



WORKFORCE DEVELOPMENT FOR CANADA'S ELECTRIC VEHICLE TRANSITION

SKILL GAPS AND RECOMMENDATIONS ACROSS KEY SECTORS

Electric Mobility Canada

By the Research, Education and Training Working Group

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ABOUT EMC

Electric Mobility Canada (EMC) is the unifying and authoritative voice for the transition to electric transportation across the country. Founded in 2006, EMC is the national industry association that enables and accelerates the transition to sustainable electric mobility through advocacy, collaboration, education, and thought leadership, with the goal of creating a cleaner, healthier, and more prosperous future for all Canadians.

EMC has 190+ member organizations, including electricity suppliers; manufacturers of light, medium, heavy, and off-road vehicles; infrastructure providers; technology companies; mining companies; research centres; government departments and agencies; cities; universities; fleet managers; unions; environmental NGOs; and Electric Vehicle owner groups.

EMC members collaborate under different working groups to identify barriers and solutions specific to multiple industry segments: Batteries, Charging infrastructure, Utilities, Zero-Emission Medium and Heavy-Duty Vehicles and Research, Education and Training.

ABOUT EMC'S RESEARCH, EDUCATION AND TRAINING WORKING GROUP

The Research, Education, and Training Working Group was formed to support the development of Canada's electric mobility workforce. Its mandate is to identify, prioritize, and accelerate the skills, training programs, and applied research required for a fast-growing EV ecosystem.

The group recognizes that workforce and training needs evolve with technological, regulatory, and industrial change, and provides a collaborative forum for industry, post-secondary institutions, and training providers to align on emerging skill requirements.



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INTRODUCTION

The transition to electric mobility is accelerating, but workforce readiness remains a critical barrier in Canada. While electric vehicles (EV) are less complex than internal combustion engine vehicles (ICE), some EV system interactions may require specialized skills in high-voltage electrical safety, electrical diagnostics, and infrastructure deployment. Current gaps in technical training, certification, and industry-academia collaboration risk slowing adoption and increasing operational challenges.

[The Government of Canada's Budget 2025](#) committed to supporting the skilled trades workforce by expanding the [Union Training and Innovation Program](#) and accelerating [Foreign Credential Recognition](#). The [Spring Economic Update](#) reaffirmed this direction through measures to strengthen retention and skills development, including a [Worker Retention Grant](#) and investments in skills development through a Workforce Alliance that brings together industry, labour, and training providers. This presents a timely opportunity to acknowledge the role of EV-specific workforce development in building a resilient economy.

EMC urges the government to prioritize investments that build capacity and consistency across colleges, training centers, and industry to ensure Canada has the skilled workforce needed for a safe and efficient EV transition.

ACKNOWLEDGEMENT

Electric Mobility Canada acknowledges the contributions of its **Research, Education, and Training Working Group members**, whose expertise and collaborative input were essential to identifying priority skill gaps and training needs across Canada's EV workforce and ensuring the recommendations reflect practical implementation considerations.



Skill Gaps and Recommendations by Sector

Utilities

Canada's electricity sector faces growing pressure to support EV charging demand and grid modernization. Skilled electrical trades and planners are essential to ensure reliable service and safe integration of EV loads.



Skill gaps	Messages
<ul style="list-style-type: none"> - Urgent need for more skilled electrical trades for grid upgrades and EV load integration. 	<ul style="list-style-type: none"> - Expand Red Seal curriculum to include EV charging and grid modernization. - Encourage utilities to participate in curriculum development to align program updates with grid needs. - Fund modular training programs for electricians and utility technicians.
<ul style="list-style-type: none"> - Limited awareness of EV safety protocols among utility workers. 	<ul style="list-style-type: none"> - Develop and embed EV safety training modules in existing electrical training programs. - Integrate standards into training programs to ensure consistency with recognized safety guidance.

Charging infrastructure

Reliable charging networks depend on skilled installers and maintenance technicians. As charging infrastructure is often deployed under varied ownership and operating models, gaps in technical training, cybersecurity awareness, and site host education can lead to inconsistent maintenance practices, which reduce charger uptime and user confidence.



Skill gaps	Messages
<ul style="list-style-type: none"> - Insufficient Electric Vehicle Supply Equipment (EVSE) maintenance and troubleshooting skills. 	<ul style="list-style-type: none"> - Scale existing charging network training programs for diagnostics and preventive maintenance by building partnerships with colleges and regional training partners. - Encourage charging brands to provide training (whether in-house or third-party) to their installers and maintenance personnel, including through funding support, especially in rural and remote areas. - Fund train-the-trainer programs to help expand training reach and impact.
<ul style="list-style-type: none"> - Cybersecurity and communication protocols not widely understood. 	<ul style="list-style-type: none"> - Include cybersecurity and communication protocol modules in EVSE training. - Promote OEMs collaboration on aligned protocols through standards-setting bodies (e.g., SAE, CSA and others).
<ul style="list-style-type: none"> - Some site hosts have limited knowledge on charger upkeep and inspection. 	<ul style="list-style-type: none"> - Launch awareness campaigns. - Provide maintenance best practices, based on industry leaders in reliability.

