EZ Voltage – EV Charger Installation Training Course (Residential)

Training Course

Program Overview: This course provides trainees with the skills to install EV charging stations in residential homes, covering planning, installation, safety, and permitting. The course focuses on building clean energy competencies aligned with growing demand.

”

Day 1 Summary (5 hours):

Day 1 provides foundational knowledge of electric vehicle (EV) charging infrastructure, focusing on how different charger types function, assessing home load capacity, and understanding permitting requirements. Participants begin building the framework needed to evaluate homes for safe and effective EV charger installations.

Unit 1 – Introduction to EV Charging Infrastructure (1 Hour)
Participants will learn the differences between Level 1, 2, and 3 chargers, including their voltages, amperages, and charging times. The unit explains charger compatibility, residential vs commercial applications, and common brands used in Ontario homes.

Unit 2 – Residential Load Capacity Assessment (3 Hours)
Trainees will analyze existing panel capacity and load to determine if the installation of a new EV charger is feasible. Topics include service size evaluation, load calculation basics, and the impact of concurrent home systems like AC or electric stoves.

Unit 3 – ESA & Permit Requirements (1 Hour)
This unit outlines how to navigate the ESA (Electrical Safety Authority) permitting process. Trainees will learn when permits are required, how to apply, and how to prepare for inspections.

Activities and Exercises:
Trainees will complete mock panel load assessments using real-world equipment profiles. They'll participate in a permit application walkthrough using ESA templates and evaluate EVSE compatibility with different panel scenarios.

Day 2 Summary (6 hours):

This day transitions from theory into planning for physical installation. Trainees explore charger types and placement strategies, learn key safety protocols, and gain hands-on exposure to wiring and conduit layout techniques.

Unit 4 – Charger Selection and Location Planning (2 Hours)
Trainees will learn how to choose between wall-mounted and pedestal chargers, determine optimal placement for accessibility and code compliance, and account for weatherproofing and cable routing.

Unit 5 – Safety & Disconnect Protocols (3 Hours)
This unit covers how to safely disconnect power, install breakers, and include necessary safety features such as GFCI protection. Lock-out/tag-out practices are emphasized.

Unit 6 – Conduit and Wiring Routing (1 Hour)
Participants explore how to select appropriate wiring methods based on distance, obstructions, and house construction. They will practice planning conduit runs, drilling paths, and navigating attic or basement access points.

Activities and Exercises:
Trainees will create site plans, identify wiring routes using blueprints and photos, and match wire and conduit types to installation scenarios. They'll also walk through mock safety setups and demonstrate disconnect procedures.

Day 3 Summary (7 hours):

Day 3 is a hands-on installation day, where trainees will install EVSE systems, test them for functionality, and learn to troubleshoot common faults. Emphasis is placed on real-world application of safety and installation practices.

Unit 7 – Installation Procedures (4 Hours)
Trainees will mount EV chargers, connect wiring, secure conduit, and configure settings for Level 2 charging stations. Special attention is given to breaker size, load balancing, and torque specs.

Unit 8 – System Testing and Commissioning (2 Hours)
Participants will test the system post-installation using multimeters and manufacturer testing tools. They will learn to verify proper grounding, voltage levels, and indicator light functionality.

Unit 9 – Troubleshooting Common Issues (1 Hour)
This unit covers typical installation errors such as miswiring, tripped breakers, or charger faults. Trainees will learn step-by-step diagnostic techniques and how to resolve each scenario.

Activities and Exercises:
Using demo panels and chargers, trainees will perform full installations, conduct functional testing, and troubleshoot staged faults such as reversed polarity or ground issues.

Day 4 Summary (5 hours):

With installations complete, Day 4 focuses on educating the customer, navigating incentives, and adapting to varied site conditions. Trainees will simulate final client handovers and learn about the rebate landscape.

Unit 10 – Client Education and Usage (3 Hours)
Trainees will learn to explain charger operation to homeowners, including breaker reset, charger app configuration, and basic troubleshooting advice.

Unit 11 – Utility and Government Rebates (1 Hour)
This unit outlines available rebates and incentive programs for EV charger installations in Ontario and Canada. Trainees learn how to help customers apply and ensure documentation is compliant.

Unit 12 – Case Studies and Site Variations (1 Hour)
Participants will analyze different installation environments (e.g., detached garages, condos, older homes), reviewing how electrical configurations and structure type impact the installation approach.

Activities and Exercises:
Simulated client walk-throughs will be conducted using role-play. Trainees will also complete a rebate worksheet and compare installation plans across three different housing types.

Day 5 Summary (5 hours):

The final day consolidates the week's learning through review and practical application. Trainees complete a step-by-step guided installation walkthrough, receive feedback, and prepare for independent work in the field.

Unit 13 – Step-by-Step Review of Installation Procedures (2 Hours)
A complete review of the full EV charger installation process, from site assessment to final testing. Key code references and safety practices will be reinforced.

Unit 14 – Guided Practical Walkthrough (1 Hour)
Trainees will simulate an entire installation, following each step under supervision. Trainers provide corrections and coach best practices.

Unit 15 – Q&A and Final Review Session (2 Hours)
This session allows trainees to ask detailed questions and receive feedback on their readiness for real-world work. The instructor provides certification if criteria are met.

Activities and Exercises:
A final mock installation is performed by each trainee. A group Q&A will cover technical and client-related questions, followed by individual evaluation and feedback.

Fee per Participant: $2,500
Certification Awarded: Certified Residential EVSE Installer