
	WHOLESALE DISTRIBUTION TARIFF (WDT) INTERCONNECTION DESIGN OPTIONS FOR PRIMARY VOLTAGE SERVICE		092816
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Rev. #00: This is a new document.			

Purpose and Scope

This document describes the options available and requirements of Wholesale Distribution Customers (Other Utilities or Customers which can connect to PG&Es Primary Voltage Distribution System and receive energy at Wholesale Rates as defined in the Wholesale Distribution Tariff – WDT). These Distribution Customers must have an executed Wholesale Distribution Tariff and Service Agreement (SA) filed with FERC (Federal Energy Regulatory Commission) to be eligible for these options of Interconnection. Excluded from this Document and disallowed are new WDT Connections at Secondary Voltage Levels (Below 600 Vac) as well as connections to Network Primary Voltage Circuits and Network Secondary Voltage Systems.

This document details the equipment and connections requirements to safely interconnect to PG&E's Electric Distribution System. These connections require clearly separated asset ownership while allowing for both parties (PG&E and the Wholesale Customer) to complete maintenance and operation tasks with little or minimal interaction requirements between the parties. Variations of these examples should be submitted through the Variance Process ([TD-2951P-01 Request for Variance from Electric Distribution Standards](#)) and discussed in advance with Electric Distribution Planning Departments prior to approval allowing Project progression. The intent of this document is that these generalized examples are the ONLY allowable configurations to be approved without an approved variance in the Electronic Document Routing System ([EDRS](#)). Variances are NOT precedent setting but rather are on a Project by Project Case.

Distribution Customers must provide space and locations for the equipment identified in Table 1. The intent of the equipment requirements identified in Table 1 allow the Distribution Customer (WDT Eligible Electric Utility Customer) to function largely independent of the Distribution Provider (PG&E) while at the same time isolating failures to the Distribution Customers System from affecting the PG&E Distribution System.

Table 1 Intervening Facility Requirements (WDT Customer Owned)

Intervening Facility	Overhead	Underground
Disconnect Switch	Required	Required
Protective Device	Required	Required
Wood Pole	Required	Not Required
Conductor ¹	Required	Required

¹ The WDT Customer must own the conductor from either the Metering Panel or Protective Device depending on the Point of Interconnection (POI) which is discussed in the Application Section of this document

Excluded from this Document are cases in which Generation is connected to the PG&E Distribution Grid. Retail Interconnection Projects are detailed in the [Distribution Interconnection Handbook](#). Additionally, excluded from this document is the [Document TD-2999B-030](#) Technical Requirements for Electric Service Interconnection at Primary Distribution Voltages. [Document TD-2999B-030](#) applies to Retail Interconnections in contrast to this document which pertains to Wholesale Interconnections. In general, most documents included in the PG&E Underground and Overhead Construction Manual have been developed specifically for Retail applications unless specifically identified as pertaining to both Retail and Wholesale Customers.

Wholesale Distribution Tariff (WDT) Interconnection Design Options for Primary Voltage Service

General Information

Utilities having a WDT Tariff on File with FERC:

- WD Tariff, SA 3 : Port of Oakland WDT Service Agreement
- WD Tariff, SA 15 : Westside Power Authority IA and WDT Service Agreement
- WD Tariff, SA 17 : Western Area Power Administration WDT Service Agreement
- WD Tariff, SA 30 : Power and Water Resources Pooling Authority IA and WDT SAs
- WD Tariff, SA 56 : Power and Water Resources Pooling Authority IA and WDT SAs
- WD Tariff, SA 275 : City and County of San Francisco IA and WDT SA
- WD Tariff, SA 382 : Shelter Cove Resort Improvement District IA and WDT SA

This document will be included in the following manuals:

- [Electric and Gas Service Requirements Manual \("Greenbook"\)](#)
- [Electric Underground Construction Manual – Services Section](#)
- [Electric Overhead Construction Manual – Services Section](#)

Application

Below is a list of representative requirements for Wholesale Interconnection. These requirement details indicate associated PG&E Installation and Design Documentation which satisfy the Intervening Facilities identified in Table 1 Intervening Facility Requirements (WDT Customer Owned) on Page 1. These installations allow the WDT Customer to operate and perform maintenance on their System exclusive of PG&E involvement through operation of WDT Customer owned Protective Devices. These designs provide the necessary equipment to interconnect seamlessly into the existing PG&E Distribution System.

Primary Underground Service Connection

This is a typical installation in urban areas such as San Jose, Oakland and San Francisco but may be present throughout the PG&E System.

