



# ZEV Fact Sheet

A collaborative of the Canadian Coalition for Green Health Care and Plug'n Drive



## Workplace Charging Cost Considerations

There are multiple ways of offering charging stations at your health care workplace. They can be free for employees or employees can be charged a fee for using the stations. Both have their own advantages and disadvantages, and this determination should be based on your goals and reasons for installing the chargers in the first place.

### TO CHARGE OR NOT TO CHARGE?

“When possible, the employer should charge for the charging services. Establishing a usage fee helps ensure the balance between offer and demand. Experience shows that when the service is free, EV owners tend to plug in their vehicle even if it does not need to be charged.

Demanding even a small fee ensures that only EV drivers that need to charge will do so. Depending on the charging policy, the fee can be time-based, at \$1 to \$2 per hour for example, or fixed at \$2.50 to \$5.00 per charging session. Working with a solution provider that supports interoperability with a public network will greatly facilitate the payment perception as EV drivers will be able to pay with their public network account.” - FLO. Best practices for workplace EV charging 2018

### WHY ASSESS A FEE

There are a number of reasons that workplaces may decide to assess a fee for employee vehicle charging including:

- Recovering equipment installation costs (including equipment cost and installation),
- Recovering ongoing operating costs (including electricity rates and maintenance personnel),
- Managing charging station use and limiting unnecessary charging,
- Avoiding ‘fairness’ complaints from employees and to avoid the Canada Revenue Agency indicating this is a taxable benefit.

### FEE SCENARIOS

Typically, there are three fee scenarios you may wish to consider in developing pricing for your EV charging installation:

1. **Free to use** - No cost to use the station and often works to attract and retain employees as many will recognize your commitment to a healthier planet,
2. **Variable pricing** - Fee for use based on the length of time spent charging which serves to encourage drivers to move their EV when charge is complete,
3. **Fees paid to a third-party managing the chargers** - Monthly fee paid by EV user to a third-party charging station network operator. Health care organisation is not directly involved in day-to-day collecting of fees and management of charger network.

### ESTIMATING ELECTRICITY COST

The workplace should consider the cost of electricity for each potential charging station. This can be done with a simple calculation:

$$\text{Station output (kW)} \times \text{hours of operation} \times \text{electricity rate (\$/kWh)} = \text{Total Cost per Day (\$)}$$

“If the fees for the use of charging stations are based on time, charging stations are currently exempt from inspection or any intervention by Measurement Canada. However, if the fees are based on an energy or power measurement, then an approved and inspected meter must be used.” – Measurement Canada

## POWER SHARING WITH LOAD CONTROLLERS

There are two main strategies to avoid, or at least to defer, the costs of upgrading the power system to support charging stations. The more conventional solution is to use load controllers installed upstream of the chargers. Load controllers perform power cycling by cutting off the power of individual chargers, keeping the total load under control. The other solution is called “power sharing” and consists of dividing the available power amongst the chargers.

Your EV Supply Equipment (EVSE) contractor should be well-versed in available options and solutions. If they aren't, you may want to find a contractor with more expertise.

## ENERGY MANAGEMENT WITH POWER LIMITING AND SHARING

Charging stations can increase the building's peak demand, or demand more generally, and consequently impact the building's electricity bill. In addition to charges for the energy used, electricity rates may include demand charges (charges for the highest average 15-minute power demand during the billing period, typically around \$8 to \$25 per kW).

Workplaces may hit their peak power demand when employees arrive at work in the morning, and connect all their EVs to the chargers at the same time. Because of the concentrated increase in power demand, the demand charges could significantly increase the building's electricity bill.

### POWER LIMITING

To minimize and even totally offset the effect of demand charges, the charging solution could be designed to limit power transfer to EVs during the building's peak power demand. Power limiting strategies include:

1. **Fixed-based power limiting:** setting a maximum limit to the aggregated power transfer level used by charging stations,
2. **Schedule-based power limiting:** the limit of the aggregated power transfer level changes with the time of day,
3. **Building Management System (BMS)-based power limiting:** allows real-time control of the maximum power transfer of the charging equipment, never exceeding a pre-determined setpoint.

## TAXABLE BENEFIT

If charging is provided free to employees, employers may be required to report the value of the benefit, including applicable tax in box 14, “Employment income,” and in the “Other information” area under code 34 at the bottom of the employee's T4 slip.

## ABOUT US

Canadian Coalition for Green Health Care is Canada's premier green health care resource network and is leading the evolution of green in Canada's health sector as a national voice and catalyst for environmental change. Collaboratively, we strive to reduce health care's ecological impact from compassionate care delivery while providing a nurturing platform upon which to discuss and promote best practices, innovation, environmental responsibility and climate change resiliency. [www.greenhealthcare.ca](http://www.greenhealthcare.ca)

Plug'n Drive is a non-profit organization committed to accelerating the adoption of electric vehicles in order to maximize their environmental and economic benefits. Since 2011, Plug'n Drive has established itself as a leader in the electric vehicle (EV) industry, a trusted and unbiased source of information on electric cars, charging stations and the electricity sector. [www.plugndrive.ca](http://www.plugndrive.ca)

The ZEV Fact Sheet is a summary of information contained in Plug'n Drive's new publication *Lead the Charge*. Plug'n Drive would be pleased to assist your organisation navigate EV adoption with a webinar series, EV test drive event, workplace lunch'n learn or engagement opportunities at its Electric Vehicle Discovery Centre. Please email [info@plugndrive.ca](mailto:info@plugndrive.ca) with your questions.

## FEE COLLECTION

If your organisation opts to levy a fee for connecting to an EV charger, this will need to be factored into the planning and purchasing of equipment because access to a network may be required for billing. If a third party is collecting fees, they will likely decide how payments are made.

There are three main fee scenarios worth considering when you develop your EV charging installation:

1. **Parking Permit** - Organisation-managed parking permit allows drivers to pay fees through payroll deduction. While easily managed through payroll, drivers may end up paying for services they don't actually use.
2. **Network Card** - Prearranged network access through RFID card or access number allows driver to bill charger fees to their network account. Usually managed by third-party vendor but management costs may increase total fees.
3. **Credit Card** - Pay-per-use model permits users to pay with credit card at charger stations. Payment features usually managed by third-party vendor but tends to remove some measure of control over how long users charge their EVs.

*Source: California PEV Collaborative. Plugging in at Work: How to Effectively Install, Share and Manage Electric Vehicle Charging Stations. November 2015.*

## INCENTIVE PROGRAMS

A number of federal and provincial funding programs exist to support the adoption and implementation of EV infrastructure. Suppliers and vehicle manufacturers may also have incentives available to make adoption more attractive.

The Government of Canada, through its **Zero-Emission Vehicle Infrastructure Program (ZEVIP)** has set ambitious federal targets for zero-emission vehicles reaching 10% of light-duty vehicles sales per year by 2025, 30% by 2030 and 100% by 2040.

Over \$130 million has been committed over five years (2019-2024) to deploy a network of EV charging stations (level 2 and higher) and hydrogen fuel cell refuelling stations in more localized areas where Canadians live and work. Funding will also be provided for the continued expansion of EV charging stations in locations such as workplaces, public places and on-street parking zones. Support is also available for strategic projects for EV and/or hydrogen fuel cell charging infrastructure.