

**RULES FOR ELECTRIC METER
& SERVICE INSTALLATIONS**



MASTER SKETCH - INDEX

| | | | | | |
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| <p>Sketch 3a updated 8/17/07</p> | <p>REQUIRES APPROVAL FROM SUPERVISOR - METERING SERVICES</p> <p>Pages 1 & 2 - Secondary service drop attachment to a mast with mast mounted instrument transformers (300 volts max.)</p> | | | | |
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| <p>AMPERAGE: 400 A Maximum</p> | <p>METER BASE LOCATION: Outdoor</p> | | | | |
| <p>Sketch 4 updated 11/4/04</p> | <p>Secondary service drop attachment on temporary structure for construction</p> | | | | |
| <p>Sketch 4a updated 11/4/04</p> | <p>Underground secondary service to underground attachment on temporary structure for construction</p> | | | | |
| <p>Sketch 5 updated 8/27/07</p> | <p>Overhead secondary service drop attachment to customer-owned service and meter pole for overhead distribution</p> <p>Single phase or three phase, 240 volts maximum</p> <p>Self-contained meter</p> <p>600 amperes maximum</p> | | | | |

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|--|---|--|-------------------------------------|---|--|
| Sketch 6 updated 8/17/07 | Overhead secondary service drop attachment to customer-owned service and meter pole to underground service entrance Single phase or three phase 240 volt maximum, self-contained meter 600 ampere maximum | | | | |
| Sketch 7 updated 3/18/11 | Typical Arrangement of Meter on Building <table border="1" data-bbox="488 638 1383 873"> <tr> <td data-bbox="488 638 1008 768"> VOLTAGE: 1 Phase, 3 Wire 120/240V 1 Phase, 3 Wire 120/208V* </td> <td data-bbox="1008 638 1383 768"> SERVICE TYPE: Underground </td> </tr> <tr> <td data-bbox="488 768 1008 873"> AMPERAGE: *400 A Maximum 600 A Maximum </td> <td data-bbox="1008 768 1383 873"> METER BASE LOCATION: Outdoor </td> </tr> </table> | VOLTAGE: 1 Phase, 3 Wire 120/240V 1 Phase, 3 Wire 120/208V* | SERVICE TYPE: Underground | AMPERAGE: *400 A Maximum 600 A Maximum | METER BASE LOCATION: Outdoor |
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| AMPERAGE: *400 A Maximum 600 A Maximum | METER BASE LOCATION: Outdoor | | | | |
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| Sketch 7b <i>New</i> 3/18/11 | Typical Arrangement of Outdoor Meter on Building <table border="1" data-bbox="488 1062 1383 1262"> <tr> <td data-bbox="488 1062 1008 1192"> VOLTAGE: 3 Phase, 4 Wire 120/208V 3 Phase, 4 Wire 120/240V </td> <td data-bbox="1008 1062 1383 1192"> SERVICE TYPE: Underground </td> </tr> <tr> <td data-bbox="488 1192 1008 1262"> AMPERAGE: 600 A Maximum </td> <td data-bbox="1008 1192 1383 1262"> METER BASE LOCATION: Outdoor </td> </tr> </table> | VOLTAGE: 3 Phase, 4 Wire 120/208V 3 Phase, 4 Wire 120/240V | SERVICE TYPE: Underground | AMPERAGE: 600 A Maximum | METER BASE LOCATION: Outdoor |
| VOLTAGE: 3 Phase, 4 Wire 120/208V 3 Phase, 4 Wire 120/240V | SERVICE TYPE: Underground | | | | |
| AMPERAGE: 600 A Maximum | METER BASE LOCATION: Outdoor | | | | |

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| <p>Sketch 8 updated 8/17/07</p> | <p>REQUIRES APPROVAL FROM SUPERVISOR - METERING SERVICES</p> <p>NOT FOR NEW CONSTRUCTION AFTER 5/1/2006</p> <p>Service drop attachment and instrument transformer mounting on customer's building</p> <p>For instrument transformer metering</p> <p>Single phase</p> <p>3 wire, 120/208 volt or 120/240 volt</p> <p>Three phase</p> <p>4 wire, 208Y/120 volt or 3 phase</p> <p>4 wire, Delta 240/120 volts for service over 600 ampere</p> |
| <p>Sketch 8b updated 9/17/08</p> | <p>REQUIRES APPROVAL FROM SUPERVISOR - METERING SERVICES</p> <p>NOT FOR NEW CONSTRUCTION AFTER 5/1/2006</p> <p>Secondary service drop attachment</p> <p>Bus and instrument transformer mounting on customer's building</p> <p>3 phase, 4 wire, 208Y/120 volts or 480Y/277 volts</p> <p>3 phase, 4 wire, Delta 240/120 volts</p> <p>Greater than 2000 ampere up to 3000 ampere maximum capacity rating for multi-conduit service entrance</p> |
| <p>Sketch 8c updated 8/12/11</p> | <p>Typical meter panel installation for use in conjunction with instrument transformer metering</p> |

