

Chart of Competency Power Protection and Control Technician

Electricity Human Resources Canada is a non-profit organization supporting the human resources needs of the Canadian electricity sector.

Our Vision

Keeping the lights on in Canada by preparing and empowering a world-class workforce for the entire electricity industry.

Our Mission

Working to strengthen the ability of the Canadian electricity industry in meeting current and future needs for their workforce—one that is safety-focused, highly skilled, diverse and productive.

Our Values

We are a values-driven organization, committed to the improvement of our sector, the growth of Canada's economy, and the stability of our power grid. Our core values are:

Collaboration

Working with all stakeholders in Canada's electricity for our mutual benefit.

Trust

Forging relationships and products built on unwavering integrity.

Innovation

Leading the industry to be future-ready.

Chart of Competency: Power Protection and Control Technician

This Chart outlines the competencies (also known as skills and knowledge) that are performed by Power Protection and Control Technicians.

KEY: Tasks included in trade national occupational analyses (i.e. Industrial and Construction Electricians) that are also performed by Power Protection and Control Technicians.

Occupational Definition:

Power Protection and Control Technicians install, commission, maintain, troubleshoot and repair the critical system equipment used for detecting and responding to power system faults, controlling system devices, metering schemes and telecom throughout a region or area. They may also perform design functions under the supervision of Professional Engineers. They are employed by electric power utilities and private electrical contractors. Their range of duties and responsibilities is dependent upon the type of operation for which they are employed.

Major Category	Competency Area	Competency Unit						
Construction and Installation	Monitor Installation of Electrical Equipment	Monitor installation of electrical equipment						
	Install Control Systems	Install discrete input/output (I/O) devices	Install analog input/output (I/O) devices	Install automated control systems	Program automated control systems			
	Complete Installation Process	Troubleshoot installation issues	Install operation and identification tags					
	Conduct Tests for Commissioning	Conduct electrical tests for commissioning	Conduct relay protection and metering tests	Conduct control system tests		Conduct communication system tests for commissioning		
	Commission Equipment and Systems	Verify equipment/system functionality	Document equipment/system performance					
Asset Maintenance	Prepare to Maintain Equipment and Systems	Organize materials and equipment for maintenance	Coordinate maintenance activities with others					
	Conduct Tests for Maintenance	Conduct electrical tests for maintenance						
	Maintain Generating, Distribution and Service Equipment	Maintain overcurrent protection devices	Maintain ground fault, arc fault and surge protection devices	Maintain under and over voltage protection devices				
	Maintain Control Systems	Maintain discrete input/output (I/O) devices	Maintain analog input/output (I/O) devices	Maintain automated control systems				
	Maintain Signaling and Communication Systems	Maintain communication systems						
	Repair Electrical, Hydraulic and Mechanical Equipment and Systems	Diagnose electrical, hydraulic and mechanical equipment and system issues	Repair issues with electrical, hydraulic and mechanical equipment and systems	Troubleshoot digital logic circuits				
Engineering	Provide Support for Engineers	Conduct investigative tasks under direction of engineer						
Safety	Maintain a Safe Working Environment	Follow safe work practices	Use personal protective equipment (PPE)	Participate in safety meetings and emergency drills	Isolate component, equipment or system	Perform lock-out, tag-out procedures	Handle, transport and store hazardous materials	Work in confined spaces
		Use fall arrest equipment	Minimize radiation exposure					
	Maintain a Sustainable Environment	Follow sustainable work practices						
	Respond to Emergencies	Participate in incident and accident investigations						
Security	Follow Security Practices	Follow security practices for physical work environment	Follow cybersecurity procedures					
Organizational Policies and Procedures	Follow Organizational Policies and Procedures	Follow organizational policies and procedures						
Information/Record Management	Complete Information/Record Management Tasks	Maintain technical information and data	Use information/record management system for generation, transmission and distribution operations					
Information and Communication Technology Foundations	Use Digital Technology	Use communication applications	Use common software applications	Use navigation and mapping applications	Use digital mobile radios			
	Use Organization's ICT System	Use organization's ICT system						
Leadership	Facilitate Change	Implement change						
Foundational Trades Skills	Perform Routine Trade Tasks	Use hand and power tools	Use electrical measuring and testing equipment	Operate vehicles and motorized equipment				
Personal Competencies	Demonstrate Professionalism	Work as a member of a team	Develop professionally	Demonstrate professional and ethical conduct	Mentor/coach others	Manage stress	Manage time	
	Communicate Effectively	Use active listening skills	Use speaking skills	Use writing skills	Negotiate with internal and external stakeholders	Conduct meetings and presentations	Exchange information with internal and external stakeholders	

National Occupational Standards (NOS)

NOS are voluntary guidelines that have been developed to provide businesses, educators, trainers, and job seekers with practical guidance.

How are NOS used?

Employers, employees, and educational institutions can put NOS to a wide variety of uses supporting effective workforce planning.

- Support personnel certification or accreditation programs
- Inform curricula for colleges and apprenticeships.
- Assist recruitment by informing job descriptions and providing a benchmark for employee appraisals.
- Identify career paths in order to promote employee retention.
- Help employers evaluate and determine the competencies of potential employees, including Internationally Trained Workers (ITWs).

Electricity Human Resources Canada has developed National Occupational Standards for a variety of occupations. Visit electricityhr.ca for more information.