

# Trade Profile

## Powerline Technician



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# **TRADE PROFILE**

## **POWERLINE TECHNICIAN**



# STRUCTURE OF THE TRADE PROFILE

This profile has two sections that provide a snapshot of the trade's description, and all trade activities as they are organized in the Red Seal Occupational Standard:

**Description of the Powerline Technician trade:** an overview of the trade's duties, work environment, job requirements, similar occupations and career progression

**Task Matrix:** a chart which outlines graphically the major work activities, tasks and sub-tasks of this trade

**Major Work Activity (MWA):** the largest division within the standard that is comprised of a distinct set of trade activities

**Task:** distinct actions that describe the activities within a major work activity

**Sub-task:** distinct actions that describe the activities within a task

A complete version of the occupational standard, which provides additional detail for the trade activities, skills and knowledge can be found at [www.red-seal.ca](http://www.red-seal.ca).

# DESCRIPTION OF THE POWERLINE TECHNICIAN TRADE

“Powerline Technician” is this trade’s official Red Seal occupational title approved by the CCDA. This standard covers tasks performed by powerline technicians in Canada.

Powerline technicians construct, operate, maintain and repair overhead, underground and underwater electrical transmission and distribution systems. They install, maintain and repair overhead, underground and underwater powerlines and cables, and other associated equipment such as insulators, conductors, lightning arrestors, switches, metering systems, transformers and lighting systems. They erect and maintain steel, wood, fibreglass, laminate and concrete poles, structures and other related hardware. They splice and terminate conductors and related wiring to connect power distribution and transmission networks. In some jurisdictions, powerline technicians may also install and transfer communication devices such as cellular antennas and communication lines.

Powerline technicians are employed by electric power generation, transmission or distribution companies, powerline contractors and public utility commissions. Powerline technicians may also specialize in one of the following areas: transmission lines, overhead or underground distribution systems, communication networks and electrical power stations. They may also be employed in the mining, construction or oilfield sector.

Powerline technicians require good communication skills to coordinate and facilitate work with customers, co-workers and other trades. They also require strong analytical skills in order to read and interpret diagrams, drawings and specifications. They need to be able to plan their work; including making considerations to prevent damage during construction to local wildlife habitats. They must have good mechanical aptitude to install, troubleshoot and repair equipment. They must also have good vision and the ability to distinguish colours. The ability to adapt to change and a willingness to keep up with new developments is important to this trade.

Powerline technicians work outdoors at various worksites, at any hour and in any weather. The work always involves travel to and from the worksite, which is often in remote areas, necessitating the use of a variety of access equipment such as all-terrain vehicles, snowmobiles, aircrafts and watercrafts.

Occupational hazards in this trade are working with high voltage equipment, working in confined spaces, working at heights, and in extreme weather and environmental conditions. This also could include exposure to asbestos, silica dust, mercury, lead and PCBs.

The work may be strenuous and requires frequent heavy lifting, working in awkward positions, carrying and reaching. Getting to powerlines requires climbing poles and structures, working from aerial work platforms and entering maintenance holes and underground vaults.

This standard recognizes similarities or overlaps with the work of construction electricians and industrial electricians. Powerline technicians work with a wide variety of tradespersons, engineers and inspectors.

With experience, powerline technicians may act as mentors and trainers to apprentices in the trade. They may advance to senior journey person, foreperson, supervisory or managerial positions. They can also transfer their skills to related occupations in areas such as design, planning, safety, technical support services and system control.

