



## JOB DESCRIPTION

### Electrical Engineer

Date Prepared: March 2014

Class Code: 8125

**SUMMARY:** Under general supervision, performs semi-complex, professional electrical engineering work in the design investigation and construction of public utility system and capital improvement projects including supervisory controls and data acquisitions systems (SCADA), and remote terminal units (RTU's) and related substation power-supply and support facilities.

**ESSENTIAL FUNCTIONS:** -- *Essential functions, as defined under the Americans with Disabilities Act, may include any of the following representative duties, knowledge, and skills. This is not a comprehensive listing of all functions and duties performed by incumbents of this class; employees may be assigned duties which are not listed below; reasonable accommodations will be made as required. The job description does not constitute an employment agreement and is subject to change at any time by the employer. Essential duties and responsibilities may include, but are not limited to, the following:*

- Plans and participates in the diagnostic and troubleshooting of substations, protective relay systems, fiber optics, communications systems, and other related systems; prepares system protection calculations and settings; provides electrical background information and documentation for management consideration on various projects.
- Designs, develops, programs test, commissions, manages, diagnoses, and modifies all aspects of the utility's critical SCADA system including SCADA servers, SCADA network, remote terminal units (RTU's), programmable logic controllers (PLCs), and communication.
- Participates in the conduct of multiple complex electric utility capital improvement projects including preparation of detailed plans, construction drawings, cost estimates, construction schedules, material lists, specification and bid contract documents.
- Manages, develops, and improves protection and control algorithms in all microprocessor-based relays to protect and automate electrical power equipment including transformers, load tap changers, capacitor banks, ground banks, busses, and feeders.
- Prepares, review, and approves engineering drawings, work orders and purchase orders; plan checks construction work order packages for proper engineering practices.
- Performs administrative and field supervisory work necessary to coordinate the development, installation and maintenance of electric department's substation, generation, communications, and relay and control equipment.
- Performs studies of technical and economic feasibility and related studies pertaining to proposed and existing systems facilities.
- Participates in the development and implementation of all database modifications in computer directed control systems for station equipment additions, modifications and/or deletions for current system operation.
- Assists in implementing equipment maintenance programs and analysis and remedy of major equipment failures, station service interruptions, and safety problems.
- Interfaces on a regular basis with Engineering, Transmission & Distribution, and Substation Divisions of the Light and Power Department to assist in the development and implementation of goals, objectives, policies and priorities.
- Develops power distribution switching procedures.
- Participates in electrical systems planning and electric load management; performs and analyzes electric power system studies including load flow and short circuit studies; prepares drafts, records, and reports.
- Prepares detailed specification for equipment, materials, and projects.

- Supports the relationship between the City of Vernon and the general public by demonstrating courteous and cooperative behavior when interacting with visitors and City staff; maintains confidentiality of work-related issues and City information; performs other duties as required or assigned.

**MINIMUM QUALIFICATIONS:**

**Education, Training and Experience Guidelines:**

Bachelor's Degree in Electrical Engineering AND five years experience in planning, design, and construction of electric distribution substations and projects.

**Knowledge of:**

- City policies and procedures.
- Customer service and public relations methods and practices.
- Electrical engineering methods, practices, and computations for project planning, designs, technical plans, specifications, estimates, and reports for public electric utility and infrastructure improvement projects.
- Methods, material, and techniques used in electric systems construction, and inspection practices.
- Methods, material, and techniques used in substation and protective relaying systems and SEL relays.
- Principles and practices of government project management and methods of evaluating construction contract compliance.
- Principles and practices of record keeping and records management.
- State and federal codes and regulations governing public utilities projects.

**Skill in:**

- Administering contracts and managing construction projects.
- Collecting and analyzing data and information to draw logical conclusions and make effective recommendations.
- Communicating effectively both verbally and in writing.
- Establishing and maintaining cooperative working relationships with co-workers, contractors, property owners, other City personnel, and the public.
- Interpreting and applying state and federal statutes, codes, rules, and regulations.
- Making complex electrical engineering computations and to check, design and supervise the preparation of electrical engineering plans and studies.
- Operating a personal computer utilizing standard and specialized software.
- Supervising and coordinating the work of engineering personnel and contractors.
- Working effectively with others to develop solutions for problems.

**LICENSE AND CERTIFICATION REQUIREMENTS:**

A valid California State Driver's License and certification as an Engineer-in-Training. Registration as a Professional Engineer must be obtained within two years of hire.

**PHYSICAL DEMANDS AND WORKING ENVIRONMENT:**

Work is performed in a standard office environment and in internal and external environments and construction sites throughout the City with possibility of exposure to hazardous materials.