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| <p>Sketch 8d New 8/12/11</p> | <p>Pages 1, 2, 3, & 4</p> <p>Typical meter panel mounting arrangement for use with instrument transformer metering</p> <p>Single meter panel arrangement</p> <p>Single meter panel w/auxiliary box & dual demand pulse output arrangement</p> <p>Dual meter panel/auxiliary box combe (2 meters) arrangement</p> <p>Twin dual meter panel/auxiliary box combo (4 meters) arrangement</p> |
| <p>Sketch 9 updated 2/13/06</p> | <p>REQUIRES APPROVAL FROM SUPERVISOR - METERING SERVICES</p> <p>NOT FOR NEW CONSTRUCTION AFTER 5/1/2006</p> <p>Service drop attachment and instrument transformer mounting on customer's building</p> <p>3 phase, 3 wire, 480 volts</p> |
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| <p>Sketch 10a updated 8/13/07</p> | <p>NOT FOR NEW CONSTRUCTION AFTER 5/1/2006</p> <p>FOR TEMPORARY SERVICE</p> <p>Pages 1 & 2 - Service drop attachment and instrument</p> |

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| | <p>transformer mounting on customer-owned service & meter pole,</p> <p>Overhead service to overhead distribution</p> <p>Single phase, 3 wire, 120/208 or 120/240 volts</p> <p>Instrument transformer metering for service</p> <p>Over 600 ampere</p> |
| <p>Sketch 11 updated 3/06/06</p> | <p>NOT FOR NEW CONSTRUCTION AFTER 5/1/2006</p> <p>FOR TEMPORARY SERVICE</p> <p>Service drop attachment and instrument transformer mounting on customer-owned service & meter pole,</p> <p>Overhead service to overhead distribution</p> <p>3 phase, 3 wire, 480 volts</p> |
| <p>Sketch 12 updated 8/13/07</p> | <p>NOT FOR NEW CONSTRUCTION AFTER 5/1/2006</p> <p>FOR TEMPORARY SERVICE</p> <p>REQUIRED APPROVAL FROM SUPERVISOR METERING SERVICE</p> <p>Pages 1 & 2 - Overhead service drop attachment to customer-owned service and meter pole</p> <p>Mounting of instrument transformers and connection of overhead service drop to underground service entrance conductors</p> <p>Single phase, 3 wire, 120/208 volts or 120/240 volts service over 400 ampere</p> <p>3 phase, 4 wire, 208Y/120 volt or 3 phase, 4 wire, Delta 240/120 volts service over 600 ampere</p> |

