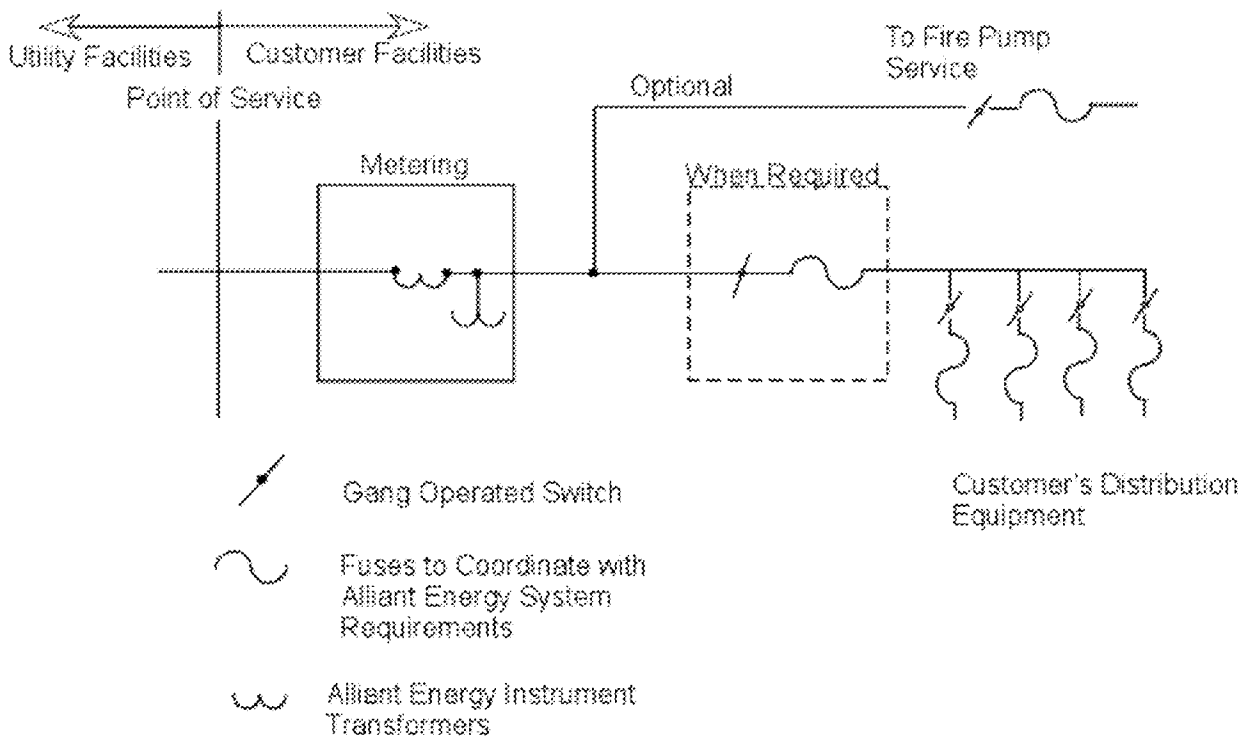


**1000. GENERAL**

- A. Primary Service** is defined as a service where Alliant Energy meters at primary voltage and the customer owns the facilities from the metering point on. The customer may lease primary voltage transformer/s from Alliant Energy.
- B.** Three-Phase, Primary Voltage Service, is available at Alliant Energy for the following voltages: 4.16 kV, 12.4 kV, 13.2 kV, 13.8 kV, 24 kV and 24.9 kV. Not every voltage is available at all locations. This chapter contains information concerning service at distribution voltages. For service, please contact Alliant Energy at 1-800-Alliant.
- C.** Primary Voltage Service, at a single-phase distribution voltage is available from Alliant Energy. Please consult Alliant Energy for single-phase primary service requirements. See Electric Service Equipment CHAPTER 2 for required single operated, grade-level air break switches.
- D.** Alliant Energy furnishes, installs, and maintains the primary service and metering equipment in accordance with Alliant Energy's applicable rates, extension rules and the requirements of the Electric Service Rules Chapter 1. Alliant Energy also furnishes installs and maintains all primary service conductors and cable terminators up to the point of service.
- E.** The Customer furnishes, installs and maintains all service entrance facilities at the point of service including cabinets to house metering CT's and PT's and the installation of 1 inch galvanized steel metering conduits where required.
- F.** The Customer shall make application to Alliant Energy for the proposed primary service and obtain approval of the location, equipment, and design before starting installation of the service entrance. Detailed shop drawings will be required for underground service terminations and metering sections in switchgear.
- G.** A 10-foot wide cable route shall be free of all obstructions, within 6 inches of final grade for all underground services, prior to the installation of Alliant Energy's underground service lateral. The customer shall also provide a 12 foot wide route for all overhead facilities. The Customer will incur all costs for clearing either the overhead or underground routes, including tree removal, building and/or foundation or rubble removal and any other obstacles encountered.
- H.** The Customer shall provide the necessary easements, at no expense to Alliant Energy for the installation and maintenance of the Primary Service. No permanent buildings or trees shall be placed in the easement area.

