

2011 Electric & Gas Service Requirements (Greenbook) OVERVIEW

INTRODUCTION

In an effort to simplify standards and manual content, the 2011 edition of the *Electric and Gas Service Requirements (Greenbook)* was reviewed and revised in its entirety by the Greenbook Committee in 2010. As a result, minor and major revisions were made throughout the *Greenbook*. These changes include using simplified language, eliminating duplicated verbiage, and adding to the sections to ensure that the updated manual is more user friendly. This document lists the major or noteworthy changes and revisions to the 2011 *Greenbook*. Users can reference this information to see the changes to the section of the *Greenbook* to which they are referring at a glance. Edits that are either editorial or grammatical in nature are **not** noted here.

MAJOR CONTENT CHANGES

ENGINEERING DOCUMENTS

NOTE: Users can find the most current versions of PG&E's engineering documents online (electronically) at www.pge.com/greenbook

The 2011 edition of the *Greenbook* includes the engineering documents that are required to perform the work mandated by this manual. The requirements for installing gas and/or electric service facilities are specified in the engineering documents that are in effect **on the date that PG&E approves the service design**. Typically, that will be when PG&E provides the customer with a confirmation of gas and/or electric service.

The significant changes in the 2011 edition of the *Greenbook* are listed by section on the following pages.

2011 Electric & Gas Service Requirements (Greenbook) OVERVIEW

Cover

The color of the cover has been changed this year to a lighter shade of green to distinguish the 2011 edition from past editions of the manual. The date on the front cover has been updated to reflect the latest edition of the manual, and the back cover has been revised to include an 811 (USA) logo.

Section 1–General

- **Page 1-1:** Placed an 811 (USA) logo at the top right corner of the page to remind applicants to call Underground Service Alert before digging.
- **Subsection 1.12., “SmartMeter Program”:** This subsection provides PG&E customers with general information about the SmartMeter Program, which is part of a statewide effort driven by the CPUC to upgrade California’s energy infrastructure with automated metering technology. In addition, this subsection explains that PG&E may need to install additional equipment on customer buildings or premises to support the SmartMeter communication network.
- **Subsection 1.15., “Determining the Service Rating”:** This subsection clarifies that the rating of the service to be supplied is the rating of the termination section, pull can, service section, or main service switch continuous current rating (typically, whichever is greater). The wording in this subsection complies with Numbered Document 063927 and Numbered Document 063928, both of which are located in Appendix B.

Section 2–Gas Service

- **Page 2-1:** Placed an 811 (USA) logo at the top right corner of the page to remind applicants to call Underground Service Alert before digging.
- **Pages 2-23 through 2-46:** Updated the gas SmartMeter drawings.
- **Pages 2-27 through 2-30:** Updated the gas rotary-meter drawings and notes.
- **Figure 2-25, “Recessed, Individual Meter Cabinet–Horizontal or Vertical–for Gas and Electric Meter Installations:”** Added new notes to this figure, located on Page 2-38.
- **Subsection 2.4.2.7.4., “Specific Requirements for Gas Meter Rooms or Enclosures”:** Replaced all of the requirements formally located in Subsection 2.4.2.7.4., on Page 2-40, with a reference to Document J-16, “Gas Meter Room,” located in Appendix B. Document J-16 describes the specific requirements for gas meter rooms.

2011 Electric & Gas Service Requirements (Greenbook) OVERVIEW

- **Subsection 2.4.2.7.9., “Additional Meter-Set Requirements–SmartMeter Module Location Requirements”:** Clarified wording and added Note c in Subsection 2.4.2.7.9., on Page 2-44, with information on locating and setting meters.

Section 3–Electric Service: Underground

- **Up Front:** Placed an 811 (USA) logo at the top right corner of Page 3-1 to remind applicants to call Underground Service Alert before digging.
- **Subsection 3.2.4., “Installing Equipment Pads”:** Added this new subsection on Page 3-3 requiring applicants or their contractors to construct equipment pads as described in the PG&E engineering documents listed in Appendix B of this manual.
- **Subsection 3.3.4., “Trenching Work”:** Increased the minimum cover for secondary (i.e., 0–750 volts) electric service conduit to 24” in Letter A on Page 3-7. Increased the minimum cover for primary (i.e., over 750 volts) electric service conduit to 36” in Letter B on Page 3-7. Rearranged sentences throughout the subsection to improve descriptions of the requirements.

Subsection 3.3.6., “Selecting Backfill”: Added information about constructing and placing concrete caps on Page 3-10. Also, added a sentence at the end of this subsection explaining that all of these requirements are at the discretion of the PG&E inspector.

