

Chart of Competency

PV Installer

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 sector for our mutual benefit.

Trust

Forging relationships and products built on unwavering integrity.

Innovation

Leading the industry to be future-ready.

Chart of Competency: PV Installer

This Chart outlines the competencies (also known as skills and knowledge) that are performed by PV Installers.

Key: Tasks included in trade national occupational analyses (i.e. Industrial and Construction Electricians) that are also performed or sub-contracted by PV Installers for safe installation

Occupational Definition:

PV Installers assemble and install photovoltaic (PV) systems on roofs or other structures in compliance with site assessment and schematics. May include measuring, cutting, assembling, and bolting structural framing and solar modules. Utility-scale installation requires a wider skill set related to high voltage interconnection and substation knowledge.

Major Category	Competency Area	Competency Unit						
Construction and Installation	Plan Installation	Organize materials and equipment for installation	Coordinate installation activities with others	Examine site conditions				
	Perform Foundational Electrical Installation Tasks	Fabricate support structures	Install brackets, hangers and fasteners	Install grounding systems	Install bonding systems	Install ground fault detection systems	Install conductors and cables	
		Install conduit, tubing and fittings	Install raceways	Install boxes and enclosures	Install wiring devices	Install lightning protection	Install under and over voltage protection	
	Install PV System	Install module support structures	Install modules	Install solar charge controller	Install battery bank	Install inverter	Install energy monitoring and control systems	Program PV equipment
	Install Generating, Distribution and Service Equipment	Install single-phase consumer/ supply services and metering equipment	Install three-phase consumer/ supply services and metering equipment	Install overcurrent protection devices	Install ground fault, arc fault and surge protection devices	Install low voltage distribution equipment	Install extra-low voltage transformers	Install low voltage single-phase transformers
		Install low voltage three-phase transformers	Install high voltage transformers					
	Install Generating, Distribution and Service Systems	Install AC generating systems	Install DC generating systems	Install high voltage systems				
	Install Wiring Systems	Install high voltage cables						
	Complete Installation Process	Troubleshoot installation issues	Install operation and identification tags					
	Conduct Tests for Commissioning	Conduct electrical tests for commissioning						
Commission Equipment and Systems	Verify equipment/system operation and functionality	Document equipment/ system performance	Perform site cleanup	Demonstrate system to client/end-user				
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	Use fall arrest equipment
		Work in confined spaces						
	Maintain a Sustainable Environment	Follow sustainable work practices						
Respond to Emergencies	Respond to chemical spills and leaks	Respond to non-electrical emergencies	Participate in high-angle rescue	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						
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						
Foundational Trades Skills	Perform Routine Trade Tasks	Use hand and power tools	Use electrical measuring and testing equipment	Use access equipment and work platforms	Operate motorized vehicles and equipment	Lubricate equipment and components	Assist with rigging, hoisting/ lifting and moving tasks	
Personal Competencies	Demonstrate Professionalism	Work as 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 hand signals	Use writing skills	Negotiate with internal and external stakeholders	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.