conduit. Where conduit is used, all joints and fittings must be weatherproof.

f. **Bare Grounded Neutral:**

An uninsulated and grounded neutral service entrance conductor may be used where the nominal service voltage to ground does not exceed 300 Volts.

g. **Conductor with Higher Voltage to Ground for 3 Phase, 4 Wire, 120/240 Volt Delta Service:**

The conductor having the higher voltage to ground on a 3 phase, 4 wire delta service must be permanently and clearly identified at the weather head and at the metering device.

PPL EU also requires that the conductor with the higher voltage to ground be installed in the right-hand position in any metering device.

h. **Grounding Conductor for 3 Phase, 3 Wire, 480 Volt Delta Service:**

PPL EU extends its ground wire with a 3 phase, 3 wire, 480 Volt delta service. For overhead installations, when the metering transformers are located outdoors on the service rack, by exception only, the customer furnishes and installs a grounding device for metal service entrance conduit and metal meter cable conduit, to which PPL EU makes the connection.

For overhead installations, where the metering transformers are located in a cabinet, the customer installs a grounding conductor of at least #6 copper in the service entrance conduit between the service entrance and the customer's ground in the cabinet.

For underground installations, PPL EU installs a ground wire with the service lateral cables.

For all installations, PPL EU makes the connection to the customers grounding conductor.

05-03-2006

RULE 6

- (a) PPL EU Provides Lateral
- (b) Customers Service Pole for Alternative Method
- (c) Customer Specifications for Installation of Underground Facilities

RULE 6 - SECONDARY SERVICE — UNDERGROUND SERVICE FROM OVERHEAD DISTRIBUTION

a. PPL EU Provides Lateral:

When a customer, normally served from PPL EU's overhead distribution, requests underground service, PPL EU will install, own and maintain an underground service lateral from a PPL EU pole on or adjacent to the customer's property to the point of service providing:

- (1) The customer pays to PPL EU its estimated excess cost of the underground service over the estimated cost of normal overhead construction, plus any excess right-of-way or permit fees incurred by PPL EU.
- (2) The customer excavates, backfills and restores the surface of the trench for the service lateral and furnishes and installs the specified size conduit(s) and slip riser for PPL EU's service lateral cables.

The customer tamps in layers over disturbed earth near building foundation to help prevent damage to meter base due to settling.

The conduit shall be PVC Schedule 40, or threaded galvanized rigid or intermediate steel conduit.

- (3) The customer is responsible for piercing and sealing wall where conduits enter the building.
- (4) The customer furnishes, installs and maintains:
 - a. A meter base with slip riser on the outside of the building for single phase service laterals when PPL EU specifies self-contained metering. See **Sketch #7** and **Sketch #7a**.
 - b. An approved instrument transformer cabinet (see **Approved Instrument Transformer Cabinet Table**) at a location specified by PPL EU.

- (5) PPL EU furnishes and the customer installs:
 - a. The metering panel at a location specified by PPL EU.
 - b. The instrument transformer mounting and instrument transformers in the instrument transformer cabinet.

See **Sketch #14, Sketch #14a, Sketch #14b, Sketch #14c, Sketch #14d, Sketch #15, Sketch #15a, Sketch #16a, Sketch #17 and Sketch #18.**

- (6) Upon completion of the installation made in accordance with PPL EU's plan and specification and subject to PPL EU's inspection, ownership of all conduits installed by customer on the line side of the point of service and not located in, on or under buildings shall vest in PPL EU free-of-charge.

PPL EU will thereafter maintain these facilities at no cost to customer.

b. Customers Service Pole for Alternative Method:

As an alternative, the customer may furnish, install and maintain customer's own service pole or support on his property on which to terminate his underground service entrance conductors.

PPL EU will attach its overhead service drop to that service pole or support and make the connection to customer's service pole or support. PPL EU's facilities are then a standard overhead service and the customer installs, owns, operates and maintains all facilities beyond the point of service excepting the meter.

The customer's service pole or support shall be of sufficient height to provide clearance to the ground and other facilities and erected at a location designated by PPL EU which is accessible to PPL EU bucket trucks and accessible from PPL EU's lines see **Rule 4-d** for length of the overhead service drop.

Whenever the service pole or support must be guyed, as determined by PPL EU, to offset the pull of PPL EU's service drop, the guy(s) is furnished, installed and maintained by customer.

c. Customer Specifications for Installation of Underground Facilities:

Customer's underground service entrance conductors shall be installed per the NEC or any other applicable code.

Only customer underground service entrances which are properly installed and maintained by the customer will be connected or be permitted to remain connected to the distribution system of PPL EU.

Rear lot service and meter locations should be avoided since subsequent installation of swimming pools, patios, fences and other structures by the customer may require the relocation of PPL EU facilities at customer's expense.

Any service in the rear of the house must be installed in gray schedule 40 PVC conduit (UL approved) encased in concrete (minimum 3 inch thickness). Before you proceed, please contact PPL EU Distribution Technician to discuss this installation and additional charges that may apply.

See **Sketch #6, Sketch #12 and Sketch #47.**

10-26-2011

RULES FOR ELECTRIC METER & SERVICE INSTALLATIONS



RULE 7

- (a) Method of Service/Supply
- (b) Location of Customer's Service Pole or Structure
- (c) Customer's Service Pole or Structure
- (d) Customer's Disconnecting Means
- (e) PPL EU's Specifies Characteristics
- (f) PPL EU's Service Wires
- (g) Alternate Service

RULE 7 - HIGH VOLTAGE SERVICE - EXCEEDING 600 VOLTS THROUGH 15KV - OVERHEAD SERVICE FROM OVERHEAD LINES

a. **Method of Service/Supply:**

The usual method of connection for high voltage service from PPL EU's distribution system is by overhead wires from PPL EU's pole to the customer's service pole or structure.

PPL EU generally provides only one set of service wires for one premises.

b. **Location of Customer's Service Pole or Structure:**

PPL EU designates the location of the customer's service pole or structure on the customer's property at the most practical location accessible from PPL EU's lines so that the length of the service wires is not less than 15 feet or more than 100 feet.

c. **Customer's Service Pole or Structure:**

The customer furnishes, installs and maintains a service pole or structure of sufficient height to provide clearances to ground, buildings and other facilities as prescribed by the National Electric Safety Code or any other applicable code.

Whenever the service pole or structure must be guyed to offset the pull of PPL EU's service drop or the customer's distribution wires, the guy(s) is furnished, installed and maintained by the customer.

If guying is necessary to offset tension from PPL EU's service drop PPL EU will provide specifications for guy wire, rod size and lead length. A strain insulator must be installed at the pole end of the guy wire.

Service pole shall be ANSI Class 4 minimum, preservative treated, and installed at specified depth in accordance with **Sketch #47**. See **Rule 18** for meter pole arrangements.

d. Customer's Disconnecting Means:

The customer furnishes, installs and maintains a disconnecting means, of a type specified by PPL EU, on the service pole or structure for electrically disconnecting the customer's facilities from those of PPL EU.

The disconnecting means, installed ahead of the metering equipment, shall be a group operated load interrupter switch with fuses, see **Sketch #30**, or a circuit breaker.

When a circuit breaker other than a drawout type is installed, it shall be preceded by a set of isolating switches so mounted that the break is visible when the switches are open.

e. PPL EU's Specifies Characteristics:

PPL EU specifies the type and characteristics of the automatic interrupting device to be installed by the customer for each location in order to coordinate with PPL EU's line protective devices.

f. PPL EU's Service Wires:

PPL EU furnishes, installs and maintains the source side lightning arrester(s) and dead end insulator assembly to attach its service wires to the customer's service pole or structure and makes the connection at the point of service which is on the line side terminals of the customer's disconnecting facilities.

g. Alternate Service:

PPL EU will furnish an alternate service under terms and conditions described in **Rule 1(i)**.

Upon approval of alternate service facilities by PPL EU, PPL EU will provide reference drawings to the customer for the particular installation involved. PPL EU also provides requirements for protection and control equipment associated with all transfer schemes.

Customer shall furnish construction drawings to PPL EU for preliminary review upon request by PPL EU.

04-17-2009

RULES FOR ELECTRIC METER & SERVICE INSTALLATIONS



RULE 8

- (a) PPL EU Supplies Lateral
- (b) Location of Customer Service Pole or Structure for Alternative Method and General Specification for Customer's Installation

RULE 8 - HIGH VOLTAGE SERVICE - EXCEEDING 600 VOLTS THROUGH 15KV - UNDERGROUND SERVICE FROM OVERHEAD LINES

a. PPL EU Supplies Lateral:

When a customer requests underground service to be installed, PPL EU will install, own and maintain an underground service lateral from a PPL EU pole on or adjacent to the customer's property to the point of service providing:

- (1) Customer pays to PPL EU its estimated excess cost of the underground service lateral over the estimated cost of normal overhead construction, plus any right-of-way or permit fees incurred by PPL EU.
- (2) Customer excavates, backfills and restores the surface of the trench and when specified by PPL EU, furnishes and installs the underground conduits starting from and including the elbow at the base of PPL EU's pole to the point of service, including any manholes or handholes required.

Customer is responsible for piercing and sealing the wall where conduits enter the building. The installation is made in accordance with PPL EU's plans and specifications and subject to PPL EU inspection.

Upon completion, ownership of such facilities installed by customer on the line side of the point of service and not located in, on or under buildings shall vest in PPL EU free-of-charge.

PPL EU will thereafter maintain these facilities at no cost to customer.

- (3) Customer furnishes, installs, operates and maintains a high voltage service disconnecting means of a type designated by PPL EU, at the point of service, of the type, size and duty characteristics specified by PPL EU.

This disconnecting means shall be installed on the supply side of the metering equipment. **(See Sketch #39 for one line diagram.)**

When a circuit breaker other than a drawout type is installed, it shall be preceded by a set of isolating switches so mounted that the break is visible when the switches are open.

- (4) Customer furnishes and installs suitable housing, similar to **CRS 6-09-199**, and installs the instrument transformer metering equipment furnished by PPL EU at a location specified by PPL EU.
- (5) Customer submits for PPL EU approval detailed construction drawings of switchgear, including relaying, prior to construction of the switchgear. PPL EU will provide detailed drawings of switchgear and relaying requirements upon request.

b. Location of Customer Service Pole or Structure for Alternative method and General Specification for Customer's Installations:

As an alternative, the customer may furnish, install and maintain customer's own service pole or support on customer's property and PPL EU attaches its overhead service wires to that service pole or structure and makes the connection at the point of service on the line side terminals of the customer's disconnect mounted on that pole or structure.