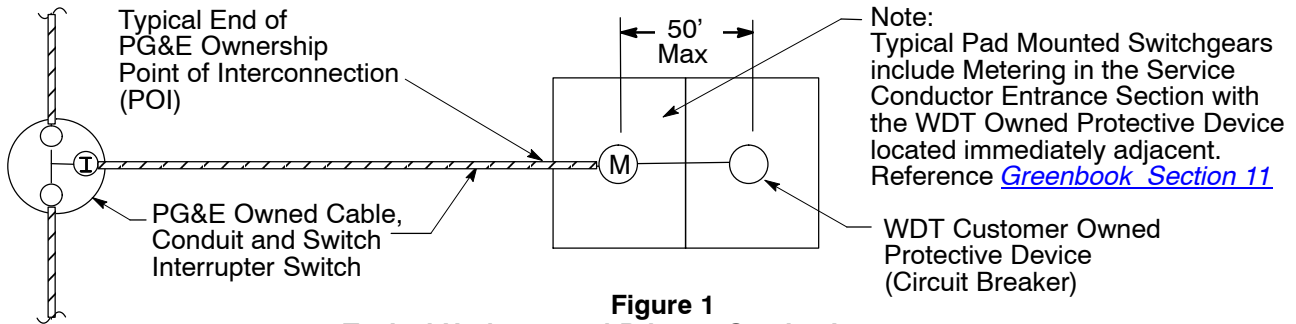


Figure 1
Typical Underground Primary Service Interconnect

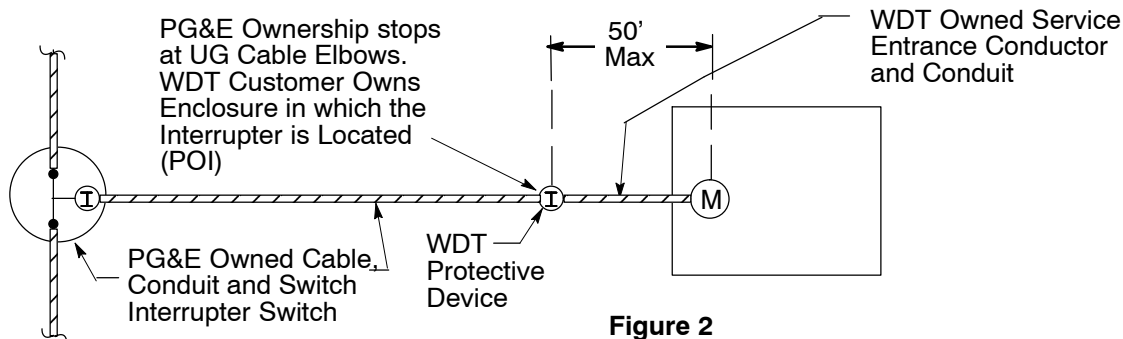


Figure 2
Alternate Primary UG Service Interconnect

Wholesale Distribution Tariff (WDT) Interconnection Design Options for Primary Voltage Service

Primary Underground Service Connection (continued)

At the point designated by PG&E as the connection to the existing PG&E Electric Distribution System, PG&E will install and own a Gang Operated Protective Device such as a Switch Interrupter Switch. This device may be Pad-Mounted or a Subsurface device depending on local space constraints and/or requirements. Installation of this PG&E owned protective device allows selective clearing of the Tap Line from the PG&E System should faults not be cleared by the WDT Customer Owned Primary Protective Device. Reference [Document 068188 \(Installation of Automatic Pad-Mounted Interrupters for Underground Distribution Lines\)](#) for the 200 A Pad Mounted Interrupter to be owned by the WDT Customer. Reference [Document 066208 \(Installation of Automatic Subsurface Interrupters for Primary Equipment Enclosures\)](#) for the Subsurface Interrupter Installations.

Primary Metering by the WDT Customer is preferred to be immediately on the Source side of the WDT Customer Owned Protective Device as indicated in Figure 1 on Page 2 . In such a configuration, PG&E's Ownership of the Underground Conductor and Conduit stop at the Cable Terminals on the Meter Panel which is immediately adjacent the WDT Customer Owned Service Main Breaker. In some cases, this will prove difficult for the WDT Customer to accomplish and they may instead request the Alternative identified in Figure 2 on Page 2. Where the WDT Owned Protective Device is requested to be located on the Source Side of the Metering and PG&E can accommodate this request, PG&E's Ownership of conduit will stop at the entrance to the subsurface enclosure and cable will stop at the Cable Elbows landing on the WDT Customer owned Interrupter. PG&E or the WDT Customer may own the Revenue Meter. Non-PG&E owned meters are covered by [Electric Rule 22 Direct Access](#). PG&E SHALL install, own and maintain the associate Metering Potential Transformers (PTs) and Current Transformers (CTs) located in the Metering Panel that will be owned by the WDT Customer. The WDT Customer's Metering must be within 50 cable feet of the WDT Customer owned Protective Device to avoid uncompensated line loss through the cable. Further than 50' should be compensated for in the metering programming.