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| <p>Sketch 13 updated 3/6/06</p> | <p>NOT FOR NEW CONSTRUCTION AFTER 5/1/2006</p> <p>FOR TEMPORARY SERVICE</p> <p>Overhead service drop attachment to customer-owned service & meter pole</p> <p>Mounting for instrument transformers and connection of overhead service drop to underground service entrance conductors</p> <p>3 phase, 3 wire, 480 volts</p> |
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| <p>Sketch 14c updated 9/17/08</p> | <p>Typical arrangement of overhead instrument transformers and mounting for installation in instrument transformer cabinet</p> <p>3 phase, 4 wire, 208Y/120 volts</p> <p>3 phase, 4 wire, Delta 240/120 volts</p> <p>3 phase, 4 wire, 480/277 volts</p> <p>1200 ampere maximum</p> | | | | |
| <p>Sketch 14d updated 9/17/08</p> | <p>Typical arrangement of overhead instrument transformers and mounting for installation in instrument transformer cabinet</p> <p>3 phase, 4 wire, 208Y/120 volts</p> <p>3 phase, 4 wire, Delta 240/120 volts</p> <p>3 phase, 4 wire, 480/277 volts</p> <p>2000 ampere maximum</p> | | | | |
| <p>Sketch 15 updated 9/10/08</p> | <p>Typical arrangement of instrument transformer and mounting for installation in instrument transformer cabinet underground</p> <p>3 phase, 3 wire, 480 volts</p> <p>1200 ampere maximum</p> | | | | |
| <p>Sketch 15a updated 6/24/09</p> | <p>Typical arrangement of instrument transformers and mounting for installation in instrument transformer cabinet underground</p> <p>3 phase, 4 wire, 480Y/277 volts</p> <p>800 ampere maximum</p> | | | | |
| <p>Sketch 16 <i>New</i> 8/12/11</p> | <p>Pages 1, 2, 3, 4, & 5 - Typical arrangement of pad mounted metering and service termination cabinet up to eight 750 KCMIL (MAX) conductors per phase</p> <table border="1" data-bbox="488 1686 1385 1885"> <tr> <td data-bbox="488 1686 1008 1812"> <p>VOLTAGE: 3 Phase, 4 Wire Wye 120/208V 3 Phase, 4 Wire Wye 277/480V</p> </td> <td data-bbox="1008 1686 1385 1812"> <p>SERVICE TYPE: Underground</p> </td> </tr> <tr> <td data-bbox="488 1812 1008 1885"> <p>AMPERAGE: 2000 A Maximum</p> </td> <td data-bbox="1008 1812 1385 1885"> <p>METER BASE LOCATION: Outdoor</p> </td> </tr> </table> | <p>VOLTAGE: 3 Phase, 4 Wire Wye 120/208V 3 Phase, 4 Wire Wye 277/480V</p> | <p>SERVICE TYPE: Underground</p> | <p>AMPERAGE: 2000 A Maximum</p> | <p>METER BASE LOCATION: Outdoor</p> |
| <p>VOLTAGE: 3 Phase, 4 Wire Wye 120/208V 3 Phase, 4 Wire Wye 277/480V</p> | <p>SERVICE TYPE: Underground</p> | | | | |
| <p>AMPERAGE: 2000 A Maximum</p> | <p>METER BASE LOCATION: Outdoor</p> | | | | |

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| <p>Sketch 16a updated 8/12/11</p> | <p>Pages 1, 2, 3, 4, & 5 - Typical arrangement of pad mounted metering and service termination cabinet up to twelve 750 KCMIL (MAX) conductors per phase</p> <table border="1" data-bbox="488 352 1385 552"> <tr> <td data-bbox="488 352 1008 478"> <p>VOLTAGE: 3 Phase, 4 Wire Wye 120/208V 3 Phase, 4 Wire Wye 277/480V</p> </td> <td data-bbox="1008 352 1385 478"> <p>SERVICE TYPE: Underground</p> </td> </tr> <tr> <td data-bbox="488 478 1008 552"> <p>AMPERAGE: 3000 A Maximum</p> </td> <td data-bbox="1008 478 1385 552"> <p>METER BASE LOCATION: Outdoor</p> </td> </tr> </table> | <p>VOLTAGE: 3 Phase, 4 Wire Wye 120/208V 3 Phase, 4 Wire Wye 277/480V</p> | <p>SERVICE TYPE: Underground</p> | <p>AMPERAGE: 3000 A Maximum</p> | <p>METER BASE LOCATION: Outdoor</p> |
| <p>VOLTAGE: 3 Phase, 4 Wire Wye 120/208V 3 Phase, 4 Wire Wye 277/480V</p> | <p>SERVICE TYPE: Underground</p> | | | | |
| <p>AMPERAGE: 3000 A Maximum</p> | <p>METER BASE LOCATION: Outdoor</p> | | | | |
| <p>Sketch 16b New 8/12/11</p> | <p>Pages 1, 2, 3, 4, & 5 - Typical arrangement of pad mounted metering and service termination cabinet up to sixteen 750 KCMIL (MAX) conductors per phase</p> <table border="1" data-bbox="488 716 1385 888"> <tr> <td data-bbox="488 716 1008 814"> <p>VOLTAGE: 3 Phase, 4 Wire Wye 277/480V</p> </td> <td data-bbox="1008 716 1385 814"> <p>SERVICE TYPE: Underground</p> </td> </tr> <tr> <td data-bbox="488 814 1008 888"> <p>AMPERAGE: 4000 A Maximum</p> </td> <td data-bbox="1008 814 1385 888"> <p>METER BASE LOCATION: Outdoor</p> </td> </tr> </table> | <p>VOLTAGE: 3 Phase, 4 Wire Wye 277/480V</p> | <p>SERVICE TYPE: Underground</p> | <p>AMPERAGE: 4000 A Maximum</p> | <p>METER BASE LOCATION: Outdoor</p> |
| <p>VOLTAGE: 3 Phase, 4 Wire Wye 277/480V</p> | <p>SERVICE TYPE: Underground</p> | | | | |
| <p>AMPERAGE: 4000 A Maximum</p> | <p>METER BASE LOCATION: Outdoor</p> | | | | |
| <p>Sketch 17 updated 8/17/07</p> | <p>Typical arrangement of outdoor meter panel on building</p> <p>Underground service lateral from overhead or underground distribution</p> <p>Single phase, 3 wire, 120/208 volts or 120/240 volts</p> <p>Arrangement of equipment for instrument transformer metering</p> <p>Services over 600 amps</p> | | | | |
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| Sketch 19 4/7/10 | Pages 1 & 2 - Typical arrangement of outdoor metering equipment on service and meter pole underground distribution 3 phase, 3 wire, Delta 480V Overhead service 1200 A Maximum Outdoor cabinet location |
| Sketch 20 <i>New</i> 8/12/11 | Barriers for equipment installed in location with vehicular traffic |
| Sketch 21 updated 6/24/09 | Pages 1 & 2 - Typical arrangement of instrument transformers in switchgear cubicle 3 phase, 4 wire, 208Y/120 volts 3 phase, 4 wire, Delta 240/120 volts |
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| Sketch 25 updated 9/17/08 | Secondary service meter base connections for self-contained meters overhead service 100 and 200 ampere |
| Sketch 25a updated 9/17/08 | Secondary service meter base connections for self-contained meters underground service 200 ampere |
| Sketch 25b updated 9/17/08 | Secondary service meter base connections for self-contained meters overhead or underground service 400 ampere |

