

PRINCIPAL ELECTRICAL ENGINEER

DEFINITION

Under general direction, serves as a technical authority for complex electric utility engineering functions; leads system planning and design initiatives; provides advanced engineering expertise; and performs related work as required.

DISTINGUISHING FEATURES

Work in this class is characterized by responsibility for providing enterprise-wide technical leadership over complex electric utility engineering programs, projects, and initiatives. The Principal Electrical Engineer is distinguished from the Senior Electrical Engineer by the level of independence exercised, the scope and impact of assignments, and responsibility for leading the most complex, high-risk, and high-visibility engineering work.

Incumbents serve as recognized subject matter experts, develop and implement engineering standards and long-range system strategies, and provide technical guidance across functional areas. This classification may provide technical leadership and direction to multidisciplinary teams consisting of professional and technical staff; however, it does not have full management responsibility for engineering functions, which is assigned to the Engineering Manager.

EXAMPLES OF DUTIES

The following list of duties is intended only to describe the various types of work that may be performed and the level of technical complexity of the assignment(s) and is not intended to be an all-inclusive list of duties. The omission of a specific duty statement does not exclude it from the position if the work is consistent with the concept of the classification or is similar or closely related to another duty statement.

Reasonable accommodations may be made to enable individuals with disabilities to perform these essential functions.

Essential Duties

1. Plans, leads, and performs highly complex engineering work related to transmission, substation, and distribution system planning, design, and operational practices.
2. Serves as a technical authority in specialized areas such as system protection, SCADA/automation, grid modernization, power quality, and system planning.
3. Develops, reviews, and maintains engineering standards, design criteria, technical specifications, and utility policies to ensure system reliability, safety, and regulatory compliance.
4. Provides technical leadership for major capital improvement programs and projects from concept through design, construction, commissioning, and closeout.
5. Reviews and approves complex engineering designs, studies, calculations, and reports prepared by staff, consultants, and contractors.
6. Provides technical leadership and coordination to multidisciplinary teams including internal staff, consultants, contractors, and other agencies.
7. Performs and oversees advanced engineering analyses including load forecasting, system planning, protection coordination, short circuit, arc flash, and reliability studies.
8. Provides technical leadership and support during system emergencies, outages, and critical incidents; evaluates system performance and recommends corrective actions.
9. Researches, evaluates, and recommends new technologies, industry trends, and regulatory requirements; informs implementation strategies.

10. Leads or participates in regulatory and compliance programs including NERC, WECC, and other applicable standards.
11. Represents Alameda Municipal Power in technical meetings with internal stakeholders, regulatory agencies, developers, and the public.
12. Prepares and presents complex technical reports, studies, and strategic recommendations to executive management, boards, and other stakeholders to inform policy, investment, and operational decisions.
13. Provides technical guidance, mentorship, and direction to engineering staff; may lead project teams or functional work groups.
14. Leads or provides technical authority in the development and prioritization of capital improvement programs, budgets, and long-range system planning efforts.
15. Prepares and reviews technical specifications for procurement of materials, equipment, and services; evaluates proposals and supports contract administration.
16. Identifies and evaluates system risks, vulnerabilities, and reliability gaps; develops and recommends mitigation strategies aligned with asset management and system resilience objectives.

Other Duties

17. Performs related duties as assigned.

WORKING CONDITIONS

- Work is performed in an office and field environment including substations, construction sites, and other utility facilities.
- Exposure to electrical hazards, noise, dust, and varying weather conditions during field work.
- May require extended hours, evening or weekend work, and emergency response.
- Travel to various City facilities and project sites is required.

PHYSICAL DEMANDS

- Dexterity of hands and fingers to operate computers, tools, and testing equipment.
- Vision abilities or ability to interpret, read, and review plans, schematics, specifications, and technical documents.
- Sitting, standing, or walking for extended periods of time.
- Occasional bending, climbing, reaching, or lifting of objects up to 25 pounds.
- Hearing and speaking to exchange information in office and field environments.

EMPLOYMENT STANDARDS

Education/Experience

Any combination equivalent to education and experience likely to provide the required knowledge and abilities. A typical way to obtain the knowledge and abilities would be:

Education: Graduation from an accredited college or university with a Bachelor's degree in Electrical Engineering or a closely related field.

Experience: Ten (10) years of progressively responsible experience in electric utility engineering including transmission, distribution, and substation systems, including at least five (5) years in a lead, project management, or advanced technical specialist capacity.

Knowledge

Knowledge of advanced principles and practices of electrical engineering as applied to electric utility systems including transmission, substation, and distribution planning, design, operation, and maintenance; system protection, coordination, and automation; power system analysis

methodologies and modeling tools; engineering standards development and technical policy implementation; applicable federal, state, and local laws, codes, regulations, and industry standards including NERC and WECC requirements; capital project planning, program management, contract administration, and asset management principles; emerging technologies in the electric utility industry including grid modernization and distributed energy resources; principles and practices of supervision, project leadership, and technical guidance; effective methods of communication, both oral and written; and modern office practices, computer systems, and software applications related to engineering work.

Ability

Ability to serve as a technical expert and provide authoritative guidance on complex electrical engineering issues; lead and manage large, complex, and high-impact engineering projects and programs; develop and implement engineering standards, policies, and long-range system plans; analyze complex technical problems, evaluate alternatives, and develop sound and innovative solutions; interpret and apply complex regulations, codes, and standards; effectively communicate complex technical information to both technical and non-technical audiences; prepare and present complex technical reports and recommendations; exercise sound independent judgment and decision-making; establish and maintain effective working relationships with staff, contractors, consultants, public officials, and the general public; mentor and provide technical leadership to professional and technical staff; and organize, prioritize, and manage multiple assignments and deadlines.

Other Requirements

Registration as a Professional Electrical Engineer in the State of California is required at the time of application.

Possession of a valid California Driver's License and satisfactory driving record at the time of appointment is required as a condition of initial and continued employment only if the operation of a vehicle is necessary to perform the essential functions of the position.