PPL EU's facilities are then a standard overhead service and the customer installs, owns, operates and maintains all facilities beyond the point of service except for the meter. Paragraphs (1) to (7) below cover general specifications to assist customer in planning.

- (1) The customer's service pole or structure, of sufficient height to provide clearance to ground, buildings and other facilities as prescribed by the National Electrical Safety Code or any other applicable code, shall be erected at a location acceptable to PPL EU at the most practical point accessible from PPL EU's lines so that the length of the overhead service wires will not be less than 15 feet or more than 100 feet.

Whenever the service pole or structure must be guyed to offset the pull of PPL EU's service wires, the guy(s) is furnished, installed and maintained by the customer.

Service pole shall be ANSI Class 4 minimum, preservative treated, and installed at specified depth in accordance with **Sketch #47**.

- (2) The customer furnishes, installs, operates and maintains a disconnecting means, of a type designated by PPL EU, at the point of service on the service pole or structure for electrically disconnecting the customer's facilities from those of PPL EU.

The disconnecting means shall be installed ahead of the metering equipment.

Sketch #31 shows the arrangement of facilities when the underground conductors terminate on a service pole and the high voltage metering equipment is located in the customer's vault or metal clad switchgear in the building, **Sketch #36** and **CRS 6-09-199** respectively.

- (3) When a customer has an alternate 12 KV service with automatic transfer from the normal service line to the alternate source, customer may, upon receiving PPL EU approval, install those facilities ahead of the transfer switches that are necessary to effect the transfer operation.

- (4) When the high voltage metering equipment is installed outdoors on the pole on which the customer's underground line terminates, the customer installs two poles:
- 1) a service pole with the disconnecting means in accordance with **paragraph (b) Rule 7** and **Sketch #30**, and
 - 2) a meter pole on which his underground service entrance or distribution lines terminate in accordance with **Sketch #34**.
- (5) It is recommended that all high voltage underground conductors be buried to a depth of at least 30 inches. Conductors may be installed in PVC Schedule 40, or threaded galvanized rigid or intermediate steel conduit, or be of a type approved for direct burial.
- Direct burial conductors should be protected from injury due to digging. Where cables rise from the ground, or are installed on a pole and at the building, they shall be enclosed in PVC Schedule 80, or threaded galvanized rigid or intermediate steel conduit. Metal conduit shall be grounded.
- (6) When customer's underground conductors extend under a road they shall be installed in PVC Schedule 40, or threaded galvanized rigid or intermediate steel conduit buried with 30 inch minimum cover (36 inch minimum cover for State Highway crossing).
- Special permission is necessary for crossing under a public road and shall be obtained by the customer from the governing body having jurisdiction.
- (7) Only underground service entrances which are properly installed and maintained by customer will be connected or permitted to remain connected to PPL EU's line.

04-25-06

RULES FOR ELECTRIC METER & SERVICE INSTALLATIONS



RULE 9

- (a) At Customer's Request
- (b) Type Equipment Used
- (c) Equipment Furnished by PPL EU
- (d) Facilities Furnished by Customer
- (e) Selecting Location for Transformers (Access)
- (f) Selecting Location for Three Phase Pad Mounted Transformers Foundation
- (g) Selecting Location for Overhead Transformers In Vault - NOT FOR NEW CONSTRUCTION
- (h) Customer Responsibility Regarding Location for Transformers
- (i) Lighting, Drains, Ventilation and Lock for Door Into Vaults - NOT FOR NEW CONSTRUCTION
- (j) Point of Service
- (k) Service Laterals
- (l) Location of Meters
- (m) Service Lateral Cables Terminating In Cubicles
- (n) Terminating Customer's Service Entrance Conductors In A Vault - NOT FOR NEW INSTALLATIONS

RULE 9 - HIGH VOLTAGE UNDERGROUND PRIMARY FROM OVERHEAD-SECONDARY VOLTAGE SERVICE

a. At Customer's Request:

When a customer requests service at secondary voltage but desires PPL EU to install the transformer(s) in the vicinity of the customer's building with PPL EU's high voltage service line installed underground, PPL EU will provide this type of service under the terms and conditions specified below.

b. Type Equipment Used:

PPL EU uses several types of transformers for this service depending on the service characteristics, location, construction method used, and availability:

CHARACTERISTICS	KVA TRANSFORMER CAPACITY		TYPE OF TRANSFORMER	TYPE OF HOUSING
	MIN.	MAX.		
Single Phase, 3 Wire, 120/240 V.	25	167	Low-Profile Pad-Mount*	Foundation by PPL EU
Three Phase, 4 Wire, 208Y/120 V. **	30	1500	Banked Single Phase Distribution	Vault or above ground walk-in enclosure by Customer
	75	1000	Three Phase Pad-Mount*	Pre-cast concrete foundation by Customer
Three Phase, 4 Wire, 480Y/277 V.	150	2500	Banked Single Phase Distribution *	Vault or above ground walk-in enclosure by Customer
	150	2500	Three Phase Pad-Mount*	Pre-cast concrete foundation by Customer
Three Phase, 4 Wire, 120/240 V. **	30	1500	Banked Single Phase Distribution	Vault or above ground walk-in enclosure by Customer
	50	300	Banked Single Phase Pad-Mount Units*	Foundations by PPL EU
Three Phase, 3 Wire, 480 V.	75	2500	Banked Single Phase Distribution	Vault or above ground walk-in enclosure by Customer
<p>* This type service is only available when a 7.2 kV or 12.47 kV circuit is available for supply.</p> <p>** When three phases are available and the customer requesting 120/240 V, PPL EU encourages consideration of 120/208 V.</p>				

c. **Equipment Furnished by PPL EU:**

PPL EU furnishes, installs and maintains all electrical facilities which are:

- (1) A terminal pole generally on the customer's premises at a location where clearance for the overhead wires can be provided in accordance with the National Electrical Safety Code (NESC) or any other applicable code.
- (2) Line disconnecting and protective equipment and the conduit riser and cable on terminal pole.
- (3) Underground cable between terminal pole and transformers.
- (4) Transformers, associated wiring and equipment.
- (5) The underground service lateral cables from the transformer to the point of service in or on the customer's building when sub-surface or pad-mount transformer is installed.
- (6) **Note: NOT FOR NEW CONSTRUCTION** - The connections between the transformer secondary terminals and customer's service entrance conductors when distribution type transformers are installed in a vault within a building.

d. **Facilities Furnished by Customer:**

The customer agrees:

- (1) To pay PPL EU its estimated cost of installing electrical facilities in excess of the cost of normal construction, plus any excess right-of-way or permit fees incurred by PPL EU.
- (2) To furnish and install, under PPL EU's plans and specifications, subject to PPL EU's inspection, all mechanical facilities consisting of underground conduits when specified, protective barriers when specified, and either a transformer vault for distribution transformers, or a concrete foundation when a three phase, pad-mount transformer is to be installed.

Customer is responsible for piercing and sealing the wall where conduits enter the building.

- (3) Upon completion of construction, ownership of all physical facilities installed by customer to the line side of the point of service, and not located in, on or under buildings shall vest in PPL EU, free-of-charge, and PPL EU will thereafter maintain these facilities at no cost to customer.

Customer grants to PPL EU by perpetual easement, without charge, the right of ingress and egress and the sole right to use these mechanical facilities.

e. **Selecting Location for Transformers (Access):**

The customer and PPL EU choose the location of the vault or transformer foundation to permit free access to a suitable driveway or other area for use by PPL EU's mobile crane to install, replace or remove transformers and where future additions to the building will not block the access.

f. **Selecting Location for Three Phase Pad Mount Transformers Foundation:**

PPL EU normally installs pad-mount transformers on a foundation installed by the customer at ground level. Pad-mount transformers will not be installed in vaults within a building.

Sketch #40 shows a foundation for a typical pad-mount transformer installation.

See also:

- a.) **CRS 6-17-122** Three Phase Pad Mounted Transformer Installations 75 kVa to 2500 kVa Capacity, and
- b.) **CRS 6-19-100**, Customer Low Voltage Switchboards Service Cable Terminal Compartment Arrangements and Clearances

g. **Selecting Location for Overhead Transformers In Vault - NOT FOR NEW CONSTRUCTION:**

Where existing, PPL EU installs standard overhead distribution transformers in a customer-owned vault within the building. If the vault is below grade either inside or outside of the building and when PPL EU determines that the physical conditions require the installation of submersible transformers and associated equipment, the additional cost of such submersible equipment over standard overhead distribution facilities will be paid to PPL EU by the customer.

See:

- a.) **CRS 6-09-198**, 12 kV 3 Phase Service Instrument Transformer Arrangement in Customer-Owned Transformer Vault or enclosure Underground Supply
- b.) **CRS 6-17-163** Customer Installed Transformer Vault: Vault Arrangement and Grounding Details 30 KVA to 2500 KVA Capacity

h. **Customer Responsibility Regarding Location for Transformers:**

The customer is solely responsible for meeting the code requirements regarding the location of the transformer installation in relation to combustible materials, buildings, fire escapes, and door or wall openings. Whenever fire resistant barriers, enclosures or other safeguards are required by any authority having jurisdiction, such safeguards are installed, owned, and maintained entirely by the customer at customer's expense.

See **CRS 6-17-122** for more information.

i. Lighting, Drains, Ventilation and Lock for Door Into Vaults - NOT FOR NEW CONSTRUCTION:

Where existing, PPL EU installs distribution transformers in customer-owned vault, the customer furnishes, installs, and maintains the lighting system, proper drains and screened ventilated openings in the vault and the door(s) equipped either with a single access hasp suitable for PPL EU's padlock with a 3/8 inch shackle. PPL EU shall have sole access to and use of the transformer vault. **Sketch #38** shows a typical transformer vault installation.

j. Point of Service:

The point of service depends on the type and location of the transformer installation:

- (1) When PPL EU installs underground service laterals from transformers located in an above or below ground enclosure or vault, the customer runs the service entrance conductors into the enclosure and the point of service is where PPL EU connects its leads to the customer's service entrance conductors, usually a bus duct service entrance.
- (2) When PPL EU installs underground service laterals from single or three phase pad mounted transformers, the point of service is where PPL EU connects its service laterals to the customer's service entrance equipment.