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| Sketch 25c updated 4/30/10 | Secondary service meter base connections for self-contained meters overhead services 1 phase, 3 wire, 120/240 volts 3 phase, 4 wire, WYE 120/208 volts 3 phase, 4 wire, DELTA 120/240 volts 600 ampere Indoor, Outdoor cabinet location |
| Sketch 25d updated 4/30/10 | Secondary service meter base connections for self-contained meters underground service 1 phase, 3 wire, 120/240 volts 3 phase, 4 wire, WYE 120/208 volts 3 phase, 4 wire, DELTA 120/240 volts 600 ampere Indoor, Outdoor cabinet location |
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| <p>Sketch 28 updated 3/4/05</p> | <p>Overhead or underground secondary service</p> <p>Indoor multi-meter installation for common service with instrument transformer cabinets and / or meter base</p> <p>Single phase, 3 wire, 120/208 volts or 120/240 volts,</p> <p>3 phase, 4 wire, 208Y/120 volts</p> <p>3 phase, 4 wire, Delta 240/120 volts</p> |
| <p>Sketch 29b updated 10/9/06</p> | <p>REQUIRES APPROVAL FROM SUPERVISOR - METERING SERVICES</p> <p>Secondary service drop attachment and instrument transformer mounting on customer building</p> <p>3 phase, 4 wire, 480Y/277 volts</p> |
| <p>Sketch 29c updated 10/9/06</p> | <p>REQUIRES APPROVAL FROM SUPERVISOR - METERING SERVICES</p> <p>Secondary service drop attachment and instrument transformers mounting on customer building</p> <p>3 phase, 4 wire, 480Y/277 volts</p> |

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| <p>Sketch 30 updated 6/25/04</p> | <p>High voltage service</p> <p>Overhead service drop to customers service disconnect on customer-owned service pole</p> <p>Termination of customer-owned overhead distribution</p> <p>15kv or less</p> |
| <p>Sketch 31 updated 6/25/04</p> | <p>High voltage service</p> <p>Overhead service drop to customer's service disconnect on customer-owned service pole</p> <p>Termination of customer-owned underground distribution</p> <p>15kv or less</p> |
| <p>Sketch 32 updated 6/25/04</p> | <p>High voltage service</p> <p>Arrangement of customer's single phase service</p> <p>Disconnect and outdoor metering equipment on customer-owned service and meter pole</p> <p>7.2kv or less</p> |
| <p>Sketch 33 updated 11/4/04</p> | <p>High voltage service</p> <p>Typical arrangement of three phase outdoor metering equipment on customer-owned meter pole</p> <p>Overhead line to overhead distribution</p> <p>15kv or less</p> |
| <p>Sketch 34 updated 11/4/04</p> | <p>High voltage service</p> <p>Typical arrangement of three phase outdoor metering equipment on customer-owned pole</p> <p>Termination of customer-owned underground distribution</p> <p>15kv or less</p> |

