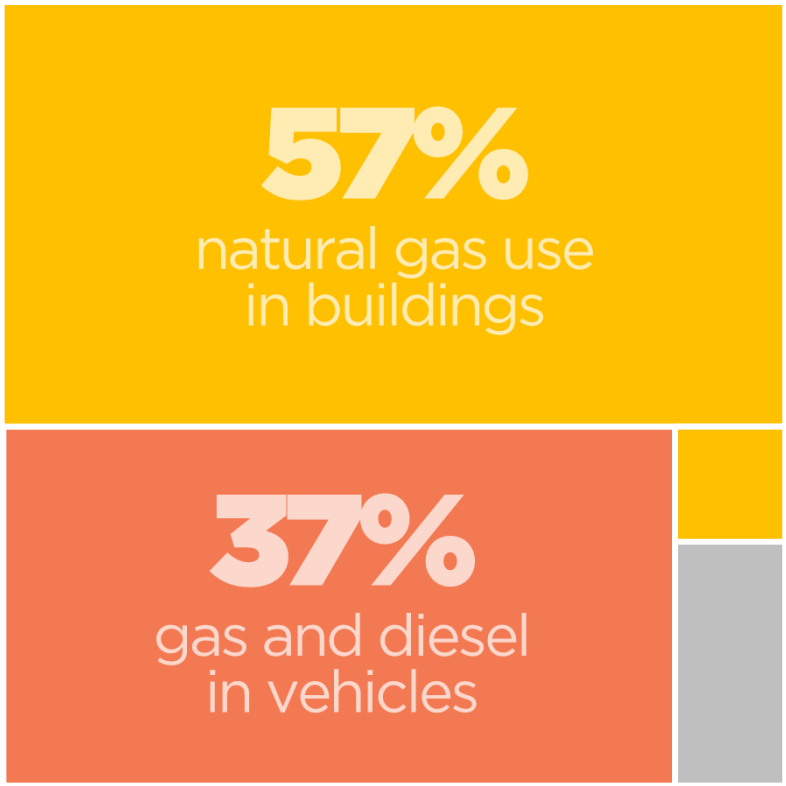
EV Charging at Gas Stations and Parking Lots