- I. A plan view drawing of the installation shall be submitted to and approved by Alliant Energy Engineering and Metering, prior to finalizing orders for service equipment to avoid delays and unnecessary expense for the Customer and Alliant Energy. Service entrance equipment located at the point of service shall include a three-phase, gang-operated load break disconnecting means and over current protection for three phase service. The disconnecting device shall be located to provide a visible open and operating capability to both the Customer and Alliant Energy. The sequence of the equipment toward the load shall be **meter-switch-fuse** with variations approved by Alliant Energy. (See following Diagram).

METER - SWITCH - FUSE




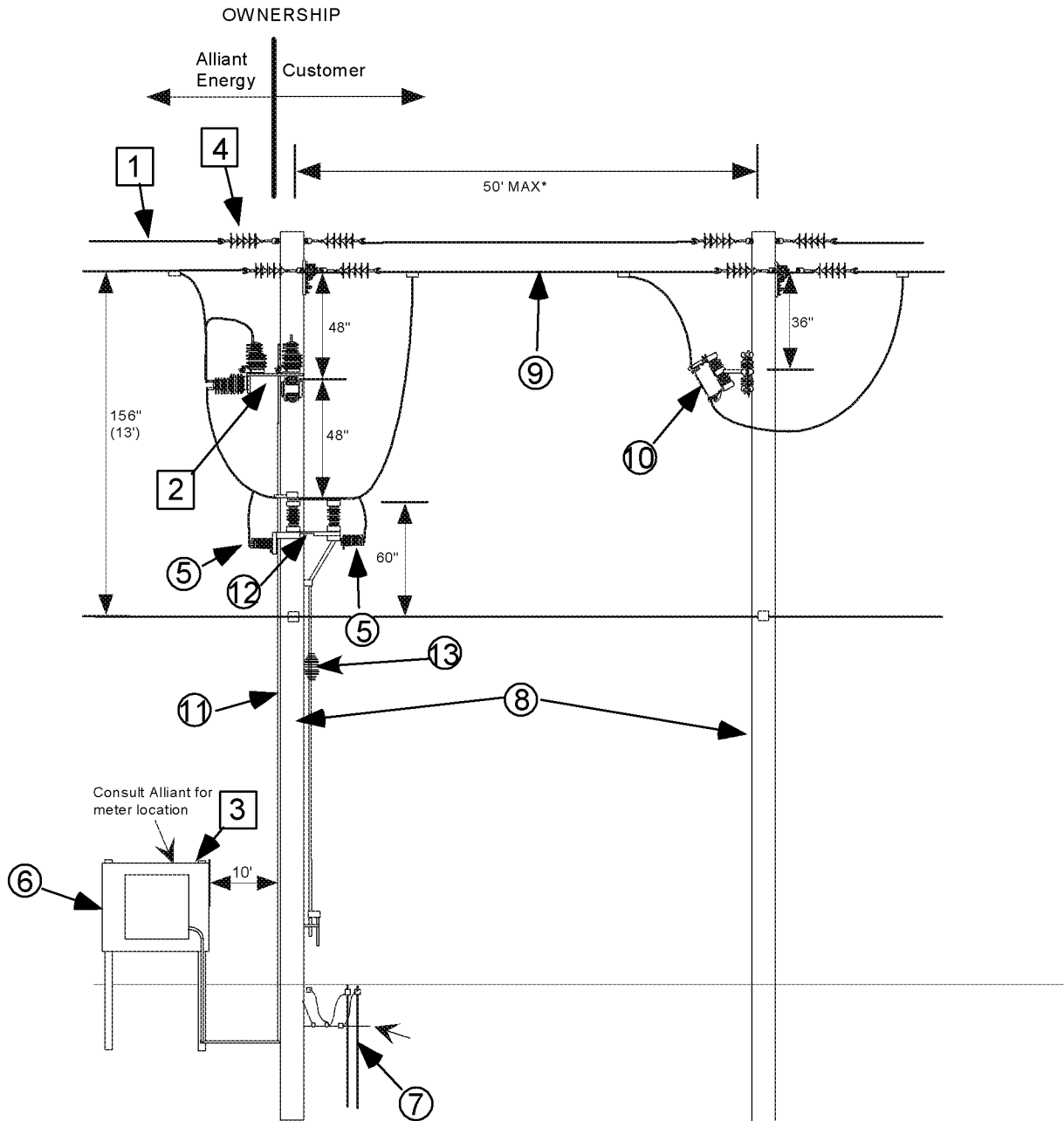
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**1001 OVERHEAD PRIMARY SERVICE**