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| <p>Sketch 35 updated 6/25/04</p> | <p>REQUIRES APPROVAL FROM SUPERVISOR - METERING SERVICES</p> <p>High voltage service</p> <p>Arrangement of customer's equipment and outdoor metering equipment on customer-owned service and meter pole</p> <p>Overhead service drop to overhead distribution only</p> <p>15kv or less</p> <p>(Non-typical design)</p> |
| <p>Sketch 36 updated 2/13/06</p> | <p>REFERENCE ONLY FOR PREVIOUS INSTALLATIONS</p> <p>High voltage service</p> <p>Typical arrangement of instrument transformers installed in customer-owned transformer vault or enclosure</p> <p>15 kv or less</p> |
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Sketch 40
updated 6/25/04

High voltage underground supply from overhead-secondary voltage source

Typical arrangement of structural facilities installed by customer to accommodate underground service from a 3 phase pad-mounted distribution transformer

75kva to 2500 kva capacity

Sketch 41 Series Organization Map

| Voltage | | Transfer Method | Load | Sketch # |
|-----------------|------------|-----------------|---------|----------|
| Less than 600 V | | Manual | Partial | 41P1 |
| | | | Full | 41P2 |
| | | Automatic | Partial | 41AP1 |
| | | | Full | 41AP2 |
| 12kV | Pole Mount | Manual | Partial | 41BP1 |
| | | | Full | 41BP2 |
| | | Automatic | Partial | 41CP1 |
| | | | Full | 41CP2 |
| | Switchgear | Manual | N/A | 41D |
| | | Automatic | N/A | 41E |

Sketch 41
updated 7/29/11

Page 1 – Generator Feeding Partial Load
Page 2 – Generator Feeding Full Load

**Manual Double Throw Transfer Switch Connection for
Emergency (Stand-by) Generation Service**

VOLTAGE:

1 Phase, 3 Wire Network 120/208V
1 Phase, 3 Wire 120/240V
3 Phase, 3 Wire Delta 480V
3 Phase, 4 Wire WYE 120/208V
3 Phase, 4 Wire Delta 120/240V
3 Phase, 4 Wire WYE 277/480V

SERVICE TYPE:

Overhead
Underground

AMPERAGE:

4000 A Maximum

METER BASE LOCATION:

Outdoor

Sketch 41A
updated 7/29/11

Page 1 – Generator Feeding Partial Load
Page 2 – Generator Feeding Full Load

**Automatic Transfer Switch Connection for Emergency
(Stand-by) Generating Service**

VOLTAGE:

1 Phase, 3 Wire Network 120/208V
1 Phase, 3 Wire 120/240V
3 Phase, 3 Wire Delta 480V
3 Phase, 4 Wire WYE 120/208V
3 Phase, 4 Wire Delta 120/240V
3 Phase, 4 Wire WYE 277/480V

SERVICE TYPE:

Overhead
Underground

AMPERAGE:

4000 A Maximum

METER BASE LOCATION:

Outdoor

Sketch 41B
updated 7/29/11

Page 1 - Generator Feeding Partial Load
Page 2 - Generator Feeding Full Load

**Manual Transfer Switch Connection for Emergency
(Stand-by) Generating Service**

VOLTAGE:

1 Phase, 7,200V
3 Phase, 4 Wire WYE 7,200/12,470V

SERVICE TYPE:

Overhead

AMPERAGE:

11 MVA Maximum

METER BASE LOCATION:

Outdoor

Sketch 41C
updated 7/29/11

Page 1 - Generator Feeding Partial Load
Page 2 - Generator Feeding Full Load

Automatic Transfer Switch Connection for Emergency (Stand-by) Generating Service

| | |
|---|--|
| VOLTAGE: 1 Phase, 7,200V 3 Phase, 4 Wire WYE 7,200/12,470V | SERVICE TYPE: Overhead |
| AMPERAGE: 11 MVA Maximum | METER BASE LOCATION: Outdoor |

Sketch 41D
updated 7/29/11

Manual Transfer Switch Connection for Emergency (Stand-by) Generating Service

| | |
|--|--|
| VOLTAGE: 3 Phase, 4 Wire WYE 7,200/12,470V | SERVICE TYPE: Overhead Underground |
| AMPERAGE: 11 MVA Maximum | METER BASE LOCATION: Indoor Outdoor |

Sketch 41E
updated 7/29/11

Automatic Transfer Switch Connection for Emergency (Stand-by) Generating Service

| | |
|--|--|
| VOLTAGE: 3 Phase, 4 Wire WYE 7,200/12,470V | SERVICE TYPE: Overhead Underground |
| AMPERAGE: 11 MVA Maximum | METER BASE LOCATION: Indoor Outdoor |

Sketch 42
updated 7/28/04

Multi-meter installation for overhead service drop attachment for mobile home court

Sketch 43
updated 7/28/04

Multi-meter installation for underground service lateral attachment for mobile home court

