

Approved November, 2006  
Proposed May 2018

**CITY OF SANTA CLARA, CALIFORNIA**  
**ELECTRIC UTILITY ENGINEER**  
(428)

**EDUCATION AND EXPERIENCE**

- Graduation from an accredited college or university with:
  - a) Bachelor's Degree in Electrical Engineering and two (2) years experience doing electric utility engineering work, or
  - b) Bachelor's Degree in Engineering and three (3) years experience doing electric utility engineering work and
- Experience using AutoCAD and Microsoft office (i.e. Microsoft Word, Excel, PowerPoint and Mathlab)

**Possible Substitutions**

- A Master's Degree in Electrical Engineering from an accredited college or university may be substituted for one (1) year of experience
- An Engineer-in-Training Certification with ten (10) years of experience in electric utility engineering work can be substituted for the degree in engineering and the required experience indicated above

**Desirable Qualifications**

- Registration as an Electrical, Mechanical or Civil Engineer in the State of California
- Experience using ESRI based Geographic Information System (GIS)
- Experience using system modeling and load flow software; Aspen one-liner software, GE PSLF, and DEW ISM

**LICENSE**

Possession of an appropriate, valid Class C California driver's license is required at time of appointment and for the duration of employment.

**DISTINGUISHING CHARACTERISTICS**

An incumbent in this position may be assigned to work in the generation, substations, transmission, distribution, planning, protection, or operations groups of the Electric Utility Department, as the need is determined.

**TYPICAL TASKS**

Duties may include but are not limited to the following.

Under general direction:

- Designs, assists in coordinating the design of, and manages electric utility system projects, including: generation facilities, electric substations, protection systems, overhead and underground transmission and distribution lines, supervisory control facilities, street lighting, and other electric system facilities

## **ELECTRIC UTILITY ENGINEER (continued)**

- Prepares and/or assists in the preparation of design and construction standards, equipment procurement specifications, construction specifications and drawings, design procedures, test procedures, and safety procedures for electric facilities
- Performs and/or assists in power system studies such as protective coordination, fault studies, power flows, service reliability, and power quality
- Uses AutoCAD in the preparation of drawings, plans and other related matters
- Prepares, supervises, or assists in the preparation and maintenance of circuit maps, diagrams, construction drawings, charts, and plans
- Compiles engineering data and makes complex engineering calculations and analysis
- Monitors utility compliance with State and Federal regulations, makes recommendations and may develop and implement procedures for compliance
- Investigate field problems and troubleshoot problems with utility equipment and facilities
- May provide assistance to all classes of customers, developers, the utility business office, and to other City Departments on technical matters relevant to electric utility services
- May provide assistance to technical and financial inputs for projects in electric utility budget
- Prepares contracts, agreements, technical specifications, reports, minutes and other related documents
- May assist with the preparation of department's annual and five-year capital improvement budgets and the operating budget
- Coordinates engineering activities with other City departments and other public agencies
- May supervise, train and develop staff and act as supervisor during periods outside of regular working hours during emergency situations or while on local or remote job construction sites; and
- Performs other related duties as assigned

### **KNOWLEDGE, SKILLS, AND ABILITIES**

#### **Knowledge of:**

- Engineering principles, practices, procedures, materials, and equipment used in the design, cost estimation, analysis, construction, operation, repair and maintenance of electric utility generation, substations, transmission, distribution, protection, street lighting, metering, and other electric utility facilities
- Principles and theory of electric utility design, construction, operation and maintenance (i.e., power generation, transmission, and distribution systems)
- Federal, State and local laws, codes, ordinances, regulations and policies pertaining to power infrastructure operation
- Utility system modeling techniques and technology
- Principles of supervision and training
- Computer applications (e.g. Microsoft office, project management software, scheduling tools, computer-aided drafting and design CAD and Mathlab)
- Environmental and safety practices, procedures and standards, including the National Electric Safety Code (NESC) and other standards

#### **Ability to:**

- Understand and follow oral and written instructions

## **ELECTRIC UTILITY ENGINEER (continued)**

- Analyze engineering problems of moderate complexity
- Analyze data, prepare reports and make recommendations
- Perform electric utility power engineering work related to planning, design, and operation of distribution, transmission, or substation systems
- Communicate effectively both verbally and in writing
- Write clear, concise reports, using correct composition, English grammar and spelling
- Deal tactfully and courteously with others
- Work in a team based environment to resolve problems, achieve common goals and successfully deliver projects
- Establish and maintain effective working relationships with those contacted in the course of work, including the general public
- Handle multiple priorities, organize workload, and meet strict deadlines
- Walk or stand for extended periods of time
- Bend, stoop, reach, carry, crawl, climb, and lift as necessary to perform assigned duties

### **SUPERVISION RECEIVED**

Works under the general direction of a Senior Electric Engineer, , Division Manager, Assistant Director or other supervisor as assigned.

### **SUPERVISION EXERCISED**

May supervise engineering administrative, technical , or other staff as assigned.

### **SPECIAL CONDITIONS**

May work unusual hours in emergency situations, or while acting as supervisor, or at other than the regular job site.

### **OTHER REQUIREMENTS**

Must be able to perform all of the essential functions of the job assignment.