See **CRS 6-19-100** and **Sketch #7**

k. Service Laterals:

PPL EU generally provides only one service lateral to one premises. However, where PPL EU determines that multiple service laterals are required by the customer's capacity requirements, PPL EU designates the locations of the multiple service laterals.

l. Location of Meters:

PPL EU furnishes and the customer installs the metering transformers and meter panel at the location and in the manner designated by PPL EU.

The meter panel and meter shall not be located in a vault or on customer's switchgear.

m. Service Lateral Cables Terminating in Cubicles:

When service lateral cables terminate in a cubicle containing instrument transformers, the line side terminal connectors provided by the customer shall be arranged to provide a 48 inch minimum working space height from the service lateral conduit bushings to the bus terminals as required by **Rule 15 (f)**. This space shall be free of bus work, braces or other obstructions, and arrangement of switchgear shall permit free access for arranging, terminating and maintaining the service lateral cables.

The customer provides service lateral connectors of tinned aluminum suitable for terminating 750 kcmil aluminum conductors. Plated copper or bronze connectors are not acceptable.

n. **Terminating Customer's Service Entrance Conductors In A Vault - NOT FOR NEW INSTALLATIONS:**

Where existing, service is provided from transformers located in a vault in a building, the instrument transformers and their mounting may be installed in the vault and be the terminal point for the customer's service entrance cables.

PPL EU will provide its standard current transformer mounting when the service entrance consists of not more than 5 - 750 kcmil aluminum or 5 - 500 kcmil copper conductors per phase.

08-04-2006

RULES FOR ELECTRIC METER & SERVICE INSTALLATIONS



RULE 10

- | |
|---|
| <ul style="list-style-type: none">(a) PPL EU Low Tension Network (LTN) Locations(b) PPL EU Establishes(c) Secondary Voltage and Load Criteria(d) Load Limitation for Existing Services(e) Point of Service(f) Location of Point of Service(g) Multiple Points of Service(h) High Voltage Service(i) Facilities Installed by PPL EU(j) Transformer Vault in Customer's Building |
|---|

RULE 10 – LOW TENSION NETWORK (LTN) - SERVICE IN DOWNTOWN BUSINESS DISTRICTS

a. **PPL EU Low Tension Network (LTN) Locations:**

- Allentown
- Harrisburg
- Lancaster
- Scranton
- Wilkes-Barre
- Williamsport

b. **PPL EU Establishes:**

PPL EU has established distribution systems in downtown business districts. All service within these areas will be served under terms and conditions determined by PPL EU.

c. **Secondary Voltage and Load Criteria:**

For Low Tension Network (LTN) service, loads up to 500 KVA are normally served at 208Y/120 Volts. Loads between 500 and 1000 KVA will be served at either 208Y/120 or 480Y/277 Volts as determined by PPL EU. Loads in excess of 1000 KVA will normally only be served at 480Y/277 Volts.

If a customer desires service at 480Y/277 or 208Y/120 Volts for a load that differs from the above criteria, it may be served at PPL EU's option, but only under special terms and conditions determined by PPL EU.

Service at other than the established secondary voltage will be served under

special terms and conditions determined by PPL EU.

For non-LTN's, service will be provided at PPL EU's standard service voltages.

d. Load Limitation for Existing Services:

For load additions at existing 208Y/120 Volt services, the resulting total load will normally be subject to the same criteria as for new loads.

e. Point Of Service:

The point of service, shall be the point where PPL EU connects the service lateral cables to the customer's service entrance equipment:

(1) For secondary voltage service, on the line side terminals of:

- a. customer provided fused manual disconnect switch ahead of the meter adequate for the available fault current with provision for dual locking
- b. the metering equipment for an individual service,
- c. common bus for multi-meter service,
- d. customer's service entrance conductors in a splice box, or
- e. customer's service disconnect when disconnect is required by National Electrical Code, other applicable code or PPL EU. The disconnect device must be rated as service equipment and lockable in both the open and closed positions to accommodate a 3/8 inch shackle lock.

(2) For high voltage service, on the line side terminals of customer's service disconnecting devices.

f. Location of Point of Service:

The location of the point of service is designated by PPL EU normally at the most practical point closest to existing PPL EU facilities.

PPL EU generally provides only one point of service to a premises; however, where PPL EU determines that multiple points of service are required by customer's capacity requirements.

g. Multiple Points of Service:

PPL EU designates the locations of the multiple points of service.

The customers installation must conform to the National Electric Code (NEC) or any other applicable code.

h. High Voltage Service:

High voltage service may be served at the established primary service voltage when approved by PPL EU. Where only one service line is available, the service of underground high voltage service is solely at PPL EU's discretion.

- (1) The customer installs the number, type and size of conduits to the point of service as specified by PPL EU.
- (2) The customer is responsible for piercing and sealing the wall where the conduits enter a building.
- (3) For LTN services:
 - a. PPL EU installs, owns, and maintains the service lateral conduits from its street mains to the curb.
 - b. All conduits in, on or under buildings, to the curb are owned and maintained by the customer.
- (4) Upon completion of construction, ownership of all physical facilities installed by customer on the line side of the points of service not located in, on or under buildings, shall vest in PPL EU free-of-charge.

PPL EU thereafter will maintain these facilities at no cost to customer.

i. Facilities Installed by PPL EU:

PPL EU installs, owns and maintains the service lateral cables from PPL EU facilities to the point of service.

j. Transformer Vault in Customer's Building:

When a vault for PPL EU's distribution transformers is located in a customer's building, the installation is under a special agreement.

The owner of the building, under PPL EU specifications and inspection, furnishes and installs all ducts and the vault including the lighting system, proper drains and screened ventilating openings, and the door(s) must be equipped with a hasp that will accommodate 3/8 inch shackle lock

The owner of the building owns and maintains the vault and all ducts in or under his building and grants to PPL EU by perpetual easement, the right of ingress and egress and the sole right to access and use of the vault and ducts. No transformers, protective devices or other equipment owned by any customer shall be installed in such vaults.

06-19-2006

RULES FOR ELECTRIC METER & SERVICE INSTALLATIONS



RULE 11A

- | |
|---|
| <ul style="list-style-type: none">(a) Development Defined(b) Underground System Defined(c) Agreement Conditions(d) PPL EU Installs Electrical System(e) Selecting Location for Vaults and Transformers(f) Service Laterals Installed After System is Completed |
|---|

RULE 11A - UNDERGROUND DISTRIBUTION IN COMMERCIAL OR INDUSTRIAL DEVELOPMENT AREAS

a. Development Defined:

A development is a single parcel of land or contiguous parcels of land under the ownership and control of an individual, partnership or corporation (referred to as developer) who can contract with PPL EU for the establishment and construction of an underground distribution system in a designated area.

b. Underground System Defined:

Underground facilities are an underground distribution system when the facilities:

- (1) Include primary supply line to one or more distribution transformers, secondary distribution mains and/or service laterals to each customer's premises.
- (2) Are all within the designated underground service area.
- (3) Supply more than one customer in more than one building.

c. Agreement Conditions:

PPL EU may establish an underground distribution system within the designated area of the development which would normally be served by overhead distribution and provide underground service to individual customer's premises, under an agreement with the developer under which the developer agrees to:

- (1) Pay PPL EU, PPL EU's estimated excess cost for installing underground electrical distribution facilities over normal overhead construction.
- (2) Establish grade for the entire system, excavate, backfill and restore all trenches. Furnish and install all conduits from PPL EU's terminal pole(s) to points of service including handholes, manholes and foundations for PPL EU's cables for three

phase distribution systems.

- (3) Furnish and install foundations for all above grade transformers or vaults for transformers located in buildings. Furnish and install protective barriers when specified.
- (4) Upon completion of construction, ownership of all physical facilities installed by customer on the line side of the points of service not located in, on or under buildings, shall vest in PPL EU free-of-charge.

PPL EU thereafter will maintain these facilities at no cost to customer.

- (5) Grant to PPL EU, free-of-charge by perpetual easement, the sole right to use, maintain and extend the facilities transferred to PPL EU.

d. PPL EU Installs Electrical System:

PPL EU installs, owns and maintains the complete electrical system from the connection to the overhead distribution system to the point of service at each customer's premises. The point of service for the individual customers is the same as described in **paragraph (d) Rule 10** . No overhead service is provided within an underground service area.

e. Selecting Location of Vaults and Transformers:

The customer and PPL EU choose the location of the vaults or transformer foundations or enclosure to permit free access to suitable driveway or other area for use by PPL EU's mobile crane to install, replace or remove transformers and where future extension to the buildings will not block the access.

The customer is solely responsible for the choice of location of transformer foundations in relation to combustible materials, buildings, fire escapes and door and wall openings. Whenever fire restricting barriers, enclosures or other safeguards are required by any authority having jurisdiction, such safeguards are installed, owned, and maintained entirely by the customer at customer's expense.

Sketch #38 shows a typical transformer vault installation and **Sketch #40** shows a foundation for a typical pad-mount transformer installation.

f. Service Laterals Installed After System is Completed:

When buildings provided for in the original agreement, are erected after the system is completed, the customer or builder constructing the building is responsible for excavating, backfilling and restoring the surface of the trench for the service lateral and installing such mechanical facilities as the developer would have furnished and installed had the building been erected when the system was constructed.

PPL EU assumes ownership of the conduit to the building, when installed, upon completion and installs, owns and maintains the service lateral cables.

See **CRS 6-15-160, CRS 406c-199, CRS 402c-115.**

06-02-2006

RULES FOR ELECTRIC METER & SERVICE INSTALLATIONS



RULE 11B

- (a) Residential Development Defined
- (b) Ownership
- (c) Point of Service
- (d) Street Lighting
- (e) Standard Installation
- (f) Applicants Responsibility
- (g) Additional Costs
- (h) Tariff Rule
- (i) Conduit Requirement

RULE 11B - UNDERGROUND ELECTRIC IN RESIDENTIAL DEVELOPMENTS

a. Residential Development Defined:

A residential development is a single parcel of land or contiguous parcels of land under the ownership and control of an individual, partnership or corporation (referred to as developer) to be used for the construction of single-family residences, apartment houses, mobile homes, town houses or row homes.

b. Ownership:

All distribution and service lines for electric service within a residential development shall be installed underground and shall be installed, owned and maintained by PPL EU.

c. Point of Service:

The point of service for each service is to be determined by PPL EU.

d. Street Lighting:

Any street lighting services shall also be installed underground.

e. Standard Installation:

PPL EU's standard installation is along front property lines using pad-mount transformers, but PPL EU reserves the right to install facilities in the most economical manner with due consideration for initial costs, maintenance costs and aesthetics.