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| <p>Sketch 44 updated 6/25/04</p> | <p>Service drop attachment to customer-owned service and meter pole for a mobile home</p> <p>Single phase 120/240 volts</p> <p>Self-contained meter</p> |
| <p>Sketch 45 updated 11/4/04</p> | <p>Typical arrangement of outdoor mobile home pedestal</p> <p>Underground service lateral</p> <p>Single phase, 3 wire, 120/208 volts or 120/240 volts</p> |
| <p>Sketch 46 updated 3/11/05</p> | <p>Wiring diagram equipment used to provide demand pulses for customer use</p> |
| <p>Sketch 47 updated 9/10/08</p> | <p>Customer wood pole</p> |
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| <p>Sketch 49 updated 8/12/11</p> | <p>Page 1 - Insulated Type Distribution Block I-1 & I-2, Bare Type Distribution Block B-1 & B-2 Page 2 - Pre-Assembled Distribution Block With Insulating Barriers</p> <p>Typical Connectors to be provided by the customer for serving a single point of connection for multiple enclosed service entrance conductors</p> |

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| Sketch 49A updated 2/22/05 | Typical connector to be supplied by the customer for providing a single point of connection Multiple overhead service entrance conductors |
| Sketch 50 updated 6/25/04 | Underground Three phase, 4 wire, 480/277 volt Service entrance arrangements |
| Sketch 53 updated 11/17/04 | Typical arrangement of wood post pedestal Underground service lateral from OH or UG distribution Single phase, 3 wire, 120/208 or 120/240 volts |
| Sketch 54 updated 11/4/04 | Termination cabinet-all service entries, single phase or three phase 120/208 volts or 120/240 volts With 2 to 6 sets of cable |
| Sketch 54a updated 8/12/11 | Termination cabinet All service entries Single phase or three phase 120/208 volts or 120/240 volts or 277/480V 1 cable set |
| Sketch 55 updated 8/12/11 | Page 1 & 2 Clearances between gas facilities and electric meters |
| Sketch 55a updated 12/05/08 | Clearances between objects and electric meters |

Distributed Generation Series Organization Map

| Metering Type | Voltage | | Load Center Bus Bar Rating | Sketch # |
|---------------------|-----------------|------------|----------------------------|----------|
| Self-Contained | Less than 480 V | | Up to and Including 20% | 56 |
| | | | Over 20% | 56A |
| 480V Self-Contained | 480 V | | Up to and Including 20% | 57 |
| | | | Over 20% | 57A |
| CT/Secondary | Less than 600 V | | Up to and Including 20% | 58 |
| | | | Over 20% | 58A |
| 12 kV | 12 kV | Pole Mount | Up to and Including 20% | 59 |
| | | | Over 20% | 59A |
| | | Switchgear | All Options | 59B |

Sketch 56
updated 3/18/11

Inverter-Based Renewable Generation for Generator Capacity Up to and Including 20% of the Load Center Bus Bar Rating-For Self-Contained Metering (Excluding 480V) Installations

| | |
|--|---|
| VOLTAGE: 1 Phase, 3 Wire Network 120/208V *, ** 1 Phase, 3 Wire 120/240V ** 3 Phase, 4 Wire WYE 120/208V 3 Phase, 4 Wire Delta 120/240V | SERVICE TYPE: Overhead Underground |
| AMPERAGE: * 400 A Maximum 600 A Maximum | METER BASE LOCATION: Outdoor |
| ** The Maximum Generation Permitted On Single Phase Installation Without Prior PPL EU Approval is 100KW. | |

Sketch 56A
updated 3/18/11

Inverter-Based Renewable Generation for Generator Capacity Over 20% of the Load Center Bus Bar Rating-For Self-Contained Metering (Excluding 480V) Installations

| | |
|--|---|
| VOLTAGE: 1 Phase, 3 Wire Network 120/208V *, ** 1 Phase, 3 Wire 120/240V ** 3 Phase, 4 Wire WYE 120/208V 3 Phase, 4 Wire Delta 120/240V | SERVICE TYPE: Overhead Underground |
| AMPERAGE: * 400 A Maximum 600 A Maximum | METER BASE LOCATION: Outdoor |
| ** The Maximum Generation Permitted On Single Phase Installation Without Prior PPL EU Approval is 100KW. | |

