



Portland General Electric

STATEMENT OF STREETLIGHT INSTALLATION RESPONSIBILITIES

REVISED FEBRUARY 6, 2009

This letter states the installation service requirements for Tariff Schedule 91 Option A and B streetlights in the Portland General Electric (PGE) service territory. Its purpose is to clarify streetlight design and installation procedures.

Ownership Options Under Streetlight Tariff Schedule 91:

- ◆ Option A is for luminaires owned maintained and supplied with electric energy by the PGE.
- ◆ Option B is for maintenance and energy supplied to equipment owned by the customer.

DESIGN RESPONSIBILITIES

1. Design Layout for Option B Streetlights (Owned by Municipality):

Subdivision Projects:

For Option B streetlights (owned by the municipality), the developer is responsible to provide the PGE Lighting Design Specialist with the subdivision streetlight design layout stamped approved by the municipality under whose jurisdiction it falls. This approved layout is to be submitted simultaneously with the subdivision plans, to avoid delays with the PGE electrical plans.

Street & Park Improvements:

For Option B streetlights (owned by the municipality) the municipality shall provide the PGE Lighting Design Specialist with a set of plans, which include complete streetlight design details.

2. Design Layout for Option A Streetlights (Owned by PGE):

PGE will provide a streetlight design, at no charge, for all Option A projects. The PGE Lighting Services Specialist will design the lighting layout to meet the recommended maintained illuminance values in the current revision of *ANSI/IES RP-8 American National Standard Practice for Roadway Lighting*, or the appropriate standard adopted by the municipality with jurisdiction over the project.

Design Alterations:

In order to meet customer needs in a timely manner PGE must have adequate notice of design changes. If PGE is not given adequate notification of design changes PGE reserves the right to bill the developer, the

municipality, or the designated contractor, responsible for the installation, for any costs to PGE associated with the changes. This billing may include, but is not limited to, the cost of additional trips, corrective trenching, conduit work, and alterations to PGE design sketches.

3. Approved Materials:

To qualify for PGE maintenance under Tariff Schedule 91 Option B, all installations are to use only PGE approved materials. A list of approved streetlight luminaires, lamps, photo controls, poles, pole bases, mast arms, wire, and junction boxes is available upon request. **No substitutions are allowed.** Materials installed must also meet the standards of the local municipality in whose jurisdiction the development exists.

TRENCH AND INSTALLATION REQUIREMENTS

4. Trench Excavation for Subdivision & Street Improvement Projects:

Only PGE approved excavation contractors may work in a street right-of-way under a permit obtained by PGE.

- ◆ The developer/contractor is responsible for all trench excavation and backfilling, road crossings, conduits, elbows, vaults, junction boxes, landscape restoration and associated permits.
- ◆ Trenches are to be 48 inches deep when shared with other utilities, and otherwise a at least 36 inches in depth.
- ◆ The developer is also responsible for all trench backfill and landscape restoration.
- ◆ An on-site preconstruction meeting is required for all projects.

5. Conduits and Elbows:

- ◆ **All conductors are to be installed in conduit.**
- ◆ **Conduits are to be sized for the required conductor, as determined by PGE.**
 - One-inch diameter conduits may be used for runs not exceeding 100 feet in length and serving only one light per each.
 - Two-inch diameter conduit is required for all runs over 100 feet and for all runs serving more than one light.
 - Three-inch diameter conduit may be required for installations requiring conductor 4/0 AL XLP and larger.
- ◆ All conduits must be gray electrical grade schedule 40 PVC, flex conduit is not allowed.
- ◆ All conduits are to contain a 500-pound test non-conductive pull line.
- ◆ Elbows are to be IMC, rigid steel or fiberglass as noted in PGE's Electrical Service Requirements book:
 - For conduit runs longer than 150 feet,
 - No more than 3-90 degree elbows or a total of 270 degrees of bends in any conduit run;
- ◆ 36-inch radius elbows are required for all conduit runs longer than 6 feet.
- ◆ 24-inch radius elbows are allowed for 1-inch Sch 40, PVC conduit runs of 6 feet or less, while still maintaining a 36-in minimum depth.
- ◆ All elbow bends must be factory made.
- ◆ All conduit and elbow ends shall be smooth and free of burrs and rough edges.