- **Subsection 3.4.1., “Mandrels”:** Clarified that applicants are responsible for providing PG&E-approved mandrels to prove conduit systems.
- **Table 3-3, “Mandrel Dimensions, Part Numbers, and Order Codes”:** Added the name of PG&E’s approved mandrel manufacturer and associated part numbers to Table 3-3 on Page 3-16.
- **Table 3-4, “Businesses That Sell or Rent Mandrels”:** Added a new table, Table 3-4 on Page 3-16, that lists businesses that sell or rent mandrels.

Section 4–Electric Service: Overhead

- **Table 4-1, “Minimum Clearances over Swimming Pools”:** Immediately above Note 8 in the table, corrected the heading to read, “Guys–Ungrounded Portions.” The table heading now matches the information found in G.O. 95.

2011 Electric & Gas Service Requirements (Greenbook) OVERVIEW

- **Subsection 4.5.1., “Attaching Low-Voltage, Residential, Overhead Service Drops”:** Added a note at the top of Page 4-16, describing how PG&E will attach a service knob to a customer’s property, as shown in Figure 4-36, “Building Attachment–Service Knob,” on Page 4-20.
- **Subsection 4.9., “Applicant-Owned, Installed, or Furnished Wood Poles”:** Added a sentence at the end of this subsection, on the bottom of Page 4-25, requesting applicants who are installing overhead, temporary services to refer to Numbered Document 025055 in Appendix B.

Section 5–Electric Metering: General

- **Subsection 5.2.1, “Applicant Responsibilities”:** Rearranged the paragraphs in this subsection. Added a requirement saying that all meter panels or switchboards located indoors must include a 2” conduit with pull tape from the meter section to the outside of the building for PG&E’s meter-related equipment. If a customer’s meter panel is rated at 200 kW or greater, a 1” conduit with pull tape also must be installed in addition to the 2” conduit. For conduits installed above ground, the conduit must be electrical metallic tubing (EMT), or better. For conduits installed underground, in floors, or in concrete, the conduit must be made rigid steel. Also, removed the paragraph about installing Company cell phones.
- **Figure 5-1, “Preferred Location of Conduits”:** Changed the title of Figure 5-1 on Page 5-3. Modified Figure 5-1 to show placement of the indoor conduit from the switchboard.
- **Subsection 5.3., “Electric Meters: General Location Requirements”:** Added a new paragraph telling applicants that when relocating or replacing an electric panel, the panel must be located so that it can be reconnected to the existing service conductor. If PG&E must install additional service conductors or cables, the applicant is responsible for the cost of the reconnect work and materials. Also, applicants need approval from the local meter shop before locating meters away from (i.e., remote from) the termination enclosure.
- **Subsection 5.3.4., “Electric Meter Rooms”:** Added Note I, on Page 5-6, that says meter rooms must have a conduit and pull tape installed as described in Subsection 5.2.1.
- **Subsection 5.4.3., “Meter Height and Working Space”:** Bolded two sentences to emphasize the importance of working space. Rearranged the paragraph and figures for better readability.
- **Subsection 5.8., “Grounding”:** Added references to the engineering documents located in Appendix B, that describe the correct methods for installing ground rods.

2011 Electric & Gas Service Requirements (Greenbook) OVERVIEW

- **Figure 5-12, “Grounding Outside of the Sealed Section–Transformer Rated Meter”**: Added this new figure on Page 5-17.
- **Table 5-3, “Requirements for AC Disconnect Switches”**: Added a reference to 320-amp, self-contained meters in Table 5-3 on Page 5-21. This meter information was changed inadvertently in the 2010 *Greenbook* to 200 amps.
- **Subsection 5.11., “Plug-In Electric Vehicle Interconnections”**: Added this new subsection for residential customers having plug-in electric vehicles (PEVs) who want to connect their electric vehicle supply equipment (EVSE) to their PG&E electric service. The document in Appendix B titled, “PG&E Standards and Requirements for Plug-In Electric Vehicle Interconnections,” explains the requirements for installing PEV supply equipment and illustrates various metering and connection options to serve plug-in electric vehicles. Additional PEV information also can be found in this subsection.