Rear lot service and meter locations should be avoided since subsequent installation of swimming pools, patios, fences and other structures by the customer may require the relocation of PPL EU facilities at customer's expense.

Any service in the rear of the house must be installed in gray schedule 40 PVC conduit (UL approved) encased in concrete (minimum 3 inch thickness). Before you proceed, please contact PPL EU Distribution Technician to discuss this installation and additional charges that may apply.

f. Applicants Responsibility:

The applicant for electric service to a residential development shall:

- (1) At applicant's own cost, provide PPL EU with satisfactory easements for occupancy by distribution, service, street lighting and related facilities except in public ways which PPL EU has the legal right to occupy.
- (2) At applicant's own cost, clear the ground in which the aforesaid lines and related facilities are to be laid of trees, stumps and other obstructions, rough grade it to within 6 inches of final grade, excavate and backfill trench per **CRS 6-14-121** or **CRS 6-14-122**. The trenching and backfill is subject to the inspection and approval of PPL EU.

PPL EU's part of the installation shall consist only of installing lines and other service-related facilities.

- (3) Request electric service at such time that the aforesaid lines may be installed before curbs, pavements and sidewalks are laid and before temporary service for construction is required.

The route of lines must be kept clear of machinery and other obstructions when the line installation crew is scheduled to appear; and otherwise cooperate with PPL EU to avoid unnecessary costs and delay.

- (4) Pay any estimated additional costs incurred by PPL EU for the installation of underground facilities that deviate from PPL EU's underground construction standards and specifications if such deviation occurs due to the nature of the development or is requested by the applicant for electric service and is acceptable to PPL EU.

g. Additional Costs:

If the applicant fails to comply with **Paragraph (f) (2) or (f) (3)** of this rule, or changes applicant's plot plan after the installation of the lines has begun, or otherwise necessitates additional costs by his act or failure to act, such additional costs shall be borne by the applicant.

h. Tariff Rule:

For residential developments, the underground installation will be made in accordance with PPL EU's tariff Rule 4-C(3).

i. Conduit Requirement:

Conduits are required under roadways when specified by PPL EU. PPL EU provides the conduits under roadways.

10-26-2011

RULES FOR ELECTRIC METER & SERVICE INSTALLATIONS



RULE 12

- (a) Customer Provides Space
- (b) Capacity Determined by PPL EU
- (c) Customer Installs Meter Mounting
- (d) PPL EU Installs, Relocates or Removes All Meters
- (e) Metered and Unmetered Conductors Not In The Same Raceway
- (f) Metering Equipment Not Used As Junction and/or Pull Box
- (g) Protective Barriers
- (h) Foreign Source/Power
- (i) Sealing of Equipment
- (j) Grounding

RULE 12 - METERS -- GENERAL

a. Customer Provides Space:

The customer provides space to accommodate PPL EU's meters at the point of service or nearest location designated by PPL EU. The meters must be accessible to PPL EU employees.

b. Capacity Determined by PPL EU:

PPL EU specifies the capacity and type of meter installation required to accommodate the customer's load and type of service.

c. Customer Installs Meter Mounting:

The customer installs the meter base or meter panel. The meter base or meter panel must be securely fastened on a wall or other support structure and must be level, plumb and vibration free.

Meter bases and meter panels mounted on masonry surfaces must be secured using non-corrosive metal machine screws in lead sleeve wedge-type expansion anchors (1/4 inch minimum). Meter bases and meter panels mounted on wood surfaces must be secured using non-corrosive wood screws (#12 minimum) into the support studs.

d. PPL EU Installs, Relocates or Removes All Meters:

Only PPL EU authorized personnel can install, remove or relocate a meter.

The customer makes all necessary changes in wiring before PPL EU moves a meter to a new location.

e. Metered and Unmetered Conductors Not in the Same Raceway:

Metered and unmetered conductors shall not be installed in the same conduit or raceway.

f. Metering Equipment Not Used As Junction and/or Pull Box:

Self-contained meter bases, CT cabinets and switchgear metering compartments, etc shall not be used as junction and/or pull boxes. Taps and bugs are not permitted.

Customer equipment shall not be installed or connected in metering equipment. Only service entrance conductors can be connected in metering equipment.

Foreign energy sources shall not be connected directly to termination points/connectors/CT mounting bridge/benelex located in PPL EU metering equipment. (See **Definitions Page** for more information on what PPL EU defines as Foreign Energy Source and Metering Equipment.)

See **Rule 15** for instrument transformer cabinets.

RULES FOR ELECTRIC METER & SERVICE INSTALLATIONS



RULE 13

- (a) Meter Location-Outdoor
- (b) Mounting Height of Meter
- (c) Meter Location-Indoor
- (d) Working Space
- (e) Attachment Permit for Meters on PPL EU Pole
- (f) Aesthetic Meter Locations

RULE 13 - METERS — SECONDARY SERVICE — UNDER 600 VOLTS — LOCATION

a. **Meter Location - Outdoor:**

PPL EU's standard practice is to locate all meters outdoors. Indoor meter installations require approval from the Supervisor of Metering Services.

b. **Meter Mounting Height:**

PPL EU specifies the installation location for meter bases/ meter panels. Customer installs meter base/meter panel 5 feet (from centerline of meter opening) above finished grade or floor.

Exception: Meter base may be raised higher than standard 5 ft, in areas prone to flooding, with preapproval by Supervisor - Metering Services.

c. **Meter Location - Indoor:**

Meter base/panel installations shall be in the basement or on the ground floor. Meter bases/panels may not be installed near furnaces or in rooms where excessive heat, moisture, acid fumes or dust are present.

PPL EU requires 18 inches minimum clearance between the centerline of the meter opening and any adjacent wall. **Sketch #17** and **Sketch #18**.

Exception: Meter base may be raised higher than standard 5 ft, in areas prone to flooding, with preapproval by Supervisor - Metering Services.

d. **Working Space:**

PPL EU requires 50 inches minimum clear space in front of meter bases/panels, instrument transformer cabinets or switchgear metering compartments.

The work space shall permit at least a 90 degree opening of metering equipment doors or panels. The installation of the metering equipment must not interfere with

opening of doors or windows.

e. **Attachment Permit for Meters on PPL EU Pole:**

Metering equipment shall not be installed on a PPL EU pole. An exception requires written approval from PPL EU.

f. **Aesthetic Meter Locations:**

PPL EU will consult with customers to develop aesthetically pleasing meter installations when requested.

It is prohibited to recess meter bases/panels, conceal service entrance conductors, enclose meter bases/panels in boxes, or mount meter bases/panels so that the center of the meter is lower than approximately 5 feet, and plant flowers, trees and shrubs near meter bases/panels.

10-26-2011

**RULES FOR ELECTRIC METER
& SERVICE INSTALLATIONS**



RULE 14

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|--|
| <p>(a) Self-Contained Metering</p> <p>(b) Meter Bases</p> <p>(c) Location of Meter Base and Service Disconnect</p> <p>(d) By-Pass Facilities</p> |
|--|

RULE 14 - METERS — SECONDARY SERVICE — SELF-CONTAINED INSTALLATIONS

a. Self-Contained Metering:

Customer installs and maintains an approved meter base specified by PPL EU for self contained meters.

PPL EU specifies self-contained meters as follows:

Self-Contained Meter Table			
Meter Class	Phase	Voltage	Service Size
200	1	120/208 (Network)	Up To And Including 200A
200	1	120/240	Up To And Including 200A
200	1	240/480	Up To And Including 200A
200	1	277/480 (Network)	Up To And Including 200A
200*	3	208Y/120, 4 wire	Up To And Including 200A
200*	3	240Δ, 4 wire	Up To And Including 200A
200*	3	480Y/277, 4 wire	Up To And Including 200A
320	1	120/208 (Network)	400A
320	1	120/240	400A
320	1	240/480	400A
320	1	277/480 (Network)	400A
320**	3	208Y/120, 4 wire	400A
320**	3	240Δ, 4 wire	400A

320**	3	480Y/277, 4 wire	400A
480	1	120/240	600A
480***	3	208Y/120, 4 wire	600A
480***	3	240Δ, 4 wire	600A

* No individual phase current shall exceed 200A

** No individual phase current shall exceed 320A

*** No individual phase current shall exceed 480A

b. Meter Bases:

The table of **Approved Meter Service Devices** list the PPL EU approved meter bases and the minimum and maximum conductor sizes for the approved meter bases. Install one conductor per terminal.

Installation of multiple terminal lugs is permitted in Class 320 and Class 480 meter bases.

PPL EU specifies meter bases capable of accepting 350, 500 or 750 kcmil conductor if loads or service distance deems it necessary.

Sketch #25 and **Sketch #25A** show typical meter base connections.

c. Location of Meter Base and Service Disconnect:

The meter base is installed in the line side of all service protective equipment except where a main service disconnect is required by the National Electrical Code.

480 volt self-contained an additional circuit breaker must be installed on the line side of the meter base.

d. By-Pass Facilities:

Manual type by-pass facilities are required on all ringless meter bases. By-passes are not permitted on ring type meter bases.

06-10-2008

RULES FOR ELECTRIC METER & SERVICE INSTALLATIONS



RULE 15

- (a) Instrument Transformers
- (b) Outdoor and Indoor Installations
- (c) Service Conductor Connection in Instrument Transformer Cabinet
- (d) Location of Metering
- (e) Switchgear
- (f) Current Limiting Fuses
- (g) Current Transformer Polarity
- (h) Meter Panel and Conduit
- (i) Pad Mounted Metering and Service Termination Cabinet

RULE 15 - METERS -- SECONDARY SERVICE UNDER 600 VOLTS -- INSTRUMENT TRANSFORMER INSTALLATIONS

a. Instrument Transformers:

PPL EU furnishes current transformers, current transformer mounting device, meter panel, and voltage transformers when instrument transformer metering is specified.

b. Outdoor and Indoor Installations:

PPL EU furnishes instrument transformers and their mounting devices. Customer furnishes, installs and maintains an approved outdoor metal cabinet and installs instrument transformers and their mounting in the cabinet. See **Sketch #8** , **Sketch #8B**, **Sketch #9**, **Sketch #10**, **Sketch #10A**, **Sketch #11**, **Sketch #12**, **Sketch #13**, **Sketch #29B** and **Sketch #29C**.