NOTE: If the power source is at a utility pole, the terminal elbow is to be installed eight inches from the pole, and attached to a PGE installed standoff bracket, at the quadrant specified by PGE. If the power source is an energized pad-mount transformer, the customer is to excavate all but the final three feet from existing energized primary or secondary conductors. **The final three feet of excavation will require a PGE-standby. To schedule a stand-by, please call PGE Service Coordinators at (503) 736-5450 or (503) 463-4348 (Salem area). Oregon Utility Notification Center at, (800) 332-2344, must be called to locate any underground facilities at least two business days (48 business hours) prior to any digging.**

6. Junction Boxes:

- ◆ All junction boxes are to be PGE-approved.
- ◆ Junction boxes are required at each streetlight location where:
 - conduit runs serve more than one light, or
 - conduit runs exceed 100 feet in length, or
 - conduit sizes are greater than one-inch diameter.
- ◆ A minimum of twelve inches working space is to be provided between the top of elbows and the junction box lid to allow bending up to 4/0 aluminum gauge wire without damage to the wire.
- ◆ The elbows are to be clustered at one end of the junction box.

NOTE: For individual runs of 1-inch conduit from a PGE power source to a pole base, junction boxes will not be required. Where multiple lights are served from a run of wire, two-inch conduit and junction boxes are always required.

7. Light and Pole Installation by Contractor:

- ◆ Where junction boxes are installed, the contractor shall run continuous #10 Cu 3-conductor streetlight wire from the luminaire to the junction box.
- ◆ Where junction boxes are not installed, the contractor shall run continuous #10 Cu 3-conductor streetlight wire from the luminaire to the hand hole of the pole. PGE will run conductor from the source to the pole hand hole.
- ◆ In both cases, 18" of extra conductor shall be provided for PGE to make the connection.
- ◆ All direct burial type streetlight poles are to be set to the depth specified in PGE standards:
 - five feet for 30 and 35 foot poles,
 - four feet for all shorter poles.
- ◆ **Where anchor-base type poles are installed using precast concrete footings, PGE specifies:**
 - 20" diameter/4' long round footing with 11" bolt circle for all 14' or 16' decorative aluminum or composite posts, use Utility Vault #20R-LB-4-PGE.
 - 14" square/4' long footing with 8" bolt circle for all 16' regular aluminum posts, use Utility Vault #4-LB-PGE.
 - 14" square/5' long footing with 11" bolt circle for all 25' to 35' regular-arm and davit-arm aluminum poles, use Utility Vault #5CL-LB-PGE.
 - 18" top to 24" bottom tapered square/7' long footing with 11" bolt circle for all 40' davit-arm aluminum poles, use Utility Vault #7LB.
- ◆ Tamped $\frac{3}{4}$ -inch minus crushed rock backfill is required around all poles and footings regardless of soil condition to maintain proper pole alignment.

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- ◆ All metal poles must be grounded per NESC 215.C and NESC Section 9, using a 5/8" x 8' galvanized rod, connected to the grounding lug inside the pole using solid #6 Cu BSD wire (stranded wire is not acceptable). The ground rod is to be driven into undisturbed soil near the pole.
- ◆ All streetlights are to be connected 240 volts to the black and red hot legs of the conductor. The green wire is to be connected to ground.
- ◆ Wire nuts are not allowed by PGE. The contractor may only connect approved wire directly to the terminal block in the luminaire itself. PGE will make all other connections using compression clamps.
- ◆ PGE will make the final connection in the junction box or hand hole to energize the streetlight.

NOTE: The contractor is responsible for the correct operation of the street light system for the first year after being energized by PGE. The contractor is also responsible for any poles which go out of plumb within this first year. During this acceptance period any repairs or pole straightening performed on the installed system by PGE will be billed to the developer.

Please call your local PGE Outdoor Lighting Specialist for a bid. If requested PGE will provide costs to provide and install Option B streetlights and poles.

BILLING AND AUTHORIZATION

8. Line Extension Charge:

There will be a cost to install circuitry for all streetlight projects. The line extension cost is the total material and labor cost for PGE to install as necessary the conductors, transformers, pole conduits, anchors and guying, conductor support poles, and related hardware. The line extension charge is the line extension cost less the allowance based on anticipated revenue to PGE, as approved by the Oregon Public Utility Commission in the PGE tariff. **The line extension charge is to be paid in full prior to installation unless prior arrangements have been made.**

9. Authorization to Energize and Initiate Billing:

PGE will request authorization from the municipality to install or energize the streetlights as installed, and to begin billing for them under provisions of the appropriate streetlight option.

This letter is effective as of March 2, 2009. If you have any questions or if we can be of any assistance please call your local Outdoor Lighting Services Specialist.