WAGE GRADE CAREER PATH

WG 2810	High Voltage Electrician

This occupation covers nonsupervisory work involved in installing, testing, repairing, and maintaining high voltage electric power-controlling equipment and/or distribution lines. The work requires knowledge of electrical principles, procedures, materials, and safety standards governing electrical systems above 600 volts. In addition, the work requires general mechanical skills and knowledge, and in some cases may require knowledge of electronic principles as they pertain to electronic control circuitry. In some situations, the work includes testing, repairing, and maintaining electric-generating equipment in co-generation facilities.

WG02 - WG05	Step	Part 1 Apprentice/Helper/Trainee; Trade/Less than Journeyman
	1	Complete New Hire Orientation
	2	Complete Civilian Training Plan requirements for current position
	3	Complete task qualifications for current position
	4	Complete task certifications for current position
	5	Master simple to common work tasks under supervision
	6	Maintain successful to above average performance ratings

WG05 - WG08		Part 2 Trade/Less than Journeyman
	1	Continue required on-the-job and formal classroom training required in Civilian Training Plan
	2	Complete task qualifications for current position
	3	Complete task certifications for current position
	4	Master common to complex work tasks. Grade 8 high voltage electrical workers must be familiar with high voltage electrical components and have knowledge of wiring and where and how controls are installed and operated. Grade 8 workers must have: Knowledge of basic electrical theory such as Ohm's Law and series and parallel circuits in order to understand and interpret instructions and assignments; Skill to use common electrical test devices such as ohmmeters, voltmeters, meggers, and continuity checkers to perform basic checks for continuity, resistance, voltage, opens, shorts, insulation breakdowns, and grounds; Skill to do common tasks of the trade such as pulling cable using beckets, messengers, and fair leads; splicing cable using splicing sleeves, insulating tape, lead sleeves, and resin sealing compounds; Skill to assist higher grade employees to work on energized high voltage electrical systems using safety equipment such as hot sticks, rubber blankets, and insulated gloves; Skill to diagnose commonly encountered problems such as locating defective switches or blown fuses; Working knowledge of types and sizes of wire/cable and the National Electrical Safety Code; Skill in reading commonly used drawings and diagrams of distribution networks and equipment interconnections; and Skill to work safely under hazardous conditions such as working in the presence of high voltage conductors when working aloft or when working in cramped quarters such as on underground lines or in power facility switching banks.
	5	Maintain successful to above average performance ratings

		Part 3 Journeyman
	1	Continue required on-the-job and formal classroom training required in Civilian Training Plan
	2	Complete task qualifications for current position
	3	Complete task certifications for current position
	4	Master common to complex work tasks. At Grade 10, high voltage electricians have comprehensive trade knowledge of electrical principles and system operations. Grade 10 high voltage electricians have: Knowledge of commonly used high voltage electric power- generating and distribution equipment such as generators, transformers, switches, circuit breakers, recording instruments, and control systems; Skill to replace and adjust mechanical contacts and tripping and time-delay intervals of circuit breakers and relays, using feeler gages, dressing tools, and timing devices or to program electronic relays, timers, and trips using microprocessor programming equipment; Skill to plan and carry through the troubleshooting and repair of high voltage generating, controlling, and distribution systems, such as repairing switch gear, installing and hooking up transformers, locating defects in cables, or selecting materials to make installations or repairs; Skill to read and understand circuit diagrams of interconnects such as the generators, buses, switches, and circuit breakers in a power-generating facility or the feeders, substations, transformers, and interconnections of a distribution system, in order to diagnose problems in the electrical system. In some installations, they have skill to read electronic schematics in order to diagnose problems in the electronic control circuitry; Skill in the use of test equipment such as: oscillators, meggers, phase sticks, phase rotation meters, digital test equipment, and cable locating and fault finding equipment; Skill to diagnose and determine corrective action for electric power-controlling equipment such as switch gear, transformer banks, and circuit breakers in substations and power-generating facilities; Knowledge of the complete distribution system of the activity including normal routing, parallel feeders, possible interconnections, and capacity of lines and equipment; Knowledge of transformers, series and parallel circuits, line loading, line losses, and dielectric or conductive operating limitations of equipment, in order to calculate circuit values, determine when operating limitations of equipment are exceeded, or recognize excessive current flow or other signs of improper systems; Knowledge of the National Electric Safety Code and of types and sizes of wires/cables, conduits, transformers, and other electrical equipment and circuit elements, and the skill to integrate them into electrical systems and equipment worked on to insure proper operation; Skill to read circuit diagrams and perform troubleshooting layout, and complete installation, modification, and repair on high voltage distribution systems such as repairing switchgear, installing transformers, and locating defects in cables; Skill to splice wires/cables by removing insulation, scraping clean, twisting together and soldering, or connecting conductors with mechanical connectors, splicing clamps, and tape. Skill to form and seal various types of cable joints such as straight, bridge, cap sleeve, vertical, disc, or knuckle joints. May splice lead covered cable; Working knowledge of electronics to troubleshoot and replace circuit boards in the controls of equipment such as electronic reclosers and other similar devices; Skill in the use of hot-line tools and protective equipment such as wire tongs, wire tong supports, insulated tension links, tie sticks, insulated hoods/covers and tools, and rubber gloves, sleeves, and insulating blankets; and Skill to install, maintain, and repair street and airfield lighting systems, and traffic signals and controllers.
	5	Provide production support services
	6	Maintain successful to above average performance ratings

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