PPL EU also furnishes and installs wiring between the instrument transformers and meters.

Customer installs, owns and maintains 1-1/4 inch minimum, galvanized rigid or intermediate steel conduit and fittings for PPL EU's meter cable between the instrument transformers to the meter panel. Schedule 40 PVC may be used unless PPL EU determines that conduit would be prone to physical damage.

Prior approval from Supervisor-Metering Services is required to install indoor instrument transformer cabinet, see **Sketch #14**, **Sketch #14A**, **Sketch #14B**,

Sketch #15 and Sketch #15A.

c. Service Conductor Connection in Instrument Transformer Cabinet:

The line, load and neutral terminals of the current transformer mounting device in an instrument transformer cabinet shall be the only terminals used for termination of service conductors. Each connector shall accommodate only one conductor, 400A maximum. Taps and bugs are not permitted in the instrument transformer cabinet.

PPL EU requires that no connection be made from line side of instrument transformer to other meters or mounting devices. Multiple circuits are permitted on load side terminals only.

d. Location of Metering:

PPL EU specifies the location of all instrument transformers and requires that they are installed on the line side of the service protective equipment.

Instrument transformers may be installed on the load side of service protective equipment when required by the NEC.

e. Switchgear:

Prior approval from PPL EU is required for customer to install instrument transformers in switchgear. Instrument transformers are installed on the line side of the main service disconnect. See **Sketch #21, Sketch #23 and Sketch #50.**

Two separate compartments are required for line termination and instrument transformer metering. Each compartment shall have a sealable, hinged full screen door for access to equipment.

Isolating barriers, made of insulating material, shall be installed to separate the metering compartment from all other compartments.

Switchgear manufacturers furnish filler bars in compliance with UL or any other applicable industry standards, See **Sketch #21, Sketch #23 and Sketch #50.**

Prior to manufacture of switchgear, detailed (front view, side view and one line drawing) drawings of the metering and termination compartments must be submitted to PPL EU.

Meter panels or meters shall not be installed in or on the switchgear. Customer owned equipment shall not be installed in the termination or metering compartments.

f. Current Limiting Fuses:

PPL EU requires 48" minimum clearance between top of conduit and base of bus bars. See **Sketch #21, Sketch #23 and Sketch #50.**

g. Current Transformer Polarity:

Customer installs current transformers with white dot and/or H1 polarity connected to the line side of service cables.

h. Meter Panel and Conduit:

PPL EU furnishes and specifies location of meter panel. Customer installs meter panels at the location specified by PPL EU. See **Sketch #8C and #8D**.

For metering conduit runs 50 feet and all substation metering conduit runs, approval by Metering Support is required.

- 1-1/2 inch minimum threaded galvanized or intermediate rigid steel or gray Schedule 40 PVC conduit is required
- Elbows and LBs in conduit runs shall be galvanized rigid or intermediate steel conduit
- LR condulets are not permitted
- All bends shall have at least a 24 inch radius
- No more than three 90 degree bends shall be installed

PPL EU furnishes, installs and connects the metering cable from the instrument transformers to the meter panel.

i. Pad Mounted Metering and Service Termination Cabinet:

Prior approval from PPL EU is required for customers to install Pad Mounted Metering and Service Termination Cabinets.

Separate compartments are required for PPL EU and Customer use. Each compartment shall have a sealable, triple hinged door for access to equipment.

Prior to manufacture of cabinet, a detailed drawing must be submitted to PPL EU.

Refer to the approved switchgear metering and termination compartment table (**Table 1**) for pre-approved Pad Mounted Metering and Service Termination Cabinets. Cabinets not already on the preapproved list must have detailed construction drawing submitted to PPL EU for approval by the area design supervisor prior to construction.

Customer owned equipment shall not be installed in or on the compartment.

Location of meter panel must be approved by Supervisor Metering Services.

See Sketch #16, Sketch #16A and Sketch #16B.

08-12-2011

RULES FOR ELECTRIC METER & SERVICE INSTALLATIONS



RULE 16

- (a) Grouping
- (b) Identify Meters and Service Entrance Equipment
- (c) Method of Installing Self Contained Meter Bases
- (d) Method of Installing Self Contained and Secondary Metering
- (e) Common Service Entrance Conductors - Up to Six Meters
- (f) Common Service Entrance Conductors - Exceeding Six Meters
- (g) Multi-Meter Arrangement for a Single Service Installation

RULE 16 - METERS - SECONDARY SERVICE - MULTI-METER INSTALLATIONS

a. Grouping:

Meters in a multiple occupancy building are to be grouped at one location which is accessible to PPL EU.

In large buildings, it may be necessary to establish several metering points and group the meters at each metering point.

PPL EU requires that customers comply with specifications shown in the **Tables of Approved Meter Service Devices**.

Customer installs one service entrance per building. The conductors between the service protective equipment and each group metering point must be run in continuous conduit.

b. Identify Meters and Service Entrance Equipment:

The meter base and service disconnecting equipment for each customer in a multi-meter installation shall be clearly and permanently marked by the owner designating the location served, (see next paragraph for details). These markings shall be placed in a location that easily and accurately identifies the individual service.

PPL EU considers permanent marking to be: etched into the base by an etching tool, painted using a paint marker (or similar), permanently attaching a plastic or metal engraved tag, or a permanently attached label (from a label maker) rated for outdoor use. Use of a permanent marker is not acceptable.

In situations where the meter base or disconnect covers are interchangeable, In order to eliminate mixed meter situations, markings shall be placed on the base itself adjacent to the cover. If that is not possible, additional markings are required on the inside of the meter base.

c. Method of Installing Self Contained Meter Bases:

Multiple meter bases are installed horizontally with built-in bussing (see **Sketch #26**), or as individual meter bases preceded by a sealable horizontal wire trough.

See **Tables of Approved Meter Service Devices** for approved factory assembled multiple meter base units.

d. Method of Installing Self Contained and Secondary Metering:

Multi-meter installations consisting of meter bases and instrument transformer cabinets are preceded by a sealable horizontal wire trough. See **Sketch #28**.

e. Common Service Entrance Conductors – Up To Six Meters:

Service entrance conductors enter the meter base through a single hub in the top, or through a conduit in the bottom. See **Sketch #26**.

When a wire trough is installed, the service entrance conductors enter through the side or bottom of the trough. See **Sketch #28**.

Customer makes all taps from the service entrance conductors in the trough to the metering equipment for each service. See **Sketch #28**.

f. Common Service Entrance Conductors – Exceeding Six Meters:

When more than six disconnects per service are grouped in one location the National Electrical Code (NEC) or any other applicable code requires the installation, ahead of the meters and disconnects, of a sealable, fused, main switch(es) or circuit breaker(s) of a type and interrupting duty acceptable to PPL EU.

PPL EU requires a main disconnect that is sealable in both open and closed positions.

Customer is responsible to install an additional insulated grounding conductor between the main service disconnecting equipment, meter enclosures and panel boards when required by the NEC.

A sealable termination compartment shall be installed ahead of the main switch(es) or circuit breaker(s) to terminate PPL EU's service lateral conductors, for underground service.

See **Sketch #54** and **Sketch #54A** for required clearances in the termination compartment.

g. Multiple Meter Arrangement for a Single Service Installation:

Grouped meter bases may consist of 2 single phase or 2 three phase bases for self contained meters. **Sketch #25A** shows a typical installation of a two gang meter base.

04-14-2009

RULES FOR ELECTRIC METER & SERVICE INSTALLATIONS



RULE 17

- | |
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| <p>(a) When Required</p> <p>(b) Construction Material</p> |
|---|

RULE 17 - METERS — SECONDARY SERVICE — INDOOR METER BASE MOUNTINGS

a. **When Required:**

Where an indoor meter installation is approved by PPL EU, no meter board is required unless the physical structure of the wall prevents firm and plumb mounting of the metering equipment.

See **Sketch #17 and Sketch #55** for meter clearance information. See National Electric Code Article 110 or any other applicable codes for more information.

b. **Construction Material:**

The meter board, when required, is furnished and installed by the customer and may be either a metal panel or a 3/4-inch-thick wood board constructed of plywood.

06-02-2006

RULES FOR ELECTRIC METER & SERVICE INSTALLATIONS



RULE 18

- (a) PPL EU Specifies Equipment Location
- (b) Outdoor Pole Mounted Installation
- (c) Underground Service to Switchgear
- (d) Specifications for Switchgear
- (e) Specifications for Switchgear - Accessible Compartment for Current Transformers and Voltage Transformers
- (f) Meter Panel Mounting
- (g) Conduit for Metering Cable

RULE 18 — METERS AND METERING EQUIPMENT — HIGH VOLTAGE SERVICE EXCEEDING 600 VOLTS THROUGH 15KV

a. PPL EU Specifies Equipment Location:

PPL EU specifies the location and/or arrangement of metering equipment.

b. Outdoor Pole Mounted Installation:

Instrument transformers and meter panel for outdoor metering are installed on a separate meter pole located not less than 15 feet from the service pole

However, when space is limited, the Supervisor-Metering Services may approve installing instrument transformers on the customer's service pole or structure for overhead service to overhead distribution only; see **Sketch #32** and **Sketch #35**.

c. Underground Service to Switchgear:

When the customer is served by underground high voltage service laterals the metering may be installed in the customer's switchgear, see **CRS 6-09-199** and **Sketch #39**.

d. Specifications for Switchgear:

When instrument transformers are installed in switchgear, the supplier furnishes detail drawings of the instrument transformer arrangement to PPL EU for acceptance and approval before constructing the switchgear.

For a list of switchgear with acceptable termination and metering compartments see Table 3 of the Switchgear Metering and Termination Compartment section of the Metering Tables. It is recommended that manufacturers submit drawings to PPL EU for review.

Switchgear for 15 kV or less shall conform to the general specifications in paragraphs (e) and (f) below.

e. **Specifications for Switchgear - Accessible Compartment For Current Transformers and Voltage Transformers:**

A separate isolated, sealable and accessible compartment shall be provided within the switchgear for standard current and voltage transformers.