Implementation Guide

CITY OF VANCOUVER | Vancouver Plan | CLIMATE EMERGENCY

Background

Vancouver's Carbon Pollution

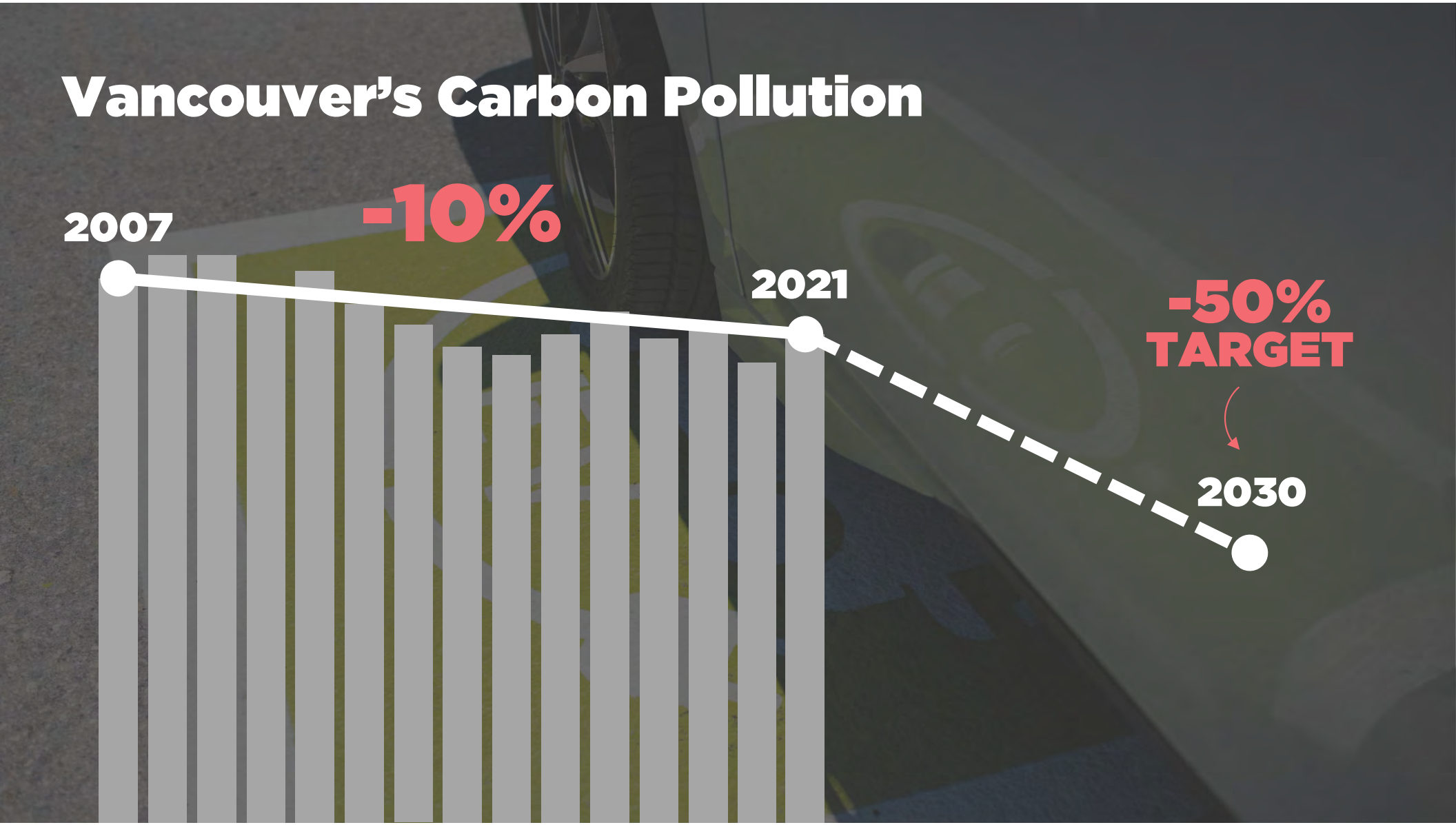


3%
electricity + NEU

4%
waste

City of Vancouver 2020 emissions inventory (GPC, Scopes 1 and 2)

Due to rounding, numbers presented may not add up to exactly 100%


Vancouver's Carbon Pollution
2007
-10%
2021
-50%
TARGET
2030

CLIMATE EMERGENCY ACTION PLAN: ZERO EMISSIONS VEHICLES

BIG MOVE 3:

By 2030, 50% of the kilometres driven on Vancouver's roads will be by zero emissions vehicles.

EV context

- EVs were **25% of light-duty vehicle sales** in Vancouver in Q4 2022
- **BC ZEV mandate**: 90% of light-duty vehicle sales electric by 2030
- Metro Vancouver report estimates need for **~400 DCFCs and ~8,000 Level 2 chargers** in Vancouver by 2030

Low Carbon Fuel Standard

- Requires fuel suppliers to reduce carbon pollution from fuels
- Credits available for selling low carbon fuels (e.g., electricity)
- Potential credit earnings in one year with medium utilization:
  - DCFC - $25K
  - Level 2 - $5K

  (based on current credit rates, subject to change)
- Find out more here

program structure

Starting in 2025: **different business licence fees** for gas stations and commercial parking lots that provide EV charging.

CATEGORY 1

Businesses that **provide** the specified amount of charging.

~ $171 - $255*

CATEGORY 2

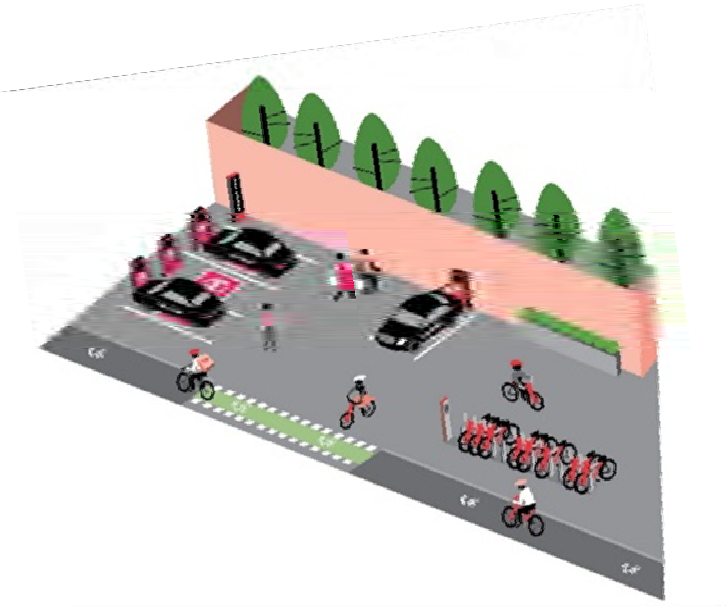
Businesses that **do not** provide the specified amount of charging.