- Customer furnishes, installs, and maintains:**
5. Arresters
 6. Meter Socket
 7. Grounding
 8. Poles
 9. Overhead primary conductor
 10. Primary fusing
 11. Conduit for metering
 12. Gang Operated Switch
 13. Insulator in switch operating rod handle
- Alliant Energy furnishes, installs, and maintains:**
1. Overhead primary service conductors
 2. PT's and CT's with mounting hardware
 3. Socket type meter
 4. Dead-end shoes and insulators

NOTES:

1. Customer shall provide two poles of adequate height that allows ground clearance in accordance with all codes for primary conductors including the neutral. The poles shall be of adequate class to provide strength to support conductors with ice and wind loading. Further information on this can be obtained from Alliant Energy.
2. Main disconnect shall be gang-operated, be operated from grade level, *lockable in both the open and closed position*, be operable by the Customer and Alliant Energy, have means to show visible open contacts, be capable of interrupting all load being served be capable of carrying all load requirements and withstanding faults of 10,000 amps RMS symmetrical.
3. Main fuses or breakers shall have adequate load carrying capacity and a minimum interrupting rating of 10,000 amps, RMS symmetrical. Fuses and breakers shall coordinate with Alliant Energy's system. The Customer shall verify this with Alliant Energy.
4. The Customer shall supply a minimum 96" of vertical spacing for the installation of Alliant Energy's metering bracket with current or potential transformers. Alliant Energy will supply the bracket for these transformers.
5. Branch circuit switches, operated at primary voltage, should meet operating criteria similar to the main fuse or breakers to provide adequate protection to the transformers served. Fuse size for Alliant Energy owned transformers will be specified by Alliant Energy
6. The Customer shall provide adequate climbing space on the main service entrance structure as specified in the National Electrical Safety Code.
7. Metering conduit – 1 inch rigid steel conduit with weatherhead. Maximum allowable conduit run is 50 feet with a total of 180 degrees in bends. Runs longer than 50 feet or runs with more than 180 degrees in bends will require approval by Alliant Energy.

1001 OVERHEAD PRIMARY SERVICE, CONTINUED.
Overhead Primary Service Design


*Another pole may be installed within the 50' distance. If the overhead line extends farther than 50', a main fuse needs to be installed on a pole that is within 50' of the main disconnect as shown above. (NEC 230-91). Install a set of arrestors on the closest upstream pole from the metering pole to protect the CT's/PT's from over-voltage situations. Also, consult Distribution Engineer to provide means to disconnect CT's/PT's on closest upstream pole.

**1002. UNDERGROUND PRIMARY SERVICE**

- | | |
|---|--|
| <input type="radio"/> Customer furnishes, installs and maintains | <input type="checkbox"/> Alliant Energy furnishes, installs and maintains |
| 5. Primary switchgear | 1. Underground primary service cables |
| 6. 6" conduit | 2. Terminators |
| 7. 1" metering conduit | 3. PT's and CT's |
| 8. Meter socket | 4. Socket type meter |
| 9. Grounding - Per NEC. 250 (c) | |
| 10. Switchgear pad | |

NOTES:

1. Switchgear drawings shall be submitted to Alliant Energy for approval before ordering
2. Utility cables entering the switchgear bus shall be bottom connected. Clear space shall be provided for primary conductors below the termination points including room in the bottom of the cabinet(s) for 6" conduit to enter directly below the center point of the three termination points.
3. All bus and cable bracing shall have adequate strength to prevent movement or damage to cable or bus at a maximum fault level of 10,000 amps (RMS symmetrical).
4. Main disconnect may not be required. If six or fewer branch circuits are present the main disconnect is not required by code. If on-site generation is present, the main disconnect is required regardless of number of branch circuits.
5. If required, main disconnect shall be gang operated, be operable by customer and Alliant Energy, have means to show visual open contacts, be capable of carrying full load requirements, and withstanding faults of 10,000 amps (RMS symmetrical).
6. Branch circuit switches should meet operating criteria similar to the main disconnect.
7. Customer owned main fuses or breakers shall have adequate load carrying capacity and a minimum interrupting rating of 10,000 amps (RMS symmetrical) and shall coordinate with Alliant Energy's system.
8. Metering transformer space shall be adequate for three voltage transformers (PTs) and three current transformers (CTs).