Sketch 57
updated 03/18/11

Inverter-Based Renewable Generation for Generator Capacity Up to and Including 20% of the Load Center Bus Bar Rating-For 480V. Self-Contained Metering Installations

| | |
|---|---|
| VOLTAGE: 1 Phase, 3 Wire Network 277/480V * 1 Phase, 3 Wire 240/480V * 3 Phase, 4 Wire WYE 277/480V | SERVICE TYPE: Overhead Underground |
| AMPERAGE: 400 A Maximum | METER BASE LOCATION: Outdoor |
| * The Maximum Generation Permitted On Single Phase Installation Without Prior PPL EU Approval is 100KW. | |

Sketch 57A
updated 03/18/11

Inverter-Based Renewable Generation for Generator Capacity Over 20% of the Load Center Bus Bar Rating-For 480V. Self-Contained Metering Installations

| | |
|---|---|
| VOLTAGE: 1 Phase, 3 Wire Network 277/480V * 1 Phase, 3 Wire 240/480V * 3 Phase, 4 Wire WYE 277/480V | SERVICE TYPE: Overhead Underground |
| AMPERAGE: 400 A Maximum | METER BASE LOCATION: Outdoor |
| * The Maximum Generation Permitted On Single Phase Installation Without Prior PPL EU Approval is 100KW. | |

Sketch 58
updated 03/18/11

Inverter-Based Renewable Generation for Generator Capacity Up to and Including 20% of the Load Center Bus Bar Rating-For CT Cabinet/Secondary Metering Installations

| | |
|--|--|
| <p>VOLTAGE: 1 Phase, 3 Wire Network 120/208V *, ** 1 Phase, 3 Wire 120/240V *, ** 3 Phase, 4 Wire WYE 120/208V 3 Phase, 4 Wire Delta 120/240V 3 Phase, 4 Wire WYE 277/480V 3 Wire, 3 Phase Delta 480V</p> | <p>SERVICE TYPE: Overhead Underground</p> |
| <p>AMPERAGE: * 1200 A Maximum 2000 A Maximum</p> | <p>METER BASE LOCATION: Outdoor</p> |

** The Maximum Generation Permitted On Single Phase Installation Without Prior PPL EU Approval is 100KW.

Sketch 58A
updated 03/18/11

Inverter-Based Renewable Generation for Generator Capacity Over 20% of the Load Center Bus Bar Rating-For CT Cabinet/Secondary Metering Installation

| | |
|--|--|
| <p>VOLTAGE: 1 Phase, 3 Wire Network 120/208V *, ** 1 Phase, 3 Wire 120/240V *, ** 3 Phase, 4 Wire WYE 120/208V 3 Phase, 4 Wire Delta 120/240V 3 Phase, 4 Wire WYE 277/480V 3 Wire, 3 Phase Delta 480V</p> | <p>SERVICE TYPE: Overhead Underground</p> |
| <p>AMPERAGE: * 1200 A Maximum 2000 A Maximum</p> | <p>METER BASE LOCATION: Outdoor</p> |

** The Maximum Generation Permitted On Single Phase Installation Without Prior PPL EU Approval is 100KW.

Sketch 59
updated 03/18/11

Inverter-Based Renewable Generation for Generator Capacity Up to and Including 20% of the Load Center Bus Bar Rating-For 12KV Metering Installations

| | |
|---|--|
| VOLTAGE: 1 Phase, 7,200V * 3 Phase, 4 Wire WYE 7,200/12,470V | SERVICE TYPE: Overhead |
| CUSTOMER LOAD: 11 MVA Maximum | METER BASE LOCATION: Outdoor |
| * The Maximum Generation Permitted On Single Phase Installation Without Prior PPL EU Approval is 100KW. | |

Sketch 59A
updated 03/18/11

Inverter-Based Renewable Generation for Generator Capacity Over 20% of the Load Center Bus Bar Rating-For 12 KV Metering Installations

| | |
|---|--|
| VOLTAGE: 1 Phase, 7,200V * 3 Phase, 4 Wire WYE 7,200/12,470V | SERVICE TYPE: Overhead |
| CUSTOMER LOAD: 11 MVA Maximum | METER BASE LOCATION: Outdoor |
| * The Maximum Generation Permitted On Single Phase Installation Without Prior PPL EU Approval is 100KW. | |

Sketch 59B
updated 03/18/11

**Inverter-Based Renewable Generation for 12 KV
Switchgear Installation**

| | |
|---|--|
| VOLTAGE: 3 Phase, 4 Wire WYE 7,200/12,470V | SERVICE TYPE: Overhead Underground |
| CUSTOMER LOAD: 11 MVA Maximum | METER BASE LOCATION: Indoor Outdoor |
| * The Maximum Generation Permitted On Single Phase Installation Without Prior PPL EU Approval is 100KW. | |