Should the WDT Customer request the Alternative in Figure 2 on Page 2 they SHALL only use the PG&E Material Coded Devices to be installed per the above-mentioned PG&E Standards. This installation requirement is necessary to allow PG&E Personnel to safely operate the cabling on the WDT Customer Owned Protective Device. PG&E Personnel SHALL NOT operate the WDT Customer Owned Protective Device (Open, Close, Setting Changes).

Primary Overhead Service Connection

This is a typical installation in Rural Areas such as the Inland and San Joaquin Valley Service Territory Areas.

At the point designated by PG&E as the connection to the existing PG&E System, PG&E will install, own and operate a Gang Operated Protective Device such as a Recloser. Installation of this protective device allows selective clearing of the Tap Line and associated load for the WDT Customer should faults not be cleared by the WDT Customer Owned Primary Protective Device. The WDT Load will then feed through the Pole Mounted Primary Metering identified in [Document 058779 Pole-Top Primary Metering Installation. \(12 or 21kV Line\)](#).

Primary Metering for WDT Services should occur before the WDT Customer Owned Protective Device. In this case PG&E's Ownership of the Overhead Conductor stops at the PT's and CTs identified in [Document 058779 Pole-Top Primary Metering Installation. \(12 or 21kV Line\)](#). Where the WDT Customer Owned Protective Device is requested by the WDT Customer to be located on the Source Side of the Metering and PG&E can accommodate this request, PG&E's Ownership stops at the Source Side Disconnects on the WDT Customer Owned Protective Device.

Note – Unlike the PG&E Standard Design for Line Reclosers which is identified in [Document 066199 Installing Automatic Circuit Reclosers on Distribution Lines](#), there SHALL NOT be a U.S. switch (identified in [Document 066195 25 kV Underarm Side-Break Switch](#)) installed as a Bypass to the WDT Customer owned Line Recloser whether on the Source or Load Side of the Primary Metering in the Wholesale Application. This variance to the PG&E Standard Design disallows the WDT Customer to bypass their Protection Device thereby moving the primary sectionalizing device responsibility to PG&E's Protective Device.

PG&E or the WDT Customer may own the Revenue Meter. PG&E SHALL install, own and maintain the associate Metering Potential Transformers (PTs) and Current Transformers (CTs) located on the Metering Pole that will be owned by the WDT Customer. The WDT Customers Metering must be within 50 feet of the WDT Customer owned Protective Device to avoid uncompensated line losses. Further than 50' should be compensated for in the metering programming.

The WDT Customer SHALL use the PG&E Material Coded Device identified in the PG&E Standards. This installation requirement is necessary to allow PG&E Personnel to safely connect the PG&E Overhead Conductors to the WDT Owned Line Recloser. PG&E Personnel SHALL NOT operate the WDT Customer owned Protective Device (Open, Close, Setting Changes).

**Wholesale Distribution Tariff (WDT)
Interconnection Design Options for Primary Voltage Service**

References	Location	Document
600-Amp Separable Insulated Connectors	UG-1:Terminations	051071
Pole-Mounted Primary Metering Installation (12 or 21 KV Line)	OH: Meters/EMWP	058779
Cables for Underground Distribution	UG-1:Cable	039955
25 kV Underarm Side-Break Switch	OH: Switches	066195
Installation of Automatic Circuit Reclosures on Distribution Lines:	OH: Switches	066199
Installation of Automatic Subsurface Interrupters for Primary Equipment Enclosures	UG-1: Switches	066208
Request for Variance from Electric Distribution Standards	TIL	TD-2951P-01
Technical Requirements for Electric Service Interconnection at Primary Distribution	TIL	TD-2999B-030
Distribution Interconnection Handbook Electric and Gas Service Requirements Manual ("Greenbook") Electric Overhead Construction Manual – Services Section Electric Underground Construction Manual – Services Section		

Revision Notes

Revision 00 has the following changes:

1. This is a new document.