Alliant Energy will supply PT's and CT's similar to
General Electric JVM-5 (Indoor) or JWV-5 (Outdoor) PT's and
General Electric JKM-5A (Indoor) or JKW-5A (Outdoor) CT's for 15 kV services.

Alliant Energy will supply PT's and CT's similar to
General Electric JWV-6 (Outdoor) PT's and
General Electric JKW-6A (Outdoor) CT's for 24.9 kV service.

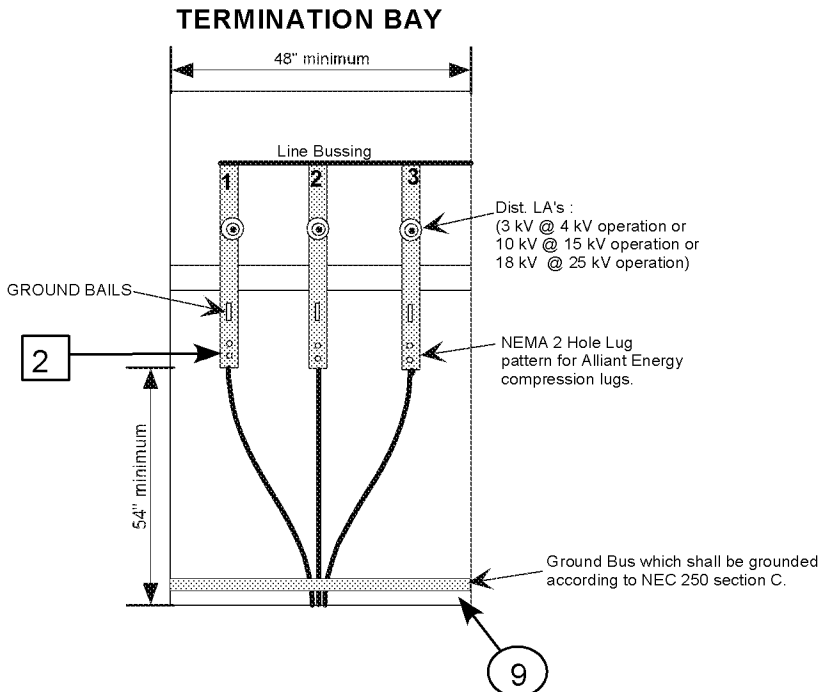
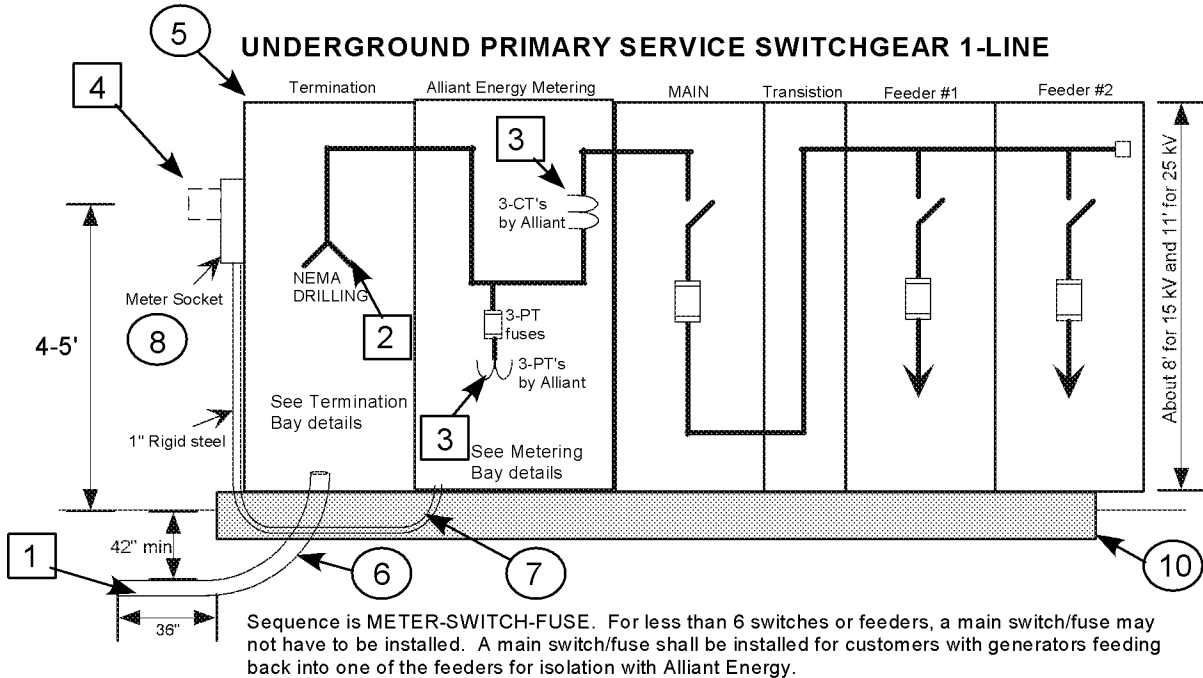
For 24.9 kV service, the customer shall provide fuse holders similar to
GE Type EK-1C for the PT's in WP&L territory only.

