



JOB DESCRIPTION

Job Title: Protection and Control Systems Engineer **Position Number:** 95-26

Incumbent: Vacant **Effective Date:** March 2023

Employment Status: Permanent **Bargaining Unit:** Yes X No

Supervisor's Title: Manager, Electrical Engineering **Department:** Engineering & Capital Projects

Subordinate Positions: May provide technical project oversight and supervision to trades staff and external contractors and/or consultants

SUMMARY

Under the supervision of the Manager, Electrical Engineering, the Protection and Control (P&C) Systems Engineer will manage and implement the 20-year Protection and Control Program for generating stations, substations, and transmission lines. Support capital and maintenance project by performing the following: protection philosophies, asset registers, maintenance tasks and frequencies, procedures, logic descriptions, etc. The P&C systems engineer will also conduct systems protection studies and will be extensively involved in project design and commissioning. In addition, the incumbent will conduct power outage investigations to ensure the electrical system protection operates correctly, proposing, directing, and implementing corrective measures as required.

The incumbent is responsible from concept through design, construction, and closeout of the project; cost estimates; prepares written reports for electric utility maintenance and construction programs associated with various projects and facilities.

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1. Adheres to the Corporation's high safety standards by following approved safe working plans and worker administered and operator administered protection plans.
2. Performs project management duties involving engineering design, bid evaluation; contract administration; project scheduling; coordination; quality control; commissioning and field decisions and supervision to ensure projects are completed within the stipulated time and allocated budget.
3. Performs electrical engineering assignments in all aspects of power generation and transmission engineering including additions, upgrading or maintenance of protective relaying, instrumentation, and control systems.
4. Performs electrical engineering services in all aspects of distribution and transmission engineering including foundations, structures, insulators, and conductors.
5. Provides guidance and procedural consistency to the full life cycle of protection and control systems, including development, commissioning, start up, operations, and turnaround /maintenance activities:

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- Interprets and advises on technically complex issues for control and protection systems; Identifies reliability issues with the existing protection and control systems and provides recommendations for improvements.
 - Evaluates and selects protection control systems, data collection hierarchy, and networking solutions for new projects.
 - Identifies requirement for PLC and relay upgrades and develop plans for implementation; and
 - Keeps informed of new and emerging instrumentation technologies relating to systems protection and control in an electrical utility.
6. Performs electrical engineering services in matters involving communications systems including voice systems, the use of fiber optics, communications in power line earners (PLCs) and modems, and remote monitoring systems involving RTUs and SCADA.
 7. Prepares plans, technical specifications, and cost estimates for assigned projects requiring electrical engineering capability.
 8. Designs and prepares plans and specifications for capital improvement projects, such as electrical substations, electric transmission lines, power generating plants and civil engineering improvements or modifications at facilities.
 9. Provides guidance and work supervision to trades people as well as outside contractors and/or consultants as required, during normal and emergency situations.
 10. Works with and provides guidance for the utilities' customers for the efficient use of electric energy, in establishing utilities service requirements, fault current protection, load management and demand control, power factor correction, and systems safety and protection schemes.
 11. Assists in the development of capital maintenance/upgrading programs for medium voltage distribution systems, and for high voltage transmission lines.
 12. Assists in the preparation of electrical project budgets, short- and long-range plans for electrical equipment and facilities replacement, retirement, additions, and life extensions.
 13. Reviews and monitors the electrical system by completing outage investigations, system changes/upgrades or new customer additions to determine and implement the necessary measures to maintain the electrical system reliability and stability.
 14. Other related duties.

WORKING CONDITIONS

- Most of the work is performed in a normal office environment with exposure to outdoor weather, hot, noisy, or cold conditions when working in the field.
- Must maintain the confidentiality of all corporate information.
- Adheres to all corporate policies, procedures, and guidelines.
- Travel is required – 10-25% of the scheduled work. May be exposed to extreme weather conditions, such as extreme cold and outdoor weather, while working remotely.

KNOWLEDGE, SKILLS, AND ABILITIES

- Bachelor's degree in electrical engineering is required and must be eligible for registration as a Professional Engineer in the Yukon.
- Extensive experience with control systems in an electrical utility is required.
- Knowledge of electrical theory, design parameters and applicable codes and regulations as applied to electrical utility distribution, transmission, generation, and/or telecommunications facilities.
- Knowledge of electrical system protection, control, and stability engineering.
- Knowledge of major utility operations and engineering.
- Ability to work independently on engineering projects.
- Ability to direct, evaluate, and elicit the cooperation of others.
- Ability to compose clear and accurate technical reports, communicate with others and to assimilate and understand information in a manner consistent with the essential job functions; ability to make effective oral presentations; using state-of-the-art technologies.
- Ability to negotiate effectively with other departments and outside agents and to understand and verbalize contract issues both in writing and orally.
- Ability to perform as a project engineer for electric utility projects.
- Ability to create drawings and write specifications, prepare cost estimates, prepare construction contracts and request for proposals.
- Ability to make sound decisions in a manner consistent with the essential job functions.
- Must be self-motivated and versatile and thrive on a variety of work.
- A valid class 5 driver's license.
- Working knowledge of PSS/E, ETAP, ASPEN, or CYME for Power System Studies
- Knowledge of IEEE 1547, IEEE 1547.1, UL 1741 SA, and UL 1741 SB standards for Interconnecting Distributed Energy Resources (DER) with electric utilities.
- Ability to work independently and in a team and cross-cultural environment.