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**ELECTRIC UTILITY ENGINEER**  
(428)

**EDUCATION AND EXPERIENCE**

- Graduation from an accredited college or university with:
  - a) ~~a~~ Bachelor's Degree in Electrical Engineering and two (2) years experience doing electric utility engineering work, or
  - b) a Bachelor's Degree in Engineering and three (3) years experience doing electric utility engineering work- and*  
*b)*
- Experience using AutoCAD and Microsoft office (i.e. Microsoft Word, Excel, PowerPoint and Mathlab)
- ~~• Candidates from a non accredited college or university must demonstrate educational equivalency by registration as a professional electrical, mechanical, or civil engineer in the State of California.~~  
~~A Master's Degree in Electrical Engineering from an accredited college may be substituted for one (1) year of experience.~~

*Possible Substitutions*

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- *A Master's Degree in Electrical Engineering from an accredited college or university may be substituted for one (1) year of experience*
- *An Engineer-in-Training Certification with ten (10) years of experience in electric utility engineering work can be substituted for the degree in engineering and the required experience indicated above*

*Desirable Qualifications*

- *Registration as an Electrical, Mechanical or Civil Engineer in the State of California*
- *Experience using ESRI based Geographic Information System (GIS)*
- *Experience using system modeling and load flow software; Aspen one-liner software, GE PSLF, and DEW ISM*
- ~~• In lieu of a degree in engineering and the required experience indicated above, an Engineer in Training Certification with ten (10) years of experience in electric utility engineering work is qualifying.~~

**LICENSE**

Possession of an appropriate, valid Class C California driver's license is required *at time of appointment and for the duration of employment.*

## ELECTRIC UTILITY ENGINEER (continued)

### DISTINGUISHING CHARACTERISTICS

An incumbent in this position may be assigned to work in the generation, substations, transmission, distribution, planning, protection, or operations groups of the Electric Utility Department, as the need is determined.

### TYPICAL TASKS

*Duties may include but are not limited to the following.*

Under general direction:

- Designs, assists in coordinating the design of, and manages electric utility system projects, including: generation facilities, electric substations, protection systems, overhead and underground transmission and distribution lines, supervisory control facilities, street lighting, and other electric system facilities;
- Prepares and/or assists in the preparation of design and construction standards, equipment procurement specifications, construction specifications and drawings, design procedures, test procedures, and safety procedures for electric facilities;
- Performs and/or assists in power system studies such as protective coordination, fault studies, power flows, service reliability, *and power quality, etc.;*
- *Uses AutoCAD in the preparation of drawings, plans and other related matters*
- Prepares, supervises, or assists in the preparation and maintenance of circuit maps, diagrams, construction drawings, charts, and plans;
- *Compiles engineering data and makes complex engineering calculations and analysis*
- *Monitors utility compliance with State and Federal regulations, makes recommendations and may develop and implement procedures for compliance*
- *Investigate field problems and troubleshoot problems with utility equipment and facilities*
- May provide assistance to all classes of customers, developers, the utility business office, and to other City Departments on technical matters relevant to electric utility services;
- May provide assistance to technical and financial inputs for projects in electric utility budget.
- *Prepares contracts, agreements, technical specifications, reports, minutes and other related documents*
- *May assist with the preparation of department's annual and five-year capital improvement budgets and the operating budget*
- *Coordinates engineering activities with other City departments and other public agencies*
- *May supervise, train and develop staff and act as supervisor during periods outside of regular working hours during emergency situations or while on local or remote job construction sites; and*
- ~~May act as duty supervisor during periods outside of regular working hours during emergency situations or while on local or remote job construction sites; and~~
- Performs other related duties as assigned.

### KNOWLEDGE, SKILLS, AND ABILITIES

Knowledge of:

- Engineering principles, practices, procedures, materials, and equipment used in the design, cost estimation, analysis, construction, operation, repair and maintenance of electric utility

## ELECTRIC UTILITY ENGINEER (continued)

generation, substations, transmission, distribution, protection, street lighting, metering, and other electric utility facilities;

- Principles and theory of electric utility design, construction, operation and maintenance (i.e., power generation, transmission, and distribution systems);
- *Federal, State and local laws, codes, ordinances, regulations and policies pertaining to power infrastructure operation*
- *Utility system modeling techniques and technology*
- *Principles of supervision and training*
- *Computer applications (e.g. Microsoft office, project management software, scheduling tools, computer-aided drafting and design CAD and Mathlab*
- *Environmental and safety practices, procedures and standards, including the National Electric Safety Code (NESC) and other standards*

Ability to:

- Understand and follow oral and written instructions;
- Analyze engineering problems of moderate complexity;
- *Analyze data, prepare reports and make recommendations*
- *Perform electric utility power engineering work related to planning, design, and operation of distribution, transmission, or substation systems*
- ~~Calculate and report solutions;~~
- Communicate effectively *both* verbally and in writing;
- *Write clear, concise reports, using correct composition, English grammar and spelling*
- Deal tactfully and courteously with others;
- *Work in a team based environment to resolve problems, achieve common goals and successfully deliver projects*
- ~~Effectively interface with the general public including customers and other City employees;~~
- *Establish and maintain effective working relationships with those contacted in the course of work, including the general public*
- ~~Work in a team based environment and achieve common goals;~~
- Handle multiple priorities, organize workload, and meet strict deadlines;
- *Walk or stand for extended periods of time*
- Bend, stoop, reach, carry, crawl, climb, and lift as necessary to perform assigned duties;

### SUPERVISION RECEIVED

Works under the general direction of a Senior *Electric* Engineer, ~~Field Foreperson~~, Division Manager, Assistant Director or other supervisors as assigned.

### SUPERVISION EXERCISED

May supervise engineering administrative, ~~or~~ technical ~~personnel~~, or other ~~staff~~~~personnel~~ as assigned.

### SPECIAL CONDITIONS

May work unusual hours in emergency situations, or while acting as ~~duty~~ supervisor, or at other than the regular job site.

**ELECTRIC UTILITY ENGINEER** (continued)

**OTHER REQUIREMENTS**

Must be able to perform all of the essential functions of the job assignment.