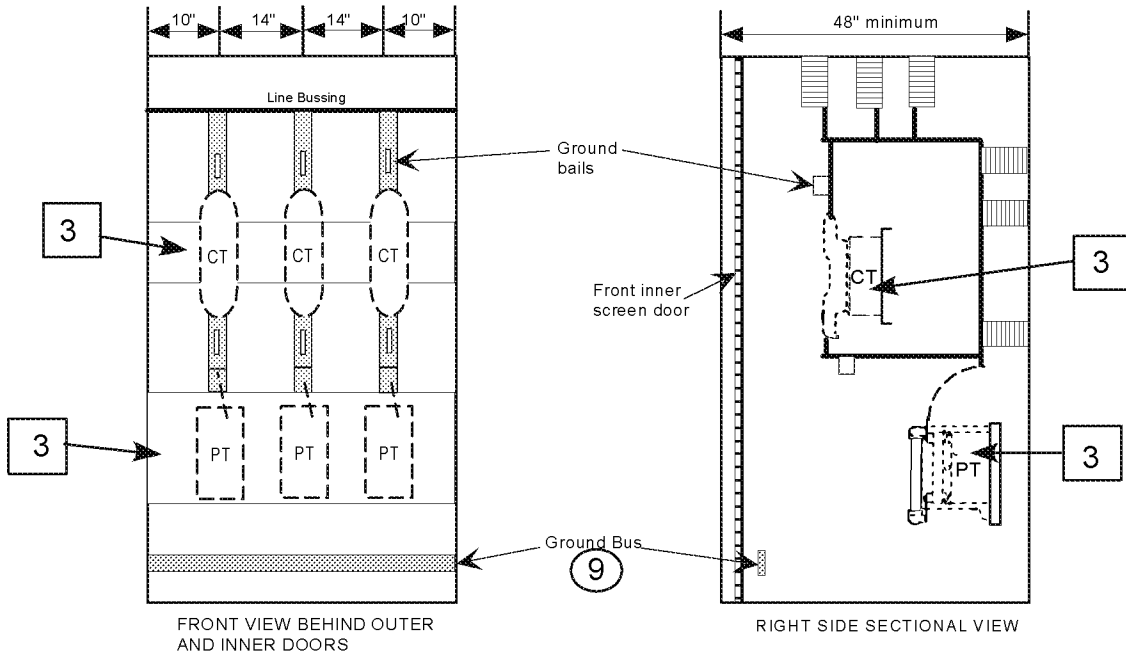
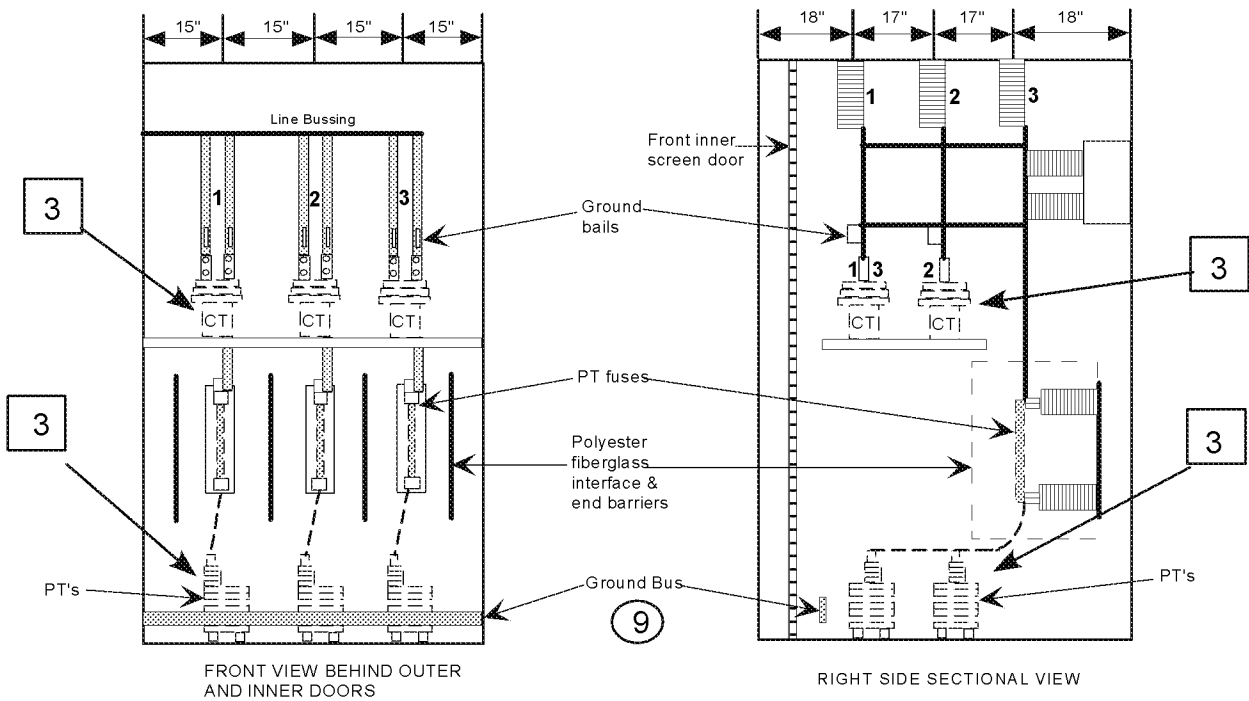