Light-duty vehicles (LDVs)

Transitioning ICE technicians to EV servicing requires new competencies in diagnostics and high-voltage safety. Legacy OEMs' reluctance to share training materials and low career attractiveness compound the challenge. There are bright spots, though. Tesla's partnership with the British Columbia Institute of Technology is a great example where industry and academia team up to provide skills training in a voluntary way to educate Red Seal mechanics, and could be replicated by other OEMs and across Canada.¹



Skill gaps	Messages
<ul style="list-style-type: none"> - Lack of high-voltage safety and diagnostic skills may exist among some technicians. 	<ul style="list-style-type: none"> - Fund OEMs to deliver shared training hubs with adequate access to equipment. - Support micro-credentials in software diagnostics, electrical architecture, and communication protocols on a voluntary basis. - Provide grant funding to post-secondary institutions and training providers to expand baseline EV training capacity and support partnerships with OEMs, including access to foundational, non-proprietary EV service and safety protocols.
<ul style="list-style-type: none"> - Technician shortages and low career attractiveness. 	<ul style="list-style-type: none"> - Promote gender diversity and awareness campaigns. - Offer incentives for EV technician training.

¹ See BC Institute of Technology "Tesla START" program website at: <https://www.bcit.ca/transportation/areas-of-study/automotive/tesla-start/>

Medium- and heavy-duty vehicles (MHDVs)

Fleet electrification faces acute shortages in specialized technicians and emergency responders. Skills in fire safety, battery diagnostics, and fleet operations are critical for safe and efficient deployment.



Skill gaps	Messages
<ul style="list-style-type: none"> - Hazard and fire safety expertise is insufficient. 	<ul style="list-style-type: none"> - Fund battery high-voltage safety and fire response training for fleet personnel and emergency responders. - Encourage OEMs to work with first responders on scenario-based training and practical EV safety training. - Expand EV safety awareness and handling best practices for downstream operators (towing/recovery, wreckers, dismantlers, etc).
<ul style="list-style-type: none"> - Lack of service and repair expertise for electric MHDVs may emerge. 	<ul style="list-style-type: none"> - Support accredited training for OEM and third-party service providers. - Replicate successful training programs for LDVs' space into the MHDVs segment.
<ul style="list-style-type: none"> - Fleet operations and infrastructure management skills. 	<ul style="list-style-type: none"> - Develop leadership programs for fleet managers and depot operators. - Fund a zero-emission fleet operations toolbox or partner with existing fleet electrification companies to better communicate existing tools. - Encourage transportation associations provincially (e.g. in Ontario, Ontario Trucking Association or Toronto Transportation Club) and nationally, to promote and run training programs to include EV specific components.

Batteries

Battery manufacturing, recycling, and afterlife management require advanced technical skills and strict safety protocols. Current training programs lack alignment with industry needs and emerging technologies.



Skill Gaps	Messages
<ul style="list-style-type: none"> - Limited training for battery safety, recycling, and hazardous material handling. - Limited internal training practices within dealerships/sales centres and collision repair environments. 	<ul style="list-style-type: none"> - Explore pilot training programs on dismantling, repurposing, and recycling processes through partnerships between industry and other parties, learning from practices of leading EV manufacturers who are already partnering with Canadian colleges. - Enable partnerships between training providers and companies already leading industry collection and management end of life batteries to co-develop applied, hands-on training in areas such as collection, transport, storage, triage, and recycling. - Develop tiered high-voltage and battery safety training programs, from fundamentals, to working safely, to advanced competencies.
<ul style="list-style-type: none"> - Disconnect between curriculums and industry needs for advanced battery manufacturing and cell technologies. 	<ul style="list-style-type: none"> - Support adaptive programs and micro-credentials on a voluntary basis. - Incentivize OEMs and academia to share best practices and baseline training content. - Prioritize investment in curriculum development and applied research partnerships to support advanced battery manufacturing (process control, factory automation, quality assurance, etc) and emerging battery technologies.

CONCLUSION

The EV transition depends on a workforce ready to support vehicles, infrastructure, batteries, and grid modernization. **EMC calls on the government to align workforce development priorities and funding programs with EV-specific training needs, ensuring programs are scalable, inclusive, and responsive to industry demands.**

Based on the synergies between the sectors, three priorities should guide action:

- 1. Expanding tiered high-voltage and battery safety training and awareness** across all EV-related roles.
- 2. Supporting voluntary alignment on baseline EV competencies** through modular EV training pathways and micro-credentials that are recognized across provinces.
- 3. Improving access to foundational EV service and safety information** through voluntary OEM partnerships with colleges and other appropriate channels.

Looking ahead, there is an opportunity to strengthen EV workforce readiness through clearer, role-based training pathways that show how workers progress from basic awareness to more advanced, job-specific skills across roles such as automotive technicians, electricians, and charging infrastructure specialists. Training should be practical and hands-on, using modular formats that fit within real work environments and support safe day-to-day operations.

As EV technologies continue to evolve across manufacturers and platforms, it will be important to help workers stay current over time. This could include simple approaches such as short refresher training or periodic updates, while reinforcing common safety fundamentals across training can help ensure a consistent baseline for working safely on different EV systems.

Ongoing collaboration between industry, training providers, and governments will be important to support these efforts and ensure the workforce can keep pace with industry needs.