This compartment shall be large enough to contain three (3) current transformers and three (3) voltage transformers and so designed that, after proper electrical isolation, the transformers can be readily installed or changed after the switchgear is installed.

f. **Meter Panel Mounting:**

PPL EU furnishes its standard meter panel which the customer installs at the location designated by PPL EU.

The meter panel shall not be installed in or on metal-clad switchgear.

g. **Conduit for Metering Cable:**

PPL EU furnishes and specifies location of meter panel. Customer installs meter panels at the location specified by PPL EU. See **Sketch #8c and Sketch #8D**.

For metering conduit runs 50 feet or less, the customer furnishes and installs a 1-1/4 inch minimum galvanized rigid or intermediate steel or gray Schedule 40 PVC conduit between the instrument transformers and the meter panel.

For metering conduit runs over 50 feet and all substation metering conduit runs, approval by Metering Support is required.

- 1-1/2 inch minimum threaded galvanized or intermediate rigid steel or gray Schedule 40 PVC conduit is required
- Elbows and LBs in conduit runs shall be galvanized rigid or intermediate steel conduit
- LR condulets are not permitted
- All bends shall have at least a 24 inch radius
- No more than three 90 degree bends shall be installed

PPL EU furnishes, installs and connects the metering cable from the instrument transformers to the meter panel.

See **Sketch#16, Sketch #16A and Sketch #16B**.

08-12-2011

RULES FOR ELECTRIC METER & SERVICE INSTALLATIONS



RULE 19

- (a) Requirements
- (b) Inspection and Approval
- (c) Inspection Exemption – Railroad Not Covered in NEC
- (d) PPL EU May Refuse to Connect to Customer's Facilities Which are Dangerous and Defective
- (e) PPL EU Is Not Responsible for Customer's Wiring or Equipment
- (f) Electrical Inspection Required After A Fire
- (g) Electric Inspection Required After A Flood
- (h) Cut-In Card Documents

RULE 19 - CUSTOMER'S EQUIPMENT — INSPECTION

a. Requirements:

The customer's wiring and electrical apparatus shall be installed, maintained and operated by the customer in accordance with and in conformity to any and all, local or other governmental requirements, the National Electrical Code and the IRC, and these rules.

b. Inspection and Approval:

PPL EU requires that customer's new, changed, or upgraded electric service entrance facilities be inspected and approved by individuals who are registered or certified by the Commonwealth of Pennsylvania Department of Labor and Industry. This requirement applies to temporary and permanent electric service entrance facilities.

PPL EU requires all inspection requirements per the NESC, NEC, state, municipal, local, fire and any other applicable code must be met.

Successful completion of the inspection indicates to PPL EU that the customer's service entrance facilities are ready for the introduction or re-introduction of electricity by PPL EU from PPL EU's electric distribution system. Inspectors who are certified or registered by the **Commonwealth of Pennsylvania Department of Labor and Industry** are listed on the **Listing of Certified and Registered Code Officials** Web page click on **Certification List** (updated daily).

PPL EU recommends, in the interest of the customer's protection, that all new wiring or changes and additions to existing wiring be inspected even when there is no PPL EU involvement. Additionally, PPL EU urges the customer to have any electrical work inspected if a temporary disconnect was required.

c. Inspection Exemption – Railroad Not Covered in NEC

Per NEC 90.B(3) Installations of railways for generation, transformation, transmission or distribution of power used exclusively for operation of rolling stock or installations used exclusively for signaling and communication purposes are not covered by the NEC and therefore exempt from inspection requirements to connect and reconnect service.

d. PPL EU May Refuse to Connect to Customer's Facilities Which are Dangerous and Defective:

PPL EU does not inspect the customer's wiring or electrical apparatus. Before connecting a service, PPL EU checks to see that the customer's service entrance facilities are installed according to PPL EU specifications, and are in compliance with PPL EU's Rules for Electric Meter and Service Installation (REMSI) Document.

PPL EU may refuse to connect the service whether or not a signed cut-in card has been secured, when in PPL EU's judgment, the customer's service entrance facilities are dangerous or defective, do not conform to these rules, or were not installed in accordance with PPL EU's specifications.

e. PPL EU Is Not Responsible for Customer's Wiring or Equipment:

In accordance with Rule 2G of PPL EU's tariff; PPL EU is not responsible for the customer's wiring or equipment.

Furthermore, any electrical inspection agency whose cards are accepted by PPL EU is not an agent of PPL EU in any respect whatsoever, and no liability to PPL EU results from the reliance of the customer on any approval obtained from any such electrical inspection agency. Customers must rely solely on the electrical inspection agencies for assurance that their facilities are safe.

f. Electrical Inspection Required After A Fire:

An electrical inspection is required anytime there is a fire, in a premise, regardless of whether or not there is damage to the electrical service.

If a premises neighboring the fire location has had their meter pulled due to a fire, and they share a connecting wall (eg. apartment, town house, row home, twin home, etc.) that premises will also be required to have an electrical inspection prior to reconnecting service regardless of whether or not there is damage to their electrical service.

If a premises neighboring the fire location has also had their meter pulled due to a fire, and:

1. the meter was pulled as a precautionary measure only,
2. the premises DO NOT share a connecting wall (eg. apartment, town house, row home, twin home, etc.) with premises that had the fire, and
3. there has been no fire damage to any part (internal and/or external) of the premises,

an electrical inspection will not be required prior to reconnecting service.

g. Electrical Inspection Required After A Flood:

PPL EU requires an electrical inspection if the main electric panel (service disconnect equipment), fuse box or meter base was under water.

If the meter base was not under water, PPL EU will require the customer to sign a waiver attesting that the main electrical panel or fuse box was not under water prior to unblocking the meter.

PPL EU will not enter the building to inspect for water damage on the customer's equipment.

h. Cut-In Card Documents:

Handwritten Version (second last page of this document) - Print out, fill in by hand and **FAX** (see PPL EU Contacts below) to PPL EU.

Electronic Version (web address below) - Use word document to fill in fields (use tab to navigate through document), print and **FAX** (see PPL EU Contacts below) to PPL EU. This version gives the user the ability to save the form electronically for their files.

http://www.pplelectric.com/NR/rdonlyres/98C1BF83-00CF-4E16-ABBA-92F4E77D18FF/0/Cut_In_Card_Fax_Sheet_Fill_In_Electronic_Form_7_2011.doc

Violation Cut In Card:

Handwritten Version (last page of this document) - Print out, fill in by hand and **FAX** (see PPL EU Contacts below) to PPL EU.

Electronic Version (web address below) - Use word document to fill in fields (use tab to navigate through document), print and **FAX** (see PPL EU Contacts below) to PPL EU. This version gives the user the ability to save the form electronically for their files.

http://www.pplelectric.com/NR/rdonlyres/85B79CA7-2B8F-4985-916B-BBA5F8030FCC/0/Violation_Cut_In_Card_Fax_Sheet_Fill_In_Electronic_Form_7_2011.doc

PPL EU Contacts

For office name, area served, contact name, phone/fax/e-mail, and office address, see:

<http://www.pplelectric.com/Business+Partners/Tools+and+Reference+Center/Pole+Attachment+Services/Contact+Us/Design+Supervisors.htm>

10-26-2011

fax

Subject: PPL Electric Utilities Cut In Card

Date: _____

To: PPL Electric Utilities

From: _____

Phone Number: _____

Phone Number: _____

Fax Number: _____

Fax Number: _____

PPL Electric Utilities Cut In Card



Date of Inspection*: _____

PPL Work Request Number*: _____ PPL Electric Utilities

Owner: _____

Occupant: _____

Address*: _____

Meter Number: _____

Phase*: _____

Voltage*: _____ Volts

Service Entrance Size (Amps)*: _____ Amps

Overhead/Underground*: _____

Pole or Transformer No: _____

*Required

(Fold Here)

Distributed Generation Inverter IEEE1547/UL1741 Listed:

Yes: **No:** (For Generator Capacity Up to and Including 20% Bus Bar Rating Installation - For Record Purposes Only; For Generator Capacity Over 20% Bus Bar Rating - Electrical Inspection Required)

Electrical Contractors Name*: _____

Electrical Contractor Phone Number*: _____

Additional Information*: _____

The (Name of Agency) _____ has authorized me to certify that competent persons have installed all electric wiring and apparatus at the subject premises, and that the said wiring and apparatus comply with the requirements of the National Electrical Code and of all authorities having jurisdiction and is deemed safe for introduction of current.

Date*: _____

Inspector Name (Please Print)*: _____

Inspection Agency Address*: _____

Inspection No*: _____

Signature*: _____

*Required

fax

Subject: PPL Electric Utilities Cut In Card

Date: _____

To: PPL Electric Utilities

From: _____

Phone Number: _____

Phone Number: _____

Fax Number: _____

Fax Number: _____

PPL Electric Utilities Cut In Card



Date of Inspection*: _____

PPL Work Request Number*: _____ PPL Electric Utilities

Owner: _____

Occupant: _____

Address*: _____

Meter Number: _____

Phase*: _____

Voltage*: _____ Volts

Service Entrance Size (Amps)*: _____ Amps

Overhead/Underground*: _____

Pole or Transformer No: _____

*Required

(Fold Here)

Distributed Generation Inverter IEEE1547/UL1741 Listed:

Yes: **No:** (For Generator Capacity Up to and Including 20% Bus Bar Rating Installation - For Record Purposes Only; For Generator Capacity Over 20% Bus Bar Rating - Electrical Inspection Required)

Electrical Contractors Name*: _____

Electrical Contractor Phone Number*: _____

Additional Information*: _____

The (Name of Agency) _____ has authorized me to certify that competent persons have installed all electric wiring and apparatus at the subject premises, and that the said wiring and apparatus comply with the requirements of the National Electrical Code and of all authorities having jurisdiction and is deemed safe for introduction of current.

Date*: _____

Inspector Name (Please Print)*: _____

Inspection Agency Address*: _____

Inspection No*: _____

Signature*: _____

*Required

RULES FOR ELECTRIC METER & SERVICE INSTALLATIONS



RULE 20

- (a) **Grounding Neutral and Raceway**
- (b) **Grounding Meter Base**
- (c) **Grounding Metal Buildings and Vehicle Frames**
- (d) **Installation of Grounding Electrode Conductor**
- (e) **Communication Grounds**

RULE 20 - CUSTOMER'S EQUIPMENT — GROUNDING

a. Grounding Neutral and Raceway:

The neutral wire of the service entrance shall be grounded on the supply side of the service entrance protective equipment in accordance with the requirements of the National Electrical Code or other applicable code.