Alliant Energy will supply the fuses. For either voltage the PT's should be tapped on the source side of the CT's. PT's and CT's shall be able to be mounted so that the nameplates can be read from the front (preferred) or sides.

9. A two-hole NEMA standard lug landing shall be provided for each service lateral cable in the termination bay including the neutral bus. Minimum height of 54" is required from termination lug to floor.
10. Hinged doors with provisions for locking with an Alliant Energy padlock for direct working access to the Termination and Metering bays. In the metering a second wire mesh inner door shall be provided.
11. 10 feet of clearance shall be provided in front of Termination and Metering bays. If Alliant Energy is under contract to operate and maintain this switchgear, then the above provisions apply to all bays of the switchgear. Arrangements for double locking or other special procedures shall be discussed with Alliant Energy.
12. Grounding studs shall be provided for all three phases and the primary neutral bus at the Termination bay and Metering Bay. If Alliant Energy is under contract to operate and maintain this switchgear, then the above provisions apply to all bays of the switchgear. Arrangements for double locking or other special procedures shall be discussed with Alliant Energy.

1002. UNDERGROUND PRIMARY SERVICE- CONTINUED



15 kV METERING BAY

25 kV METERING BAY


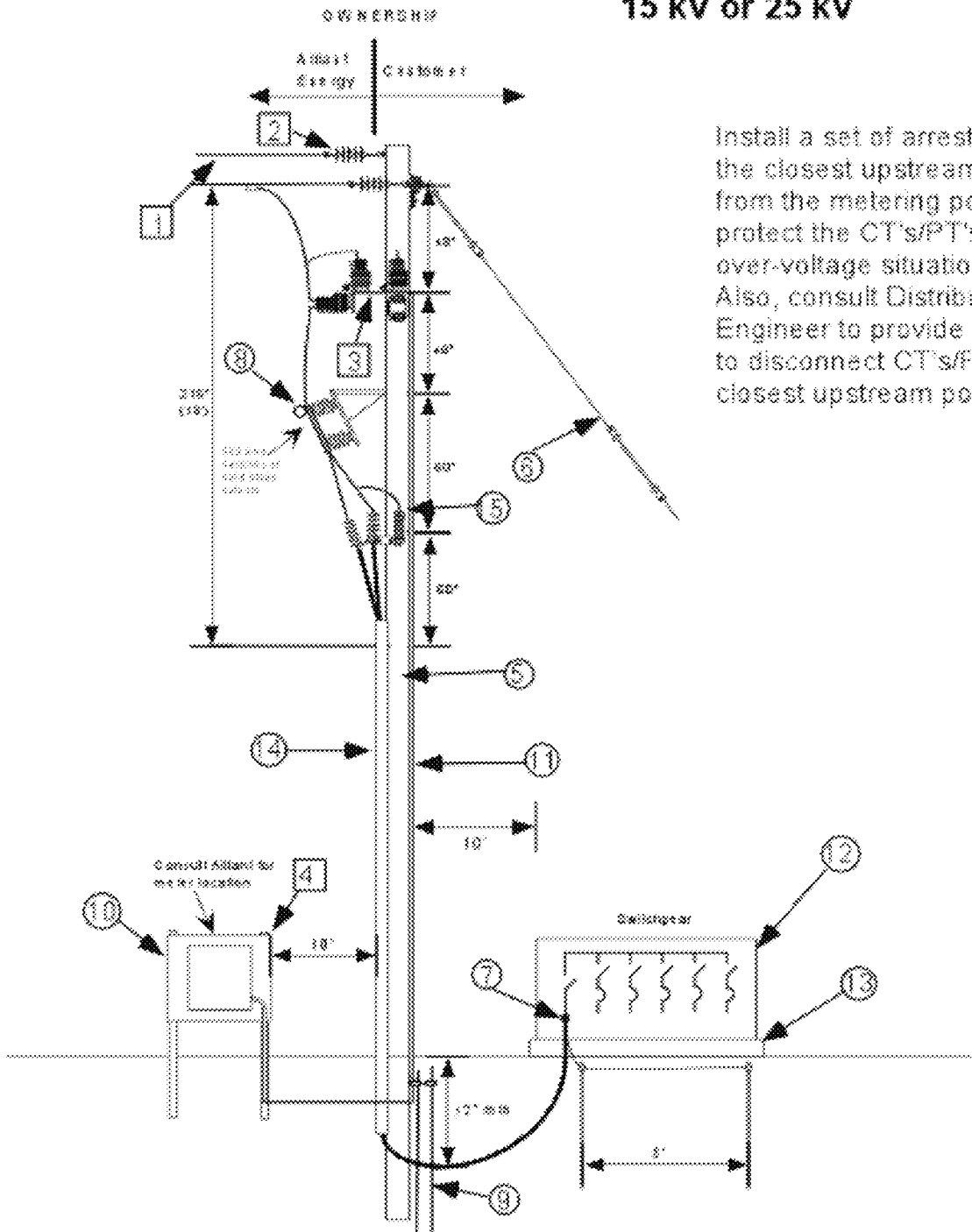


1003. UNDERGROUND PRIMARY SERVICE WITH OVERHEAD METERING

- | | |
|---|--|
| <input type="radio"/> Customer furnishes, installs and maintains | <input type="checkbox"/> Alliant Energy furnishes, installs and maintains |
| 5. Pole | 1. Overhead primary conductors |
