

# SUBSTATION ELECTRICAL TECHNICIAN

## Mountrail-Williams Electric Cooperative

---

- **JOB OBJECTIVE:**

The Substation Electrical Technician is responsible for the construction, maintenance, inspection, testing, troubleshooting, and repairing of electrical substations and related equipment. This role ensures the safe and reliable transmission and distribution of electrical power throughout MWEC's service territory.

- **QUALIFICATIONS:**

Applicants must be a high school graduate or equivalent. A bachelor's or associate degree from an accredited college or university in the electrical field is preferred. Applicants should have some experience, training, or knowledge in the electrical trade or electrical utility fields.

- **ESSENTIAL DUTIES AND RESPONSIBILITIES:**

- Performs construction, testing, and verification of new substations and substation expansions.
- Performs operation and maintenance of existing substations and substation equipment.
- Installs, programs, tests, repairs, and replaces protective relays and associated wiring as needed.
- Isolates, inspects, tests, troubleshoots, and repairs/replaces substation equipment including transformers, circuit switchers, voltage regulators, circuit breakers, reclosers, motor operators, batteries, and battery chargers.
- Interprets manufacturing specifications to develop testing routines for MWEC substation equipment.
- Utilizes test equipment and analyzes test results to verify proper operation of protective relays and substation equipment.
- Supports the development and utilization of the cooperative's Supervisory Control and Data Acquisition (SCADA) system and provides technical knowledge to assist in its maintenance and operation.
- Reads and interprets blueprints to aid with construction at MWEC substation sites.

# SUBSTATION ELECTRICAL TECHNICIAN

## Mountrail-Williams Electric Cooperative

---

- Reads and interprets schematic wiring diagrams to install, troubleshoot and repair both AC and DC circuitry.
- Executes switching operations safely to energize/de-energize equipment, isolate components, or re-route power across MVEC's electrical system.
- Utilizes specialized software to download, store, and analyze system disturbances from substation relays.
- Collects oil samples from substation equipment for testing and analysis; filters oil and maintains both permanent and mobile oil filtering systems.
- Installs and splices fiber optic cable for communication and monitoring systems.
- Maintains substation HVAC systems, standby generators, and transfer switches.
- Reviews monthly substation inspections to ensure equipment functionality and proper operating condition.
- Collects, records, and manages data for asset management and maintenance records.
- Stays current on applicable policies and procedures including the National Electric Safety Code, NERC testing requirements.
- Adheres to all safety practices, state and federal regulations, and MVEC policies and procedures.
- Maintains an attitude that will promote harmony and goodwill among fellow employees, the members, and the public.
- Successfully completes all requirements of the Substation Technician Apprentice Training Program including formal training, on-the-job training, and written study.
- Attends and participates in on-site/off-site job-related training, conferences, and safety meetings as directed.
- Maintains a valid North Dakota driver's license with appropriate endorsements. A North Dakota Class A CDL preferred.
- Submits to a random drug & alcohol test per DOT regulations.
- Available for after-hours emergencies or problems as needed.
- Performs any other duties assigned to fulfill the objective of the Cooperative.

# SUBSTATION ELECTRICAL TECHNICIAN

## Mountrail-Williams Electric Cooperative

---

- **KNOWLEDGE, SKILLS, AND ABILITIES:**

- Proficient in the use of laptop computers using Microsoft Windows and Office software. Capable of utilizing specialized technical software.
- Ability to read, interpret, and apply information from documents such as blueprints, electrical wiring diagrams, operating instructions, maintenance guides, and written procedures.
- Experienced in the safe and effective use of hand tools and power tools.
- Strong communication skills to effectively interact with members, co-workers, and contractors.
- Proficient in performing mathematical calculations relevant to the transmission and distribution of electrical power.
- Able to safely operate equipment such as forklifts, bobcats, and payloaders.
- Knowledgeable in identifying safety hazards while working in energized substations and switchyards.

- **BUSINESS AND RELATIONSHIPS:**

- Division: Operations
- Reports to: Substation Lead and Substation Coordinator.
- This position interacts with personnel across all departments at MVEC and works frequently with the Operations Department including Power System Operators
- Regularly works with System Engineers to maintain optimal system performance
- Commonly works with contractors that may be engaged to perform design, construction, commissioning, or maintenance/repair tasks.

# SUBSTATION ELECTRICAL TECHNICIAN

## Mountrail-Williams Electric Cooperative

---

- **WORKING CONDITIONS:**

- Frequently works outdoors and may be exposed to varying and extreme weather conditions
- Faces the risk of electrical shock due to the nature of the job.
- Often works at heights using ladders and aerial lifts.
- Frequently works near moving mechanical parts
- Occasionally exposed to an environment with odors, gases, dust and dirt.
- Sometimes required to work on uneven or rugged terrain.
- Typical noise level in the work environment is low or moderate, with occasional exposure to loud noises.

- **PHYSICAL REQUIREMENTS:**

- Approximately 40% of the work involves sitting while driving a vehicle or performing office duties. The other 60% requires physical activity including but not limited to standing, walking, climbing, bending, kneeling, reaching, and pulling.
- Must be able to communicate clearly using telephone and two-way radios.
- Frequent use of hands is required to handle tools, components, equipment, and controls as well as to operate computers and test equipment.
- A functional sense of smell is needed to detect odors from damaged electrical components.
- Regularly required to lift, push, pull or carry items up to 75 pounds.
- Adequate vision is essential to distinguish between color coded wires and components

# SUBSTATION ELECTRICAL TECHNICIAN

Mountrail-Williams Electric Cooperative

---

- **DISCLAIMER:**

- This job description is not intended to be all-inclusive; an employee will also perform other reasonably related job responsibilities as assigned by immediate supervisor and other management as required.
- MWEC reserves the right to revise or change job duties as the need arises. This job description does not constitute a written or implied contract of employment. Management reserves the right to change job descriptions, job duties, or working schedules based on its duty to accommodate individuals with disabilities.

Approved by: Steve Peterson

Date: 8/21/2025