Self Contained 480V Metering Series Organization Map

| Phase | Current (A) | Service Conductor Entrance | Description | Sketch # |
|--------|-------------|-----------------------------|--|----------|
| 1 | 200 | Underground | Typical Arrangement | 60 |
| | 400 | | Typical Arrangement | 61 |
| 1 or 3 | 200 or 400 | Overhead (Metering On Pole) | Typical Arrangement | 70 |
| | | Underground | Switchgear | 71 |
| | | Overhead or Underground | Wire Trough | 72 |
| | | Overhead | Typical Arrangement | 73 |
| 3 | 200 | Underground | Typical Arrangement | 80 |
| | | | Combination Line Side Breaker/Meter Base | 83 |
| | | Overhead | Combination Line Side Breaker/Meter Base | 82 |
| | | Underground | Typical Arrangement | 81 |
| | 400 | Underground | Typical Arrangement | 81 |

Sketch 60
updated 03/25/09

Page 1 - 200 AMP Customer Furnishes, Installs, Maintains

Page 2 - 200 AMP PPL EU Furnishes, Installs, Maintains

Typical arrangement of outdoor metering equipment on building

Underground service lateral from OH or UG distribution

Single phase, 240/480 volts self contained

| | |
|--|--|
| <p>Sketch 61 updated 03/25/09</p> | <p>Page 1 - 400 AMP Customer Furnishes, Installs, Maintains</p> <p>Page 2 - 400 AMP PPL EU Furnishes, Installs, Maintains</p> <p>Typical arrangement of outdoor metering equipment on building</p> <p>Underground service lateral from OH or UG distribution</p> <p>Single phase, 240/480 volts self contained</p> |
| <p>Sketch 70 updated 03/25/09</p> | <p>Pages 1, 2, & 3 - Typical arrangement of outdoor metering equipment on service and meter pole</p> <p>Overhead distribution</p> <p>Single phase, 240/480 volts</p> <p>Three phase, 277/480Y volts</p> <p>Self contained 200 and 400 amps</p> |
| <p>Sketch 71 updated 12/05/08</p> | <p>Pages 1 & 2 - Underground secondary service</p> <p>Indoor multi-meter installation for common service with instrument cabinets and/or meter bases</p> <p>Single phase, 3 wire, 277/480 volts</p> <p>Three phase, 4 wire, 277/480Y volts</p> |
| <p>Sketch 72 updated 03/25/09</p> | <p>Pages 1, 2, & 3 - Overhead or underground secondary service</p> <p>Indoor/outdoor multi-meter installation for common service with instrument transformer cabinets and/or meter bases</p> <p>Single phase, 3 wire, 277/480 volts</p> <p>Three phase, 4 wire, 277/480Y volts</p> |

| | |
|--|--|
| <p>Sketch 73 updated 03/25/09</p> | <p>Pages 1, 2 & 3 - Typical arrangement of outdoor metering equipment on building</p> <p>From overhead distribution</p> <p>Single phase 3 wire 277/480 volts</p> <p>Three phase 4 wire 277/480Y volts</p> <p>Self contained 200 and 400 amps</p> |
| <p>Sketch 80 updated 03/25/09</p> | <p>Page 1 - 200 AMP Customer Furnishes, Installs, Maintains</p> <p>Page 2 - 200 AMP PPL EU Furnishes, Installs, Maintains</p> <p>Typical arrangement of outdoor metering equipment on building</p> <p>Underground service</p> <p>Lateral from OH or UG distribution</p> <p>Three phase, 277/480 volts self contained</p> |

| | |
|--|---|
| <p>Sketch 81 updated 03/25/09</p> | <p>Page 1 - 400 AMP Customer Furnishes, Installs, Maintains Page 2 - 400 AMP PPL EU Furnishes, Installs, Maintains</p> <p>Typical arrangement of outdoor metering equipment on building</p> <p>Underground service</p> <p>Lateral from OH or UG distribution</p> <p>Three phase, 277/480 volts self contained</p> |
| <p>Sketch 82 updated 03/25/09</p> | <p>Page 1 & 2</p> <p>Typical arrangement of outdoor metering equipment on building</p> <p>OH distribution</p> <p>Three phase, 277/480Y volts self contained 200 ampere</p> <p>Combination Circuit Breaker/Meter Base</p> |
| <p>Sketch 83 updated 03/25/09</p> | <p>Page 1 & 2</p> <p>Typical arrangement of outdoor metering equipment on building</p> <p>Lateral from OH or UG distribution</p> <p>Three phase, 277/480Y volts self contained 200 ampere</p> <p>Combination Circuit Breaker/Meter Base</p> |

08/2011