$10,000 ANNUAL FEE

** Current business licence fees*

Gas stations:

- Min. 50 kW charging
  - E.g. one DC Fast Charger
- Exemption: marine service station



Commercial parking lots:

- Min. 26 kW charging
  - E.g. four Level 2 chargers
- Exemption: parking lots with fewer than 60 stalls

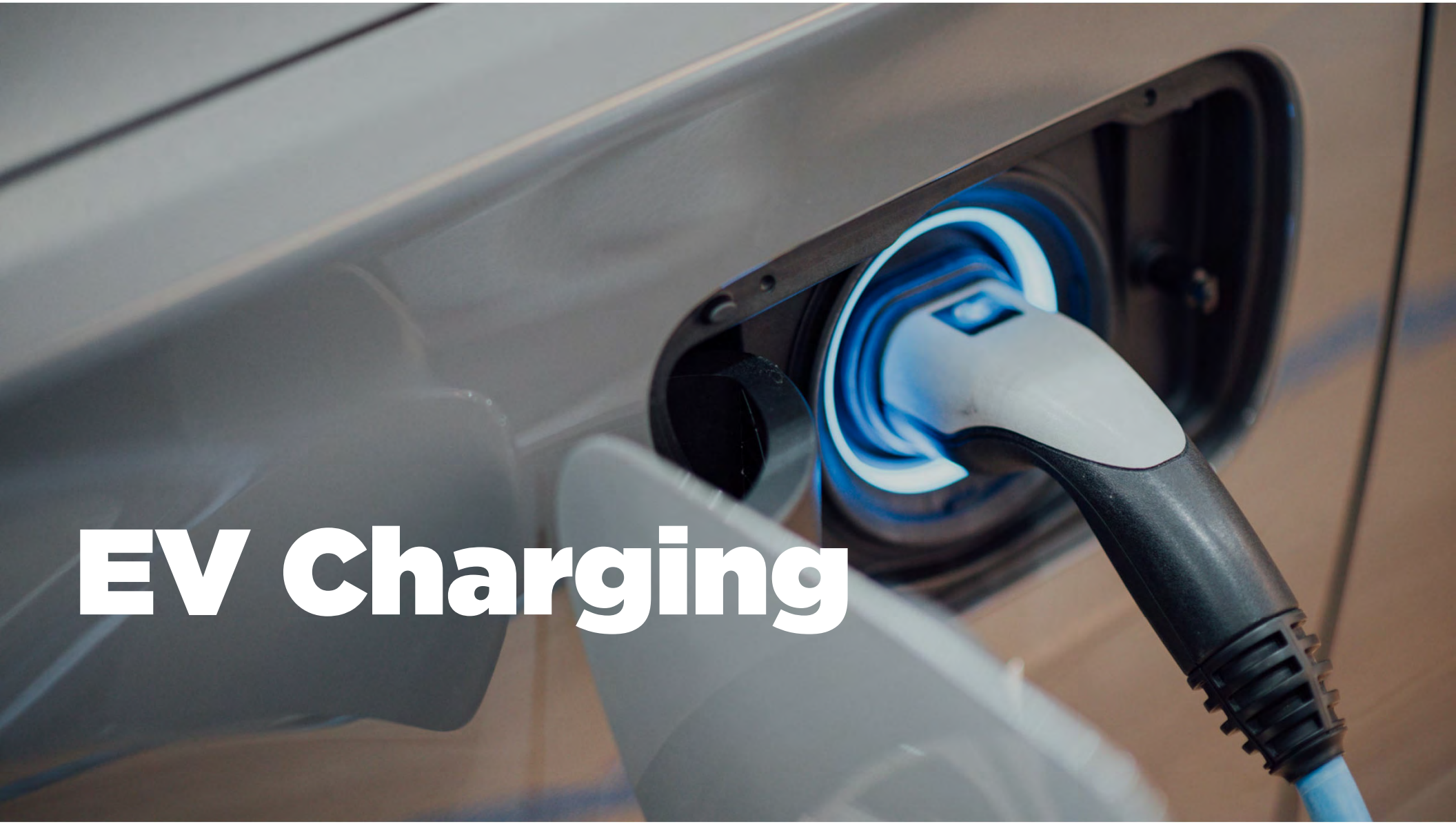
alternate compliance for gas stations

To address site constraints, gas stations may provide charging **off-site** to qualify for the lower licence fee

Criteria:

- Off-street
- At other gas stations or pay parking lots only
- One EV charger (or port) per business licence

To ensure off-site charging is installed at an approved location, City staff are offering a pre-approval step (outlined in a future slide).