The service conduit or metallic sheath of service entrance cable and the metal cases of all switches, circuit breakers or load centers shall be securely bonded and connected to the common ground connection.

b. Grounding Meter Base:

The neutral wire of the service entrance shall be connected to the grounding terminal of the meter base for a self-contained meter.

c. Grounding Metal Buildings and Vehicle Frames:

All metal buildings, metal structures, bodies and frames of mobile homes or trailers, and any vehicle housing electrical equipment to which electric service will be provided, shall be permanently grounded to the service entrance ground before electric service is connected.

d. Installation of Grounding Electrode Conductor:

The grounding electrode conductor shall be installed directly between the grounding electrode and the service disconnecting equipment and shall not pass through the meter base or be connected to any grounding lug in the meter base.

e. Communication Grounds:

Meter bases, meter base covers, and service conduit and hubs shall not be used for communication grounds.

RULES FOR ELECTRIC METER & SERVICE INSTALLATIONS



RULE 21

- (a) Requirements
- (b) Amperes Interrupting Capacity (AIC) Rating of Service Equipment
- (c) Secondary Lighting Arrestors
- (d) Current Limiting Fuses

RULE 21 - CUSTOMER'S EQUIPMENT — SERVICE DISCONNECTING EQUIPMENT

a. Requirements:

The customer shall install service disconnecting equipment in conformance with the National Electrical Code (NEC), or any other applicable code. Circuit breakers, switches, fuses, or other protective devices shall be of a type and rating acceptable to PPL EU and the customer shall adjust, renew or replace such equipment if necessary.

b. Amperes Interrupting Capacity (AIC) Rating of Service Equipment:

Upon request of the customer PPL EU will provide available fault current information for new and upgraded services.

Service disconnecting equipment shall have an interrupting rating greater than the fault current available at its service terminals, but in no case shall this interrupting rating be less than 10,000 Amperes Interrupting Capacity (AIC).

c. Secondary Lighting Arrestors:

When customer installs secondary lightning arrestors, they shall be installed on the load side of the main service disconnecting device(s).

d. Current Limiting Fuses:

Customer-owned current limiting fuses shall not be installed in sealed meter or cable troughs or instrument transformer cabinets. They also are not permitted on the line side of over-dutied breakers unless preceded by a disconnect switch.

05-03-2006

RULES FOR ELECTRIC METER & SERVICE INSTALLATIONS



RULE 22

- | |
|---|
| (a) Voltage Drop and Flicker |
| (b) Normal Limitation - 5 HP or Smaller |
| (c) PPL EU Approval Above Normal Limitations - Above 5 HP |
| (d) Recommended Voltage |
| (e) Central Heating Systems |

RULE 22 - CUSTOMER'S EQUIPMENT — SINGLE PHASE MOTOR INSTALLATIONS

a. Voltage Drop and Flicker:

Any motor when started on full rated voltage will draw more than its normal running current which, in turn, causes an additional drop in voltage in the electrical wiring serving it.

When the motor starting is excessive, the resulting voltage fluctuations cause flickering of lights and may cause unsatisfactory operation of other equipment.

b. Normal Limitation - 5 HP or Smaller:

PPL EU should be advised of the installation of motor loads so that adequate service facilities can be provided, but no specific PPL EU approval is required for the installation of equipment with an individual motor, 5 HP (3.73 kW) or smaller or individual air conditioners, refrigeration or other similar equipment rated 40,000 BTU/hr (3.33 Tons) or less.

When equipment has more than one motor starting through a common control, the combined ratings of all motors or equipment starting simultaneously shall not exceed the aforesaid limits.

c. PPL EU Approval Above Normal Limitations - Above 5 HP:

Single phase motors larger than 5 HP (3.73 kW) or air conditioners and refrigeration equipment rated over 40,000 BTU/hr (3.33 Tons) may be installed when approved by PPL EU and when the installation is made by the customer in a manner specified by PPL EU.

PPL EU is not responsible for unsatisfactory service resulting from the operation of such motors installed by the customer without consulting PPL EU. The customer will be responsible for paying all costs to change PPL EU facilities to correct the problem.

d. Recommended Voltage:

PPL EU recommends that all equipment requiring 3/4 HP (0.56 kW) and larger motors be purchased for operation at 208 or 240 Volts.

e. Central Heating Systems:

Central electric heating systems which are intended primarily for residential applications shall have control systems complying with the latest requirements of the "EEL-NEMA Standards for Load Control for Use on Central Electric Heating Systems". These Standards specify that for normal operations of electro-mechanical controllers, at least 5-second delay shall be provided between the switching of stages.

The maximum current to be switched per stage is 48 Amperes (11.5 KW at 240 Volts). "Normal operations" is not intended to include limit control operation, operation following a change in temperature set-point, or operation following a power interruption

05-03-2006

RULES FOR ELECTRIC METER & SERVICE INSTALLATIONS



RULE 23

- | |
|---|
| <ul style="list-style-type: none">(a) Starting Current Limitations(b) Phase Reversal Protection(c) Three-Phase Motor Issues |
|---|

RULE 23 - CUSTOMER'S EQUIPMENT — POLYPHASE MOTOR INSTALLATIONS

a. Starting Current Limitations:

The customer is required to provide PPL EU motor specifications and their desired operation.

The nature of the load, frequency of starting, motor characteristics and capability of PPL EU's service facilities available determines the maximum allowable starting current limitation which PPL EU prescribes at each service location.

PPL EU may prescribe the starting current limitations for the customer motor and make recommendations for motor starting devices the customer can install without exceeding the limitation.

If the customer installs motors that cause large voltage fluctuations, the customer either must correct the problem or pay PPL EU to correct the problem.

b. Phase Reversal Protection:

The customer installs reverse phase relays and other protection equipment as required to prevent injury and damage on polyphase motors for elevators, cranes, hoists, drag lines or similar equipment.

c. Three-Phase Motor Issues:

The customer assumes full responsibility to provide adequate protection of their three phase motors if problems (including but not limited to high or low voltage, operation of protection or control devices, single phasing of three phase service and phase reversal) occur. See **Tariff Rule 5(a)** and National Electric Code (NEC) Article 430 or any other applicable code for more details.

06-02-2006

**RULES FOR ELECTRIC METER
& SERVICE INSTALLATIONS**



RULE 24

(a) **Installation Subject to PPL EU Approval**

RULE 24 - CUSTOMER'S EQUIPMENT — WELDERS, ARC FURNACES, INDUCTION FURNACES AND SIMILAR EQUIPMENT

a. Installation Subject to PPL EU Approval:

The customer shall consult PPL EU before purchasing or installing welders, arc furnaces, induction furnaces or other equipment having widely fluctuating loads.

PPL EU specifies the service characteristic at which such loads will be served and prescribes the maximum inrush or starting currents which can be permitted without interfering with the quality of service for other purposes or to other customers.

06-02-2006

RULES FOR ELECTRIC METER & SERVICE INSTALLATIONS



RULE 25

- (a) **Installation Subject to PPL EU Recommendations**
- (b) **Methods of Switching Capacitors**

RULE 25 - CUSTOMER'S EQUIPMENT - POWER FACTOR CORRECTIVE EQUIPMENT

a. **Installation Subject to PPL EU Recommendations:**

PPL EU's general service rate schedules do not contain a power factor clause which affects the customer's billing. However, a customer may wish to install power factor corrective equipment to improve voltage conditions and minimize voltage drop in heavily loaded circuits.

The customer shall consult PPL EU before equipment is purchased and installed. PPL EU will recommend the number and size of capacitors, points of connection in the system and method of control the customer is to install to secure maximum benefits and at the same time not impair service to other customers.

Switching of capacitors may be accomplished as described below.

b. **Methods of Switching Capacitors:**

Capacitors may be connected to the terminals of power consuming equipment so that the capacitors are switched on and off with the equipment.

Capacitors may also be connected at strategic points in the customer's wiring system when provided with automatic switching actuated by either load current magnitude, voltage level, KW load, KVAR load or KVAR feed out.

Manual control of capacitors may be permitted if there is assurance, satisfactory to PPL EU, that they will be properly operated.

06-13-2006

RULES FOR ELECTRIC METER & SERVICE INSTALLATIONS



RULE 25A

- (a) Conditions for Providing Demand Pulses
- (b) Customer Owned Current Transformers Not Allowed

RULE 25A - CUSTOMER'S EQUIPMENT — ELECTRIC DEMAND CONTROL AND DATA COLLECTION EQUIPMENT

a. Conditions for Providing Demand Pulses:

PPL EU will provide electric demand pulses for customer-owned electric demand controllers and data collection equipment provided:

- (1) Customer enters into an agreement with PPL EU for demand pulse contacts.
- (2) Customer agrees to accept sole responsibility for the maintenance and replacement of the 1 ampere fuses installed in the PPL EU provided Connection Tie Box. See **Sketch #46**.

b. Customer Owned Current Transformers Not Allowed:

Installation of customer-owned current transformers or other load sensing devices for electric demand controllers is not permitted in 1) meter bases, 2) instrument transformer cabinets, or 3) instrument transformer and incoming line compartments located in customer's switchgear.

07-29-2011

RULES FOR ELECTRIC METER & SERVICE INSTALLATIONS



RULE 26

- | |
|---|
| <ul style="list-style-type: none">(a) Standby Generators(b) Consult PPL EU Before Installation(c) Method of Installation(d) Emergency Lighting Systems |
|---|

RULE 26 - CUSTOMER'S EQUIPMENT — STANDBY GENERATING EQUIPMENT

a. Standby Generators:

Customer may install a standby generator(s) to provide all or part of existing load in the event of an interruption in PPL EU's service.

b. Consult PPL EU Before Installation:

Customer shall consult PPL EU prior to installing standby generators.

c. Method of Installation:

The customer shall install a double throw switch or mechanically interlocked circuit breakers so there can be no electrical connection between PPL EU's service and the customer's generation.

The double throw switch may be operated manually or automatically. The double throw switch or mechanically interlocked circuit breakers must be rated adequately for the voltage and current levels.