Section 6–Electric Metering: Residential

- **Table 6-1, “Residential (0 Through 225 Amperes) Enclosure”**: Updated Table 6-1, on Page 6-5, to include a width (W) column. Also modified the conduit sizes to show the minimum requirements.
- **Figure 6-3, “Typical Service-Termination Enclosure, Combination Meter-Socket Panel for a Class 320 Meter (Residential/Commercial, 120/240-Volt, 226-Ampere Through 320-Ampere Service)”**: Corrected the height dimensions for the cable termination facilities in Figure 6-3 on Page 6-6.
- **Figure 6-5, “Typical Underground, Separate-Bused, Current-Transformer Cabinet and Safety-Socket Meter Box Assembly, 120/240-Volt, 400-Ampere Through 600-Ampere Service”**: Corrected the remote meter maximum distance to 50’ and added a reference to Subsection 5.3 to Figure 6-5 on Page 6-8.
- **Figure 6-8, “Typical Service-Termination Enclosure, Combination Meter Socket Panel for a Class 320 Meter (Residential/Commercial, 120/240-Volt, 226 Ampere Through 320-Ampere Service)”**: Corrected the height dimensions for the cable termination facilities in Figure 6-8 on Page 6-10.

2011 Electric & Gas Service Requirements (Greenbook) OVERVIEW

Section 7–Electric Metering: Commercial and Industrial

- **Figure 1, “Bused, Safety-Socket Meter Box for Self-Contained Metering, 0 Through 125 Amperes”:** Added this new figure to Page 7-3.

Section 8–Electric Metering: Direct Access

There are no revisions to this section. Note that Section 8 still references Direct Access Standards For Metering and Meter Data (DASMMMD).

Section 9–Electric Metering: Components

- **Table 9-1, “Dimensions for Figure 9-1”:** Added a width (W) column and modified the conduit sizes to show the minimum requirements in Table 9-1 on Page 9-2.
- **Figure 9-17, “Remote Metering Cabinet (for Three-Phase Installations)”:** Added a new Note 4 below Figure 9-17 on Page 9-15, saying that remote metering must be approved by the local meter shop before meters are installed.
- **Table 9-3, “Minimum, Wall-Mounted, Pull-Section Dimensions: 80% Rated Service, Residential, Single Phase and 100% Rated Service, Commercial/Industrial, Single Phase or Three Phase”:** Removed the 4-wire dimension from the 401–600 row in Table 9-3 on Page 9-18. This dimension was removed because these service ratings only apply to 3-wire, single-phase applications on wall-mounted pull sections.

Section 10–Electric Switchboards: 0 Through 600 Volts

There are no revisions to this section.

Section 11–Electric Switchboards: 601 Volts Through 25,000 Volts

- **Subsection 11.2., “General Requirements”:** Moved the PT disconnect switch requirement to Subsection 11.3., Note R., on Page 11-3. Added a new note saying that with the release of the 2012 *Greenbook*, PG&E will require a transparent, insulated, inner door as a safety barrier in front of the termination section for all switchboards 601 through 25,000 volts.
- **Subsection 11.3., “Specific Requirements for High-Voltage Switchboards”:** Edited or added the following letters on Page 11-3:
 - **Letter K.**–Concrete pads must extend a minimum of 48 inches, as measured from the outside of the equipment’s outer doors.
 - **Letter M.**–Ensure the requirements in Subsection 5.2.1 are followed.

2011 Electric & Gas Service Requirements (Greenbook) OVERVIEW

- **Letter Q.**—Changed the note to say, “**Do not install ball studs** to attach safety grounds on the line and load side of the CT bus units.”
- **Letter R.**—Ensure that the maximum amount of operating force required to open and close a PT disconnect switch is no more than 50 foot-pounds.
- **Letter S.**—Install two ground rods and conduits for the primary service as shown in Figure 11-1 on Page 11-4. These two ground rods are in addition to those installed for the switchboard.
- **Letter T.**—Submit a termination-section drawing detail to your local service planning representative that includes the position of the conduit(s), ground rods, and additional internal components.
- **Figure 11-1, “Primary Switchboard Termination Section Pad Detail”:** This figure shows the termination-section detail along with the placement of the conduit and ground rods. Also included on Page 11-4, to enhance Figure 11-1, are three notes above the figure and Table 11-1, “Bill of Materials for Concrete Pad,” below the figure.

Appendix B—Electric and Gas Service Documents

- **TD-7001B-002, “PG&E Standards and Requirements for Plug-In Electric Vehicle Interconnections”:** Added this new document to the *Greenbook*.
- **“Street Light Conduit Detail”:** Added this new document to the *Greenbook*.
- **Gas Meter Room (J-16):** Added this document to the *Greenbook*.
- **Meter Guard Design and Installation Arrangement (J-95):** Added this document to the *Greenbook*.
- **Clearances and Location Requirements for Enclosures, Pads, and Underground Equipment (051122):** Title change.