| 6. Guy and anchor | 2. Deadend shoes and insulators |
| 7. Underground primary cable and terminators | 3. PT's and CT's with mounting bracket |
| 8. Disconnect switches | 4. Socket type meter |
| 9. Grounding Per NEC 250(c) | |
| 10. Meter socket | |
| 11. Metering conduit | |
| 12. Switchgear | |
| 13. Switchgear pad | |
| 14. U-guard. | |
| 15. Arresters | |

NOTES:

1. Switchgear shall have a main disconnect that is gang operated, lockable with a visual open, be capable of carrying full load requirements and withstanding faults of 10,000 amps. (RMS symmetrical)
2. Switchgear shall be located 10 feet from base of pole for safety when climbing metering pole and minimize the length of unprotected primary cable.
3. Pole shall be of adequate height to allow for ground clearance in accordance with all codes for primary conductors including the neutral. The pole shall be of adequate class to provide strength to support conductors with ice and wind loading. Further information on this can be obtained from Alliant Energy.
4. The customer shall provide adequate climbing space on the main service entrance structure as specified in the National Electric Safety Code (NESC).
5. The customer shall supply a vertical spacing of a minimum of 96" for the installation of Alliant Energy's metering bracket with CT's and PT's.
6. Disconnects on the pole shall have the ability to be opened under load with the use of a load-buster tool.
7. Metering conduit – 1 inch rigid steel conduit with weatherhead. Maximum allowable conduit run is 50 feet, with a total of 180 degrees in bends. Runs longer than 50 feet or runs with more than 180 degrees in bends will require approval by Alliant Energy.