EV Charging

Level 2 Chargers

J1772 port

- Overnight or parking for a few hours
- ~$2,000 - $14,000 per port
  - Not including service upgrade, if needed
  - Can typically be installed on existing infrastructure (240 V)

DC Fast Chargers

Combo (CCS) plug

CHAdeMo plug

- On-the-go charging or parking for up to 30-40 mins
- ~$125K - 175K per port
  - Subject to power level and site-specific design and construction

BC Hydro DCFC Design Guidelines (link)

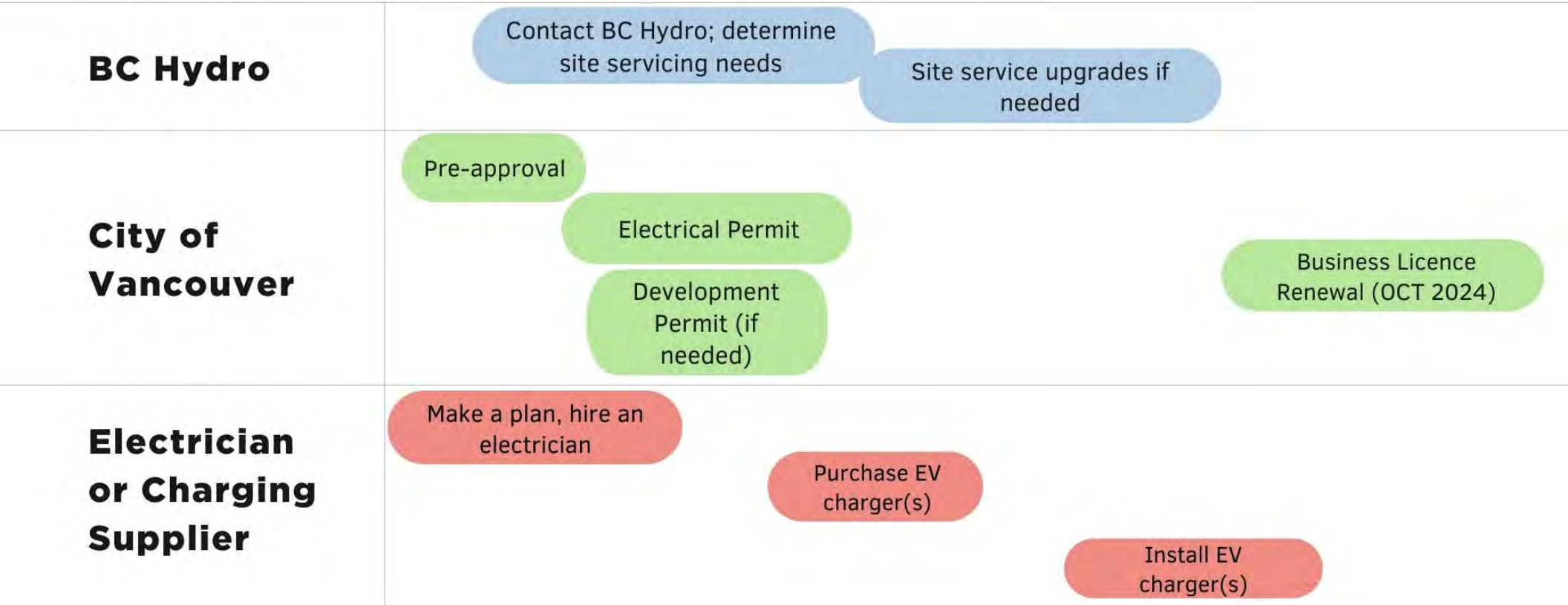
EV Users

- Opportunistic charging
- Multiple chargers increases reliability
- Accessibility is important
- PlugShare has information about the charging network