When the National Electrical Code (NEC) or any other applicable code permits and the customer chooses to install the double throw switch or mechanically interlocked circuit breakers on the service side of the customer's main disconnect and over current protective devices, the double throw switch or mechanically interlocked circuit breakers must be listed for use as service entrance equipment.

Installation of a pole-top fused double-throw switch is not permitted. See **Sketch #41, Sketch 41A, Sketch #41B, and Sketch #41C.**

d. Emergency Lighting Systems:

This rule does not pertain to generating equipment and wiring installed by a customer to meet the requirements of the Pennsylvania Dept. of Labor and Industry for Emergency Lighting Systems.

PPL EU does not recommend size, location, method of connection, or approve the operation of the above emergency lighting equipment.

01-25-2007

RULES FOR ELECTRIC METER & SERVICE INSTALLATIONS



RULE 27

- | |
|---|
| <ul style="list-style-type: none">(a) Definition of Mobile Home(b) Mobile Home Service Equipment(c) Grounding |
|---|

RULE 27 — CUSTOMER'S EQUIPMENT — MOBILE HOMES

a. **Definition of Mobile Home:**

Definition - A mobile home is a factory-assembled structure or structures transportable in one or more sections that is build on a permanent chassis and designed to be used as a dwelling without a permanent foundation where connected to the required utilities, and includes the plumbing, heating, air-conditioning, and electric systems contained therein.

b. **Mobile Home Service Equipment:**

The mobile home service equipment shall be located adjacent to the mobile home and not mounted in or on the mobile home. **Sketch #42, Sketch #43, Sketch #44** and **Sketch #45** illustrate typical mobile home electric services.

c. **Grounding:**

The grounding conductor and service entrance equipment shall be grounded in accordance with, or better than, the latest edition of the National Electrical Code (NEC) or any other applicable code.

06-02-2006

RULES FOR ELECTRIC METER & SERVICE INSTALLATIONS



RULE 28

- (a) **Conditions for Interconnection - Permitted by PPL EU**
- (b) **Conditions for Interconnection - Customer Requirements**
- (c) **Detrimental Installation**

RULE 28 - CUSTOMER'S EQUIPMENT — CUSTOMER-OWNED GENERATION OPERATED IN PARALLEL WITH PPL EU'S SYSTEM

a. Conditions for Interconnection - Permitted by PPL EU:

PPL EU will permit the customer to interconnect a customer-owned generation system with PPL EU's so long as the customer's system is installed in accordance with PPL EU specifications and is deemed by PPL EU to be compatible in all respects with the operation of PPL EU's system.

b. Conditions for Interconnection - Customer Requirements:

The customer shall furnish complete nameplate data on the proposed prime mover and generator(s) and consult with PPL EU on requirements for interconnection. Customer should obtain written approval of customer's initial plans from PPL EU to determine compatibility prior to installation. Customer shall not interconnect with PPL EU's system until:

- (1) The customer enters into an agreement with PPL EU for interconnection.
- (2) The customer obtains acceptance from PPL EU of installed inter-tie relaying and associated facilities.
- (3) The customer, at customer's own expense, makes whatever modifications are required by PPL EU for interconnection with PPL EU's system.

c. Detrimental Installations:

In accordance with the Tariff the customer will be required to disconnect the generator from PPL EU's system if, for any reason, PPL EU deems the continuation of the interconnected system is, or may be detrimental to the operation of PPL EU's facilities.

06-02-2006

RULES FOR ELECTRIC METER & SERVICE INSTALLATIONS



RULE 32

- (a) Customer Responsibility
- (b) PPL EU Specifies Harmonic Distortion Criteria
- (c) Customer is Responsible for Corrective Measures

RULE - 32 CUSTOMER'S EQUIPMENT — HARMONIC DISTORTION

a. Customer Responsibility:

The customer shall consult with PPL EU before purchasing or installing equipment that can introduce higher-frequency alternating current (AC) voltages and currents (harmonics) into PPL EU's supply circuits.

Excessive harmonic distortion interferes with the performance of both PPL EU and customer equipment.

b. PPL EU Specifies Harmonic Distortion Criteria:

For the service voltage requested by the customer, PPL EU specifies the maximum allowable harmonic distortion of PPL EU's system voltage at the customer's point of service for normal or emergency operation of PPL EU's system.

c. Customer is Responsible for Corrective Measures:

PPL EU notifies customer if the customer's proposed equipment would produce harmonic voltages greater than those allowed by PPL EU's criteria.

The customer is responsible for reducing the harmonics which will appear on PPL EU's system by modifying equipment design or installing remedial equipment such as harmonic filters.

Customer's who do not consult with PPL EU prior to installing harmonic producing equipment are responsible for implementing corrective measures if their equipment produces harmonic voltages greater than those allowed by PPL EU's criteria.

06-02-2006

RULES FOR ELECTRIC METER & SERVICE INSTALLATIONS



RULE 33

- (a) PPL EU Does Not Claim to Provide Disturbance Free Power
- (b) Customer Selects Power Conditioning Equipment
- (c) PPL EU Recommendations
- (d) Point of Use Tank Less Water Heaters
- (e) Power Quality
- (f) Harmonics
- (g) Harmonics: Criteria to Limit Voltage Distortion Due to Single Customer

RULE 33 — CUSTOMER'S EQUIPMENT — QUALITY OF POWER

a. **PPL EU Does Not Claim to Provide Disturbance Free Power:**

PPL EU does not claim to provide power to its customers which is free from impulses, sags, surges or noise.

Power line disturbances result from many factors, and should generally be expected to be present on the utility power distribution system. There is little PPL EU can do to eliminate most power line disturbances.

Many of the disturbances seen by the customer's equipment are caused either by the affected customer, by other customers connected to the same service system or by the normal operation of equipment on the utility distribution system.

If the Customer requires disturbance free (conditioned) power for their equipment, it is the Customer's responsibility to provide the necessary conditioning at the Customer's expense.

b. **Customer Selects Power Conditioning Equipment:**

Customers should determine the criticality of their operations and then select the necessary power supply conditioning equipment to meet their requirements.

Equipment such as surge and transient suppressors, filters, isolation sets, uninterruptible power supplies and magnetic power synthesizers are available to mitigate power line disturbances. Customers should contact their equipment provider for availability and type of power conditioning equipment needed for their installation.

c. **PPL EU Recommendations:**

Additionally, PPL EU recommends that the customer:

- Not be totally dependent on computer availability — have alternatives or a backup system.
- Not use computer equipment during thunderstorms.
- Disconnect computer equipment when not in use.
- Install lightning arrestors or surge protection at the service entrance panel.
- Use proper grounding techniques.
- Reduce static electricity when possible.
- Use a separate branch circuit for computer equipment if possible.
- Be aware that computers themselves can generate interference.
- Purchase battery backed up digital equipment and appliances.
- Purchase standby power supplies for computers and other consumer electronics that will reset during a momentary power interruption.

d. **Point Of Use Tank Less Water Heaters:**

Electric water heaters served hereunder must be equipped with thermostatically controlled non-inductive heating elements so connected that not more than 5500 watts can be operated at one time. PPL EU reserves the right to install necessary devices to control the operation of electric water heaters at its option.

PPL EU is not responsible for unsatisfactory service resulting from the operation of such water heaters installed by the customer without consulting PPL EU. The customer will be responsible for paying all costs to change PPL EU facilities to serve the system or to correct any problems that are created by the installation of the Tank Less Water Heater.

e. **Power Quality:**

For information on PPL EU's Power Quality Criteria refer to Sections M.1a through M.1e of the Facility Connection Requirements (Standard FAC – 001 – 0). **See:**
<http://www.pplelectric.com/NR/rdonlyres/F3F8BF4A-FCB9-43D2-BBDD-A452352B33CC/0/MatrixReferenceMaterial.pdf>

f. **Harmonics:**

Excessive harmonic distortion interferes with the performance of both utility and customer equipment. Excessive distortion of the system voltage will be prevented by limiting the harmonic currents that may enter the PPL EU system due to connecting proposed customer equipment. The acceptable amount of harmonic currents due to a proposed load will be determined by the amount of harmonic voltage distortion that the currents will produce.

g. Harmonics: Criteria to Limit Voltage Distortion Due to Single Customer

Total harmonic voltage distortion from all sources should not exceed 5 percent anywhere on the system to ensure proper operation of customer and utility equipment. To maintain distortion below 5%, harmonic currents due to an individual customer's load or generation will be limited so that distortion of the system voltage at any point on the PPL EU system due to that customer's equipment will not exceed the values given in Table 1. These limits apply during both normal operation of the system and during outage of any single facility.

**Table 1: PPL Electric Utilities Criteria -
Maximum Allowable Harmonic Voltage Distortion Due to a Single Customer**

Voltage Level	Distortion Factor (% System Voltage)	Individual Harmonic (% System Voltage)
4 kV through 23 kV	3.0	1.7
69 kV through 138 kV	1.5	1.0
230 kV through 500 kV	1.0	0.7

04-29-2010

RULES FOR ELECTRIC METER & SERVICE INSTALLATIONS



RULE 34

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| <ul style="list-style-type: none">(a) Fast Track Program(b) Applicable Service Upgrades(c) Electrical Contractors Authorized by PPL EU(d) Approved Connectors |
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RULE 34 - CUSTOMER'S EQUIPMENT — FAST TRACK PROGRAM

a. Fast Track Program:

PPL EU recognizes the timing and coordination problems involved in disconnecting and reconnecting simple single phase overhead services. At PPL EU's option, electrical contractors, authorized under PPL EU's Fast Track Program, will be allowed to upgrade existing service entrance facilities and make the permanent connection between PPL EU's service drop and the customer's service entrance conductors, using approved connectors provided by PPL EU.

b. Applicable Service Upgrades:

Fast Track utilizes the skills of contractors to identify service upgrades that will not require a field visit by a PPL EU representative. Under this process, work is limited to upgrading the service entrance facilities for single phase, three wire, overhead services, up to 200 Amperes in size.

c. Electrical Contractors Authorized by PPL EU:

Only electrical contractors authorized by PPL EU will be permitted to participate in the Fast Track Program.

For more information on how to become involved with the Fast Track Program please call 1-800-DIAL-PPL (342-5775).

d. Approved Connectors:

Only electrical contractors who are authorized to participate in PPL EU's Fast Track Program will be provided with approved connectors.

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