# POWERLINE TECHNICIAN

## TASK MATRIX

### A – Performs common occupational skills

**26%**

<b>Task A-1</b> <b>Performs safety-related functions</b> <b>23%</b>	<b>A-1.01 Uses personal protective equipment (PPE) and safety equipment</b>	<b>A-1.02 Controls powerline hazards</b>	<b>A-1.03 Controls environmental hazards</b>
	<b>A-1.04 Performs lock-out and tag-out procedures</b>	<b>A-1.05 Performs temporary grounding and bonding procedures</b>	
<b>Task A-2</b> <b>Uses and maintains tools and equipment</b> <b>19%</b>	<b>A-2.01 Uses hand, power and powder-actuated tools and equipment</b>	<b>A-2.02 Uses electrical measuring and testing equipment</b>	<b>A-2.03 Uses rigging, hoisting and lifting equipment</b>
<b>Task A-3</b> <b>Organizes work</b> <b>16%</b>	<b>A-3.01 Interprets plans, drawings and specifications</b>	<b>A-3.02 Prepares worksite</b>	<b>A-3.03 Plans job tasks and procedures</b>
<b>Task A-4</b> <b>Accesses work area</b> <b>12%</b>	<b>A-4.01 Climbs poles and steel lattice structures</b>	<b>A-4.02 Uses access equipment</b>	<b>A-4.03 Uses on- and off-road equipment</b>
<b>Task A-5</b> <b>Uses live-line methods</b> <b>23%</b>	<b>A-5.01 Uses cover-up</b>	<b>A-5.02 Uses rubber gloves</b>	<b>A-5.03 Uses bare-hand methods (Not Common Core)</b>
	<b>A-5.04 Uses fibreglass reinforced plastic (FRP) tools (hot sticks)</b>		
<b>Task A-6</b> <b>Uses communication and mentoring techniques</b> <b>7%</b>	<b>A-6.01 Uses communication techniques</b>	<b>A-6.02 Uses mentoring techniques</b>	

## B – Installs structures

13%

<b>Task B-7</b> Installs pole structures <b>79%</b>	<b>B-7.01 Frames pole structures</b>	<b>B-7.02 Sets pole structures</b>	<b>B-7.03 Installs pole structure guys and anchors</b>
<b>Task B-8</b> Installs steel lattice structures <b>21%</b>	<b>B-8.01 Assembles steel lattice structures</b>	<b>B-8.02 Erects steel lattice structures</b>	<b>B-8.03 Installs steel lattice structure guy wires and anchors</b>

## C – Installs conductor systems

15%

<b>Task C-9</b> Installs overhead conductors and cables <b>67%</b>	<b>C-9.01 Strings overhead conductors and cables</b>	<b>C-9.02 Sags overhead conductors and cables</b>	<b>C-9.03 Ties-in overhead conductors and cables</b>
	<b>C-9.04 Installs splices and connections to overhead conductors and cables</b>		
<b>Task C-10</b> Installs underground and underwater cable <b>33%</b>	<b>C-10.01 Installs conduit and cable</b>	<b>C-10.02 Places direct buried cable</b>	<b>C-10.03 Splices underground and underwater cable</b>
	<b>C-10.04 Terminates underground and underwater cable</b>		

## D – Installs auxiliary equipment

21%

<b>Task D-11</b> Installs lighting systems <b>13%</b>	<b>D-11.01 Installs street lights</b>	<b>D-11.02 Maintains street lights</b>
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**Task D-12**  
**Installs voltage control equipment**  
**33%**

D-12.01 Installs transformers	D-12.02 Installs capacitors	D-12.03 Installs voltage regulators
D-12.04 Installs switches	D-12.05 Installs reactors (Not Common Core)	

**Task D-13**  
**Installs protection equipment**  
**29%**

D-13.01 Installs reclosers	D-13.02 Installs sectionalizers	D-13.03 Installs fuses
D-13.04 Installs lightning arrestors		

**Task D-14**  
**Installs metering equipment**  
**17%**

D-14.01 Installs primary metering equipment	D-14.02 Installs secondary metering equipment
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**Task D-15**  
**Installs communication devices**  
**8%**

D-15.01 Installs cellular antennas	D-15.02 Transfers communication lines
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## E – Performs operation, maintenance and repair

**25%**

**Task E-16**  
**Operates distribution and transmission systems**  
**26%**

E-16.01 Operates transmission systems	E-16.02 Operates distribution systems	E-16.03 Performs station switching
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**Task E-17**  
**Maintains distribution and transmission systems**  
**28%**

E-17.01 Inspects distribution and transmission systems	E-17.02 Maintains pole structures	E-17.03 Maintains steel lattice structures
E-17.04 Maintains system components	E-17.05 Trims trees	

**Task E-18**  
**Repairs distribution systems**  
**27%**

**E-18.01 Troubleshoots overhead distribution systems**

**E-18.02 Troubleshoots underground and underwater distribution systems**

**E-18.03 Repairs overhead distribution systems**

**E-18.04 Repairs underground and underwater distribution systems**

**Task E-19**  
**Repairs transmission systems**  
**19%**

**E-19.01 Troubleshoots overhead transmission systems**

**E-19.02 Troubleshoots underground and underwater transmission systems**

**E-19.03 Repairs overhead transmission systems**

**E-19.04 Repairs underground and underwater transmission systems**