Process

Installing EV Charging

Contact(s)



CONSULTATION & PLANNING

- Consider contacting an EV Advisor
- Ensure you have permission from the landowner
- **Pre-approval** to ensure site suitability (off-site charging only – more info on next slide)
- Hire an electrician
- Check electrical system
  - Contact BC Hydro **early** to determine your site servicing needs

PRE-APPROVAL (optional)

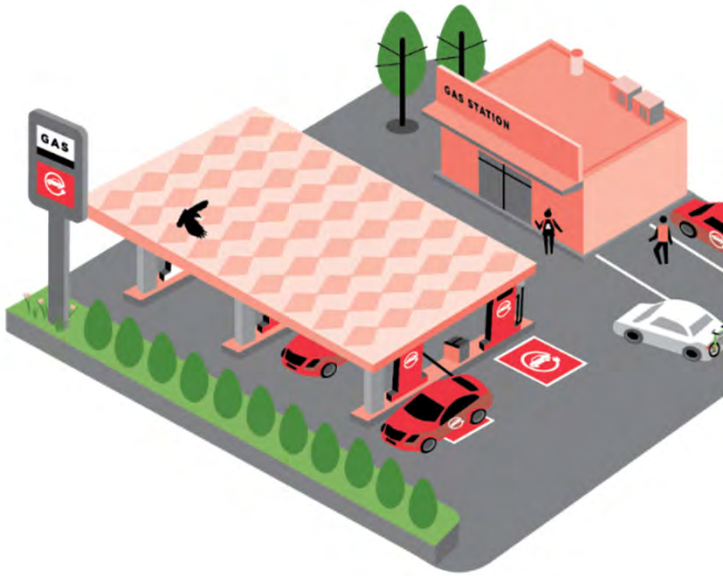
- Meet with City staff to:
  - Ensure off-site charging is at an approved location (charging installed at unsuitable locations will not be eligible for the lower fee)
  - Determine if a Development Permit is needed

