



Working with your Residents: Setting Expectations in EV Charging

By Joshua Paras



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Every year, more Canadians switch to Electric Vehicles (EVs), with Quebec, British Columbia, and Ontario leading the way in vehicle sales and charging infrastructure. With the growing popularity of EVs, more and more residents will expect to be able to charge their vehicles in their own parking spots overnight. By working with your residents and getting ahead of the demand by planning for EV charging now, you can prevent costly time-sensitive work in the future while keeping your residents happy.

Why EV Charging?

For the first time since 2018, Ontario surpassed British Columbia in new battery EV and plug-in hybrid EV registrations in Q4 2021, putting it in second

place behind Quebec. Statistics Canada's New Motor Vehicle Registrations data shows that Ontario's zero-emission vehicle (ZEV) sales have consistently increased since mid-2020. They are showing no signs of slowing down continuing into Q1 2022, where the province still sits ahead of British Columbia. Based on reports from Transportation Canada and Natural Resources Canada:

- About 40% of light-duty vehicles on Canadian roads could be ZEVs by 2035, with the ratio of ZEVs even higher in Quebec, Ontario, and British Columbia. (Canada's Zero-Emission Vehicle (ZEV) sales targets, Transportation Canada)

- As little as 2-15% of Multi-Unit Residential Buildings (MURBs) will have EV charging capability by 2025, making it both highly marketable and desirable for new and existing residents. (Updated Projections of Canada's

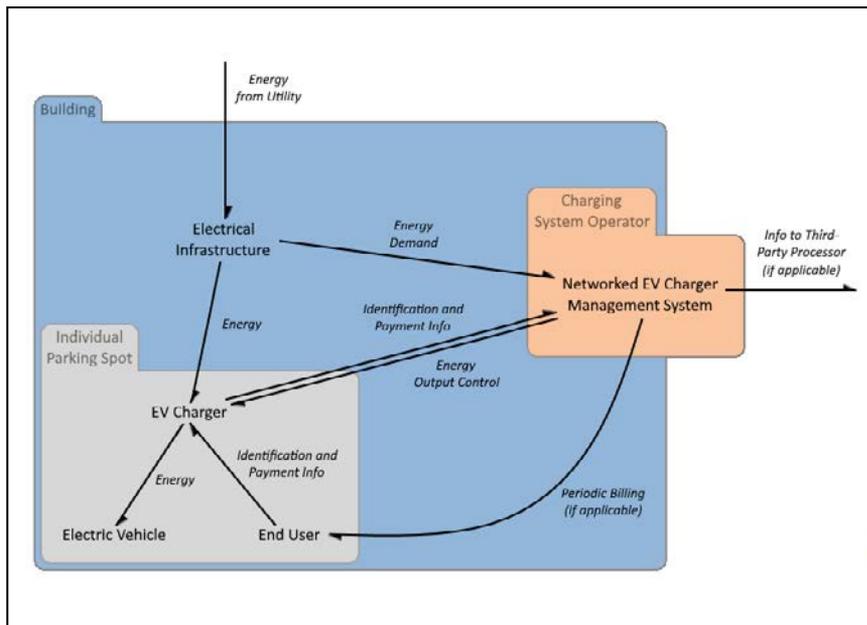
Public Charging Infrastructure Needs, Natural Resources Canada and Dunskey Energy + Climate Advisors)

Getting Started

Installing EV charging in your building is much more than letting residents plug a charger into their parking spot. We recommend a networked EV charging system with load management in MURBs to make the most of your existing spare electrical capacity without expensive utility upgrades. In condos where residents own their chargers, it is important to work with them and define what responsibilities belong to the condo board and the residents' responsibilities.

Communicating Costs and Where to Draw the Line

A unique challenge in implementing an EV charging system in condos



The above diagram illustrates a typical EV Charging system in a building.

is deciding on ownership of system components and allocating costs accordingly.

One example we have seen is that the condo board covers the EV panel and its connection to the main switchboard, while the resident is responsible for the “last mile run,” including the charger itself. In this arrangement, the residents are responsible for the following:

- Wiring and infrastructure costs from the EV charger system panel to their parking spot
- The condo board and/or charging system operator is responsible for the following:
 - Infrastructure and wiring from the main switchboard/electrical room and panel costs
 - Centralized EV panel placement for fair resident-run costs
 - Internet connectivity for the EV charging system
 - User payment and billing system, if applicable
 - Potential financial assistance for residents/early adopters that paid more for infrastructure

In addition to the points above, we recommend uniform chargers to simplify troubleshooting in the case of system malfunctions.

When installing a charging system, it is crucial to plan it out in cooperation with your residents. Networked systems are initially more expensive than installing individual chargers on request but

save more in the long run as they are easily expanded and avoid the need for electrical utility upgrades.

Planning for the Future and Networked Charging Systems

While some buildings may have less immediate EV charging demand, preparing for the inevitable shift to EVs is essential. As mentioned earlier, networked EV charging systems provide scalability for future resident needs while meeting current charging demands.

The first step in implementing any charging system is to conduct a Building Electrical Load study. This will identify your building’s energy use patterns and determine its spare electrical capacity. Normally the spare capacity would act as a hard limit on the number of chargers installed. But, with a networked charging system, the chargers can be controlled to prevent overloading when the system is approaching its limit. With effective use of both the building energy use profile and charging system management, the number of chargers can be significantly extended with minimal impact on charging time.

Billing

With residents owning the chargers and the condo board potentially operating the system, who is paying the bills?

On the utility side, in most cases, the

building owner pays for the electricity unless the system is metered for the system operator to pay.

On the charger side, it’s a bit more complicated. Ideally, in a private-use scenario, it would be easiest for each charger to be metered for regular, direct billing. However, as of writing this article, Measurement Canada does not allow system operators to bill users directly for the energy used, so operators often choose to bill for the time spent charging, a flat fee or they operate for free. However, by the end of 2022, Measurement Canada hopes to have some form of exception or “dispensation” for level 2 residential chargers (Electric vehicle charging stations, Measurement Canada).

Charging system operators can choose to bill regular users monthly, or if charging is available to guests and the public, they can accept payments on a per-use basis through a third-party payment platform for an additional processing fee. As part of the networked system’s load management, charging times may vary throughout the day depending on the building load, so it is essential to set expectations. Depending on the electrical demand, the system operator can set different charging rates to account for the loss in charger output.

What do the Experts Have to Say?

It is vital to consult unbiased EV charging experts when starting an EV charging project that will partner with you through the entire process. Each step, from information gathering and demand forecasting, system selection, and installation to the operation, has its own challenges and opportunities that can make or break a project. As EV technology has developed in recent years, so have EV chargers, and experts can help you find the right solution for your needs. ■

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