



Line Workers in the Department of Electricity

Ranjitha S

U11GT21C0155

I Year BCom, Second Semester

Government First Grade College, Tumkur, Karnataka, India -572104

ranjuyejmanru@gmail.com

Ph.no: 9392505625

A line worker constructs and maintains the electric transmission and distribution facilities that deliver electrical energy to industrial, commercial, and residential establishments. A lineworker installs, services, and emergency repairs electrical lines in the case of lightning, wind, ice storm, or ground disruptions. Whereas lineworkers generally work at outdoor installations, those who install and maintain electrical wiring inside buildings are electricians.



HISTORY

The occupation had begun in 1844 when the first telegraph wires were strung between Washington, D.C. and Baltimore carrying the famous message of Samuel Morse, "What hath God wrought?" The first telegraph station was built in Chicago in 1848, by 1861 a web of lines spanned the United States and in 1868 the first permanent telegraph cable was successfully laid across the Atlantic Ocean. Telegraph lines could be strung on trees, but wooden poles were quickly adopted as the preferred method. The term lineman was used for those who set wooden poles and strung wire. The term continued in use with the invention of the telephone in the 1870s and the beginning of electrification in the 1890s.

This new electrical power work was more hazardous than telegraph or telephone work because of the risk of electrocution. Between the 1890s and the 1930s, line work was considered one of the most hazardous jobs. This led to the formation of labor organizations to represent the workers and advocate for their safety. This also led to the establishment of apprenticeship programs and the establishment of more stringent safety standards, starting in the late 1930s. The union movement in the United States was led by lineman Henry Miller, who in 1890 was elected president of the Electrical Wiremen and Linemen's Union, No. 5221 of the American Federation of Labor.

DUTIES

Power linemen work on electrically energized (live) and de-energized (dead) power lines. They may perform several tasks associated with power lines, including installation or replacement of distribution equipment such as capacitor banks, distribution transformers on poles, insulators and fuses. These duties include the use of ropes, knots, and lifting equipment. These tasks may have to be performed with primitive manual tools where accessibility is limited. Such conditions are common in rural or mountainous areas that are inaccessible to trucks.

High voltage transmission lines can be worked live with proper setups. The lineman must be isolated from the ground. The lineman wears special conductive clothing that is connected to the live power line, at which point the line and the lineman are at the same potential, allowing the lineman to handle the wire. The lineman may still be electrocuted if he completes an electrical circuit, for example by handling both ends of a broken conductor. Such work is often done by helicopter by specially trained linemen. Isolated line work is only used for transmission-level voltages and sometimes for the higher distribution voltages. Live wire work is common on low voltage distribution systems within the UK and Australia as all linesmen are trained to work 'live'. Live wire work on high voltage distribution systems within the UK and Australia is carried out by specialist teams.

SAFETY

Lineworkers, especially those who deal with live electrical apparatus, use personal protective equipment (PPE) as protection against inadvertent contact. This includes rubber gloves, rubber sleeves, bucket liners, and protective blankets.

When working with energized power lines, linemen must use protection to eliminate any contact with the energized line. The requirements for PPEs and associated permissible voltage depends on applicable regulations in the jurisdiction as well as company policy. Voltages higher than those that can be worked using gloves are worked with special sticks known as hot-line tools or hot sticks, with which power lines can be safely handled from a distance. Linemen must also wear special rubber insulating gear when working with live wires to protect against any accidental contact with the wire. The buckets linemen sometimes work from are also insulated with fiberglass.

De-energized power lines can be hazardous as they can still be energized from another source such as interconnection or interaction with another circuit even when they appear to be shut off. For example, a higher-voltage distribution level circuit may feed several lower-voltage distribution circuits through transformers. If the higher voltage circuit is de-energized, but if lower-voltage

circuits connected remain energized, the higher voltage circuit will remain energized. Another problem can arise when de-energized wires become energized through electrostatic or electromagnetic induction from energized wires nearby.

All live line work PPE must be kept clean from contaminants and regularly tested for dielectric integrity. This is done by the use of high voltage electrical testing equipment.

Other general items of PPE such as helmets are usually replaced at regular intervals.

What responsibilities are common for Lineman jobs?

- Operate and maintains the electric SCADA system
- Maintain knowledge of and implement safety procedures at all times
- Safely and accurately prepares work sites with warning signs and secures areas
- Operate diggers, bucket trucks, hand tools near and around electrical distribution lines
- Locate underground electric cable faults for repair
- Read and interpret wiring diagrams
- Install primary and secondary overhead and underground electrical systems
- Conduct work outdoors in various types of weather

What are the typical qualifications for Lineman jobs?

- Four-year electrical lineman apprenticeship
- CPR and First aid certification
- Hilti gun, and forklift certification
- Superior written and verbal communication skills
- Commercial driver's license (CDL) with tanker and airbrake certification
- Excellent analytical and organizational skills
- Able to work under mildly safe and uncomfortable conditions where exposure to environmental factors such as temperature variations, odors, and toxic agents
- Able to pull up loads of up to 100 pounds
- Able to exert heavy physical effort in moderate to heavy work