Request a meeting:
electric_vehicles@vancouver.ca

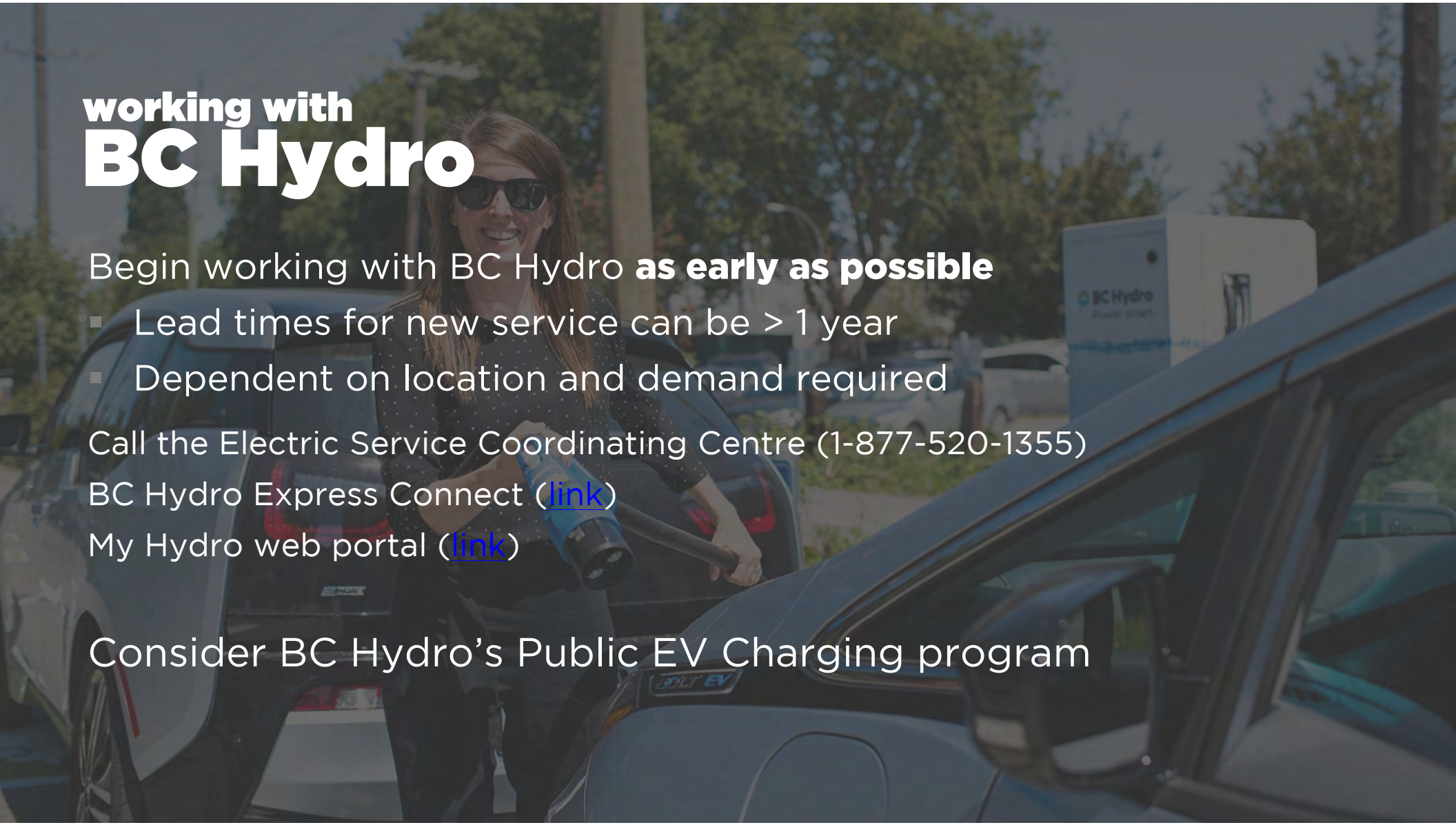
DEVELOPMENT PERMIT (if needed)

For gas stations / off-site charging only

- May be needed if site is not an approved Parking Area
- Check if DP is required using this portal



Apply for a Development Permit here



working with BC Hydro

Begin working with BC Hydro **as early as possible**

- Lead times for new service can be > 1 year
- Dependent on location and demand required

Call the Electric Service Coordinating Centre (1-877-520-1355)

BC Hydro Express Connect (link)

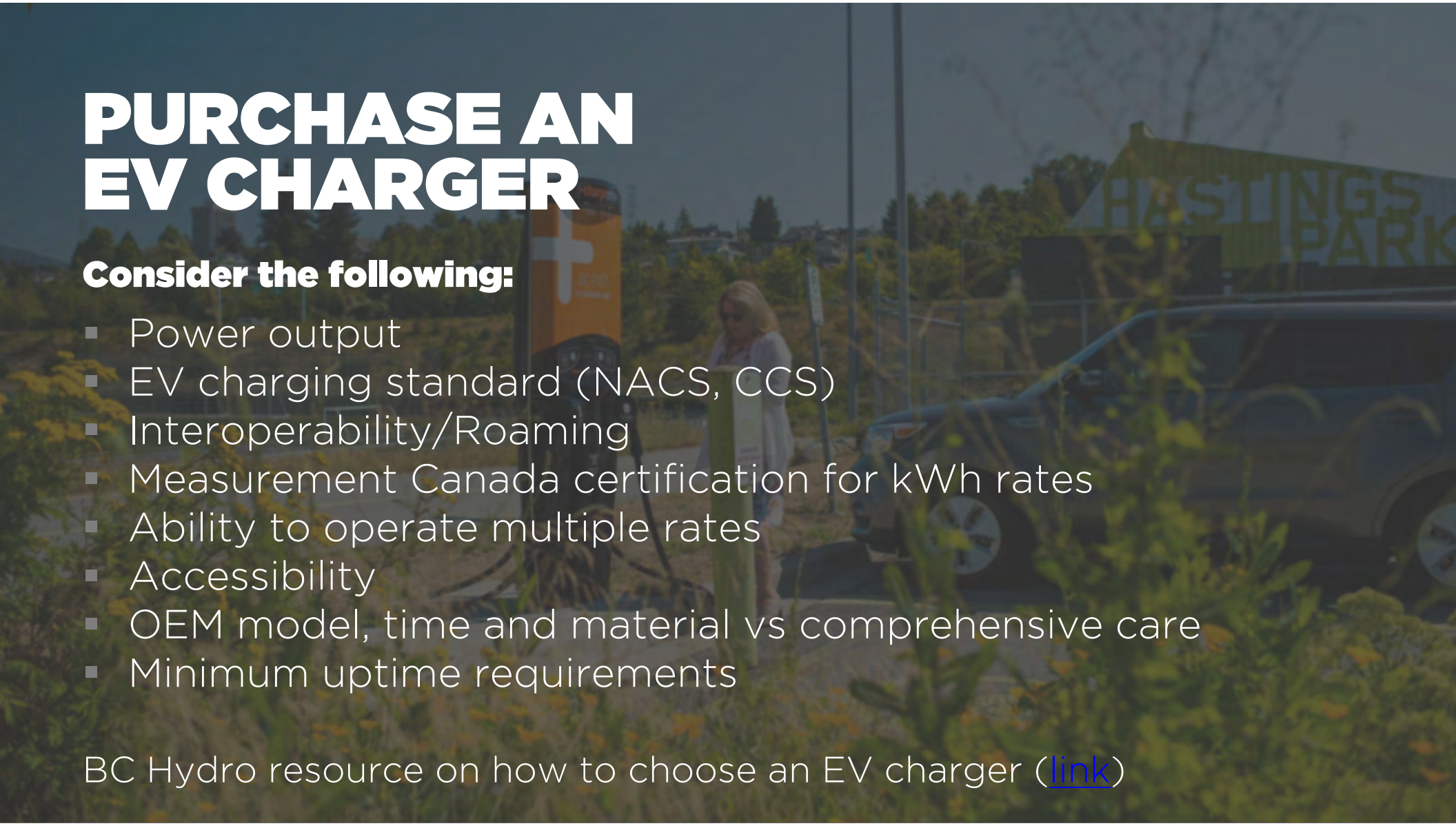
My Hydro web portal (link)

Consider BC Hydro's Public EV Charging program

ELECTRICAL PERMIT

- Electrical contractor will apply on your behalf
- Process time: roughly 3 weeks
  - Potentially longer for complex projects
  - Earlier is better

To apply, click here



PURCHASE AN EV CHARGER

Consider the following:

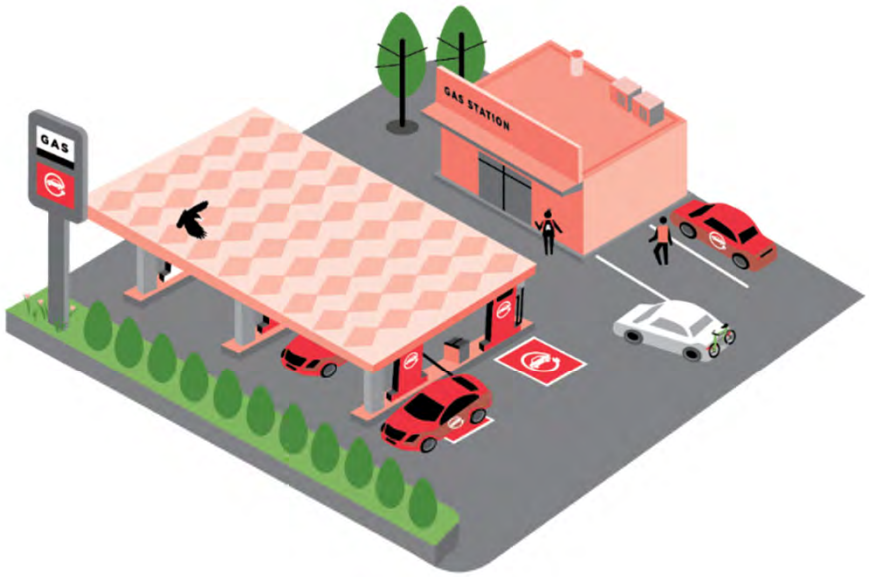
- Power output
- EV charging standard (NACS, CCS)
- Interoperability/Roaming
- Measurement Canada certification for kWh rates
- