How One Homeowner **Saved Thousands on EV Charging**

Instead of upgrading her electrical service, one Mississauga resident found a way to get Level 2 charging at home for a fraction of the cost

Krupa K. recently made the switch to an electric vehicle (EV), making her one of the more than 90,000 Alectra customers who've now made the change. Upon switching, she knew she wanted to install a Level 2 (L2) charger for the convenience and cost-savings of charging at her home in Mississauga.

Her only worry was that it would require a panel and utility service upgrade to go from a 100A panel to a 200A panel. She knew this process of increasing the electrical service supply to her home could potentially cost her thousands.

While upgrades can be the right move for some, they don't make sense for everyone. They can be expensive, time-consuming and disruptive. Furthermore, they require utility coordination, permits and inspections.

Krupa is one of the participants in Alectra's **SmartCharge** pilot**,** which gives up to 50 households early access to a smarter, more convenient way to charge EVs at home. Through the pilot, Krupa learned of an alternative solution that allowed her to avoid expensive and disruptive upgrades.

The solution is called an **EV Energy Management System (EVEMS).**

An EVEMS is a load-management device that automatically monitors a home's electricity usage and adjusts EV charging power in real-time to avoid overloading the panel. For Krupa, it was an excellent solution. More affordable, less disruptive and avoided any delays due to having to coordinate with the utility. And what's more, it helped her avoid any major electrical work.

> **I was very interested in participating in the program because it meant I could install an L2 charger without having to go through a costly panel and service upgrade. Having a charger at home also meant I would no longer have to rely solely on public charging stations. It has made my life so much easier.** Krupa K., Mississauga, Ontario

Why do many EV owners prefer L2 charging over L1?

Level 1 (L1) charging is an affordable and simple EV charging option that uses a standard 120V household outlet. The downside is that it can be too slow for some customers, adding only five to eight km of range per hour of charging. This may be suitable for plug-in hybrid vehicles that also have a gasoline engine. For fully electric vehicles, L1 charging may take longer to provide the range needed for regular driving.

On the other hand, **L2 charging** uses a 240V outlet (like the one a laundry dryer uses) and can add up to 30+ km of range per hour of charging. It offers a mix of speed and convenience , often reaching a full charge overnight, depending on the vehicle and other factors such as the battery's state of charge. In addition, it often includes smart features like scheduling, energy monitoring and remote access.

For Krupa, the ability to charge at home brought so many benefits to her life as an EV owner.

"The convenience of having a charger at home is unmatched," she said. "It saves me both time and money. I no longer have to schedule extra time in my day to visit a public charging station. And in general, I find an EV to be more convenient than a gas vehicle, as I don't have to go to a gas station anymore."

Krupa's home charging set-up with a Level 2 charger

Always ensure your home can handle the additional load

Before purchasing and installing an L2 charger, it's necessary to assess your home and its capacity to accommodate the additional electrical load. Not only does this mean making sure that you have space on your electrical panel for a new circuit breaker; it also means making sure that your panel has the capacity to safely support the new added load.

Since L2 chargers are larger load devices (anywhere from 8A to 80A) that need a 240V outlet to use, they must be installed by a **Licensed Electrical Contractor (LEC)** and inspected by the **Electrical Safety Authority (ESA)**. LECs are the only businesses in Ontario legally authorized to do electrical work in your home and they ensure your EV charger installation meets electrical safety standards. The ESA has a handy tool to help you **find an LEC near you**.

Electrical load for a typical home

For background, each and every home has a loading capacity, which is the total amount of electrical load (measured in Amps) the panel can safely support based on the utility service provided to your home. This is determined by the panel's rating (e.g. 100A, 200A) and the combined demand from all connected appliances and circuits on the panel.

In general, older homes have 100A of service while newer homes are built with 200A of service. While a 100A panel is often enough to handle L2 charging, you should not assume this to be the case. Same goes for 200A of service. Remember that every home is unique. Prior to installation, your panel should be evaluated by an LEC to ensure you can proceed with confidence. They can also guide you on the right L2 power level for your situation.

More about the EVEMS

An EVEMS can be an excellent option for households that want L2 charging while avoiding costly panel and service upgrades.

An EVEMS costs upto

$1,500*

compared with

$5,000-$20,000+

for a service upgrade

Think of an EVEMS as a traffic controller for your home's panel. When demand is high enough from other appliances such as a dryer or air conditioner that it approaches your panel's capacity, it automatically reduces or pauses EV charging to avoid overloading the system. When capacity is restored, it resumes full EV charging automatically. Everything takes place behind-the-scenes and there's no action required from the homeowner.

Most homes have lower electricity demand overnight when lights, stoves and other appliances aren't being used. Therefore, if the EVEMS reduces charging during the day while another appliance is in use, you'll still have many hours overnight for your EV to gain sufficient charge for the next day.

For Krupa, it was an ideal solution.

"I would definitely recommend looking into the EVEMS," she said. "It is a more convenient and cost-effective option that can eliminate the need for costly upgrades."

In terms of the installation process, Krupa said it was very straightforward.

"There was minimal disruption, and the technician ensured that the EV charger could operate safely alongside other high-demand appliances and electronics in the home without causing any issues."

EVEMS optimizes EV charging to avoid overloading the electrical panel

Many households pay for an upgrade they don't need

EVEMS devices have been available for a few years now but many homeowners are simply not aware of them. This lack of knowledge results in customers doing unnecessary and costly electrical service upgrades.

Traditionally, when determining whether a home has enough electrical capacity for a new load, electricians often assume that everything in the home could be running at the same time. If there isn't enough capacity, the typical recommendation is to upgrade the electrical service because it provides an opportunity to add more loads to your home in the future.

However, most household electrical demand varies throughout the day with different devices being on while others are off. Recognizing this reality, the ESA has recently clarified that the Ontario Electrical Safety Code permits EVEMS technology according to its technical standards. By managing the load of devices on the electrical panel, an EVEMS can allow an EV charger to be installed and operated safely without upgrading the electrical service to the home.

* Installation costs are extra and vary based on site conditions

> **Many of our customers default to the service upgrade even though they don't need to. With a bit more education and guidance, customers could be saving thousands of dollars by investing in an EVEMS. At Alectra, we want to help our customers make the right decision for their home.**
>
> Daniel Carr, Alectra

Alectra conducted an analysis of more than 5,000 Alectra homes that upgraded their electrical service to 200A in 2023 to accommodate L2 charging. We found that over 95% of these households likely didn't need the upgrade, as their actual electricity usage remained within the limits of a 100A service.

This suggests that many costly upgrades are simply avoidable through better screening by electrical contractors, better customer education and access to load-management technology options such as the EVEMS.

Daniel Carr is the Head of Grid Edge Solutions at Alectra. He thinks the EVEMS is a great solution for many, and that customers shouldn't automatically think they need a panel and service upgrade. While these upgrades are sensible solutions for some, customers often have more options than they realize.

"An EVEMS is a great solution for many households," he said. "If customers are considering installing a Level 2 charger but are worried about the cost of a panel and service upgrade, they should make sure to ask their Licensed Electrical Contractor if an EVEMS is a viable option for them."

Alectra's SmartCharge pilot

As a participant in Alectra's SmartCharge pilot, Krupa received a Level 2 EV charger, including professional installation managed by Alectra, for an affordable monthly fee paid over the duration of the pilot. She also participated in load management activities to benefit the grid.

Alectra SmartCharge pilot participants are working closely with Alectra to help us to better understand and address EV charging adoption barriers and challenges.

More Canadians are purchasing EVs every year, with more than 275,000 EVs in Ontario as of Q2 2026. Approximately one-third of these households are registered within Alectra's service territory.

By 2030, it's expected that our customers will have more than 500,000 EVs. Since most of these vehicles will charge within our territory, we want to provide customers with the tools and information they need to understand their charging requirements. This allows us to continue to provide reliable, cost-effective service.

"We're really proud of this pilot," said Averyl D'Souza, SmartCharge, Lead Project. "We know that more and more of our customers will be choosing to go electric with their next vehicle. We want to be there with them through this transition, and to be a helpful ally to them to make sure they make the right decisions for their own unique circumstances."

One (of many) happy customers

Krupa is over the moon with the decision she made. Her charger works great, her EV runs smoothly and she can get where she needs to be with ease.

And thanks to Alectra's SmartCharge pilot and sage advice, she was able to keep costs down and avoid major electrical work.

"I was spending a lot of time at public charging stations and having to plan my schedule around charging," she said. "Now, I simply come home and plug in my car, which has made EV ownership much more convenient."

Helpful tools and resources from Alectra

TOOLS

- Alectra EV Calculator
- Public Charging Map

EDUCATIONAL RESOURCES

- Learn about Chargers
- Learn about Types of EVs
- Enabling Emobility