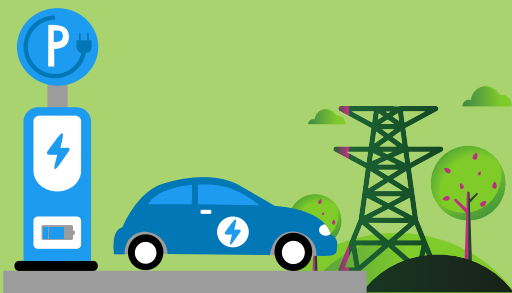


## Electric Vehicle Infrastructure Development and Maintenance

Automotive manufacturing is one of Canada's key industries. The shift to zero-emission vehicle (ZEV) production in automotive manufacturing is a key contributor to the growth in global sustainability. Canada has expressed a firm commitment to sustainability initiatives and programs that aim to achieve a carbon-neutral future, with infrastructure targets of 84,500 chargers and 45 hydrogen stations deployed across Canada by 2029. With over a billion dollars invested since 2016 in expanding support for ZEVs, and a further \$400 million pledged by Natural Resources Canada for infrastructure projects, Canada plans to develop a network of charging stations to support an estimated 4.6 million electric vehicles expected to be on roads by 2030. This effort will allow many skilled and professional workers within Canada to participate in the greening of Canada's economy.

### EV Infrastructure Development and Maintenance Key Industries

#### Electric Power Generation, Transmission and Distribution



#### Other Electrical and Electronic Component Manufacturing



There are two major industries driving the development of electric vehicle (EV) charging infrastructure. The first is Electric Power Generation, Transmission and Distribution, with companies traditionally in utilities and utility management. Companies within or adjacent to this space are diversifying and expanding to EV charging, charger installation, maintenance and management. Another major industry is the Electrical and Electronic Component Manufacturing, which produces components and devices transmitting and storing power, such as wiring and batteries, which the charging infrastructure cannot operate without.

### Methodology

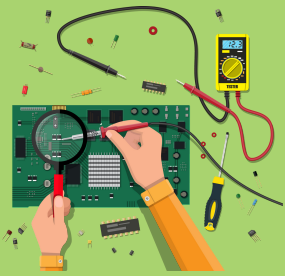
NAICS data were collected for industries involved in the development, servicing, and installation of EV infrastructure parts within the market. Using census data, the NAICS codes were cross-referenced with NOCs data to determine the jobs with largest employment within these industries. Using public job posting databases and company career pages, skills, education and employment requirements were collected on occupations that were highlighted, and similar professions which were not listed under the title of a specific NOC code. The common skills and requirements were cumulated for occupations and jobs within EV charging infrastructure development and maintenance. A list has also been created highlighting the skills and abilities asked of job seekers at various levels production, maintenance, and other operations.

## Opportunities in EV Infrastructure Development and Maintenance

Opportunities exist within the market for EV infrastructure development and maintenance for workers of all skill levels, ranging from entry-level workers to professionals with degrees. Below are some occupations and jobs that play a critical role in this developing market:

### Production Workers

#### Electronics Assemblers



**Minimum Education:** High School Diploma

**Key Responsibilities:** Assembling electrical and electronic components, such as transistors, wires and switches to printed circuit boards, and installing wires, cables and wiring harnesses. These components enable programming and complex operations executed by charging stations.

**Ideal Candidates:** Keen eye for details, capable of coordinating with a team, hand dexterity and good language skills to interpret instructions and communicate with others.

**Desirable Skills and Traits:** Welding and soldering, quality control inspection, interpreting designs, previous experience in electrical and electronic assembly is an asset. Knowledge of ISO and IPC industry standards is an asset.

**Other Skill Highlights:** Measuring device operation, reading technical documents, mechanical assembly, hand-tool operation, electrical troubleshooting, hand-eye coordination, communication, and teamwork.

**Minimum Education:** Electrical work in EV infrastructure requires certification, or enrolment in a certification program to become a licensed Industrial or Construction Electrician. Installers must possess a Construction Electrician license in addition to any other required licenses.

**Additional Certification:** Travel is often required to reach clients and service sites, so a G class, Class 5 or Class 7 license is necessary.

**Key Responsibilities:** Primary on-site installers and servicers of EV charging stations and at-home EV charging appliances. Develop and carry out service plans to ensure chargers are functioning to standard, including routine diagnostic and repair work.

**Desirable Skills and Traits:** Good communication skills and a customer service attitude, principles and understanding of design, quality control analysis and maintenance skills.

**Other Skill Highlights:** Electrical hazard identification, creating work orders, electrical equipment installation, power tool operation, mechanical troubleshooting, physical coordination, health & safety, communication, and teamwork.

### Skilled Trades Workers

#### EV Station Servicers and Installers



## Professional Engineers EV Charging Engineers



**Minimum Education:** Bachelor's degree in electrical, computer or mechanical engineering. Post-graduate education may be an asset.

**Additional Certification:** Some positions may require registration with a provincial board of engineers.

**Training and Experience:** Usually requires several years of experience working with and performing diagnostics on printed circuit board (PCB) and assemblies (PCBA) technology and DC/DC converters.

**Key Responsibilities:** Design, prototype and create test plans for EV charging stations and related components and technologies, such as PCBs and PCBA, electronic circuits, sub-circuits, and converters. Oversee the transition from design to production phase of products.

**Desirable Skills and Traits:** Programming and development skills (firmware, hardware), ability to communicate and collaborate, strong problem solving skills, capable of monitoring operations and reporting.

**Other Skill Highlights:** Electronic system testing, measuring device operation, quality control analysis, computer programming, creating engineering drafts, engineering simulations, communication, and teamwork.

## Future of Work in EV Infrastructure Development

Canada is invested in making EVs a cornerstone of its strategy toward achieving carbon neutrality by 2050, as transportation is responsible for 25% of greenhouse gas emissions in Canada. Current FOCAL modelling and projections indicate a growth in the workforce of EV-related technologies if Canada is on track with expanding its EV manufacturing and battery production supply chain. This indicates a continued need for skilled and professional workers within Canada to establish a network of infrastructure to support increased presence of ZEVs on our roads.



To learn more about the developments, trends and new technology within Canada's automotive manufacturing and related industries, visit our website at:

[futureautolabourforce.ca](http://futureautolabourforce.ca)

You can also check our social media by following these links:

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