**1003. UNDERGROUND PRIMARY SERVICE WITH OVERHEAD METERING -
CONTINUED**
15 kV or 25 kV


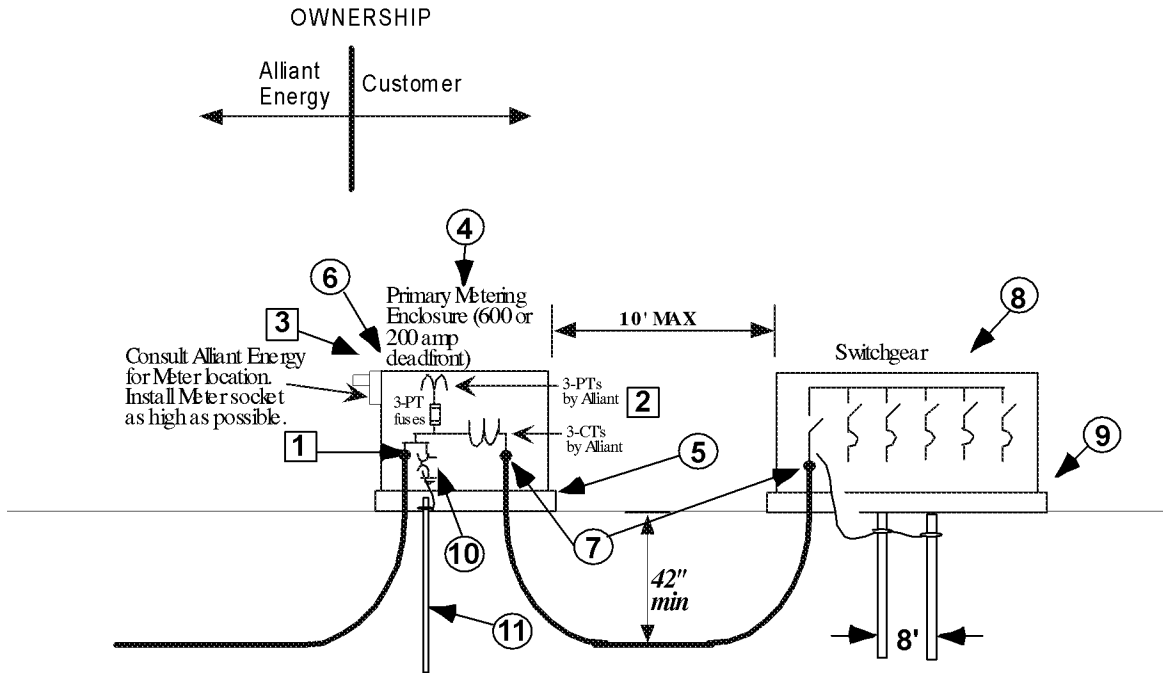
Install a set of arresters on the closest upstream pole from the metering pole to protect the CT's/PT's from over-voltage situations. Also, consult Distribution Engineer to provide means to disconnect CT's/PT's on closest upstream pole.

**1004 UNDERGROUND PRIMARY SERVICE TO METERING ENCLOSURE**

- The Customer furnishes, installs and maintains:**
4. Primary metering enclosure (see NOTE 5 below)
 5. Box pad
 6. Meter socket
 7. Underground primary cable with terminations
 8. Switchgear
 9. Switchgear pad
 10. Arresters
 11. Ground rod and grounding conductor
- Alliant Energy furnishes, installs and maintains:**
1. Underground primary service
 2. PT's and CT's
 3. Socket type meter

NOTES:

1. Box pad shall provide adequate space for training of primary cable.
2. Switchgear shall be located within 10 feet of metering enclosure to minimize the length of unprotected customer primary cable.
3. Switchgear shall have a main disconnect that is gang operated, operable by Alliant Energy and customer, lockable visual open, be capable of carrying full load requirements and withstanding faults of 10,000 amps (RMS symmetrical).
4. Branch circuit switches operated at primary voltage should meet operating criteria similar to the main disconnect.
5. Consult Alliant Energy Distribution Engineer for appropriate dead-front metering enclosure as listed in the equipment section.

**1004. UNDERGROUND PRIMARY SERVICE TO METERING ENCLOSURE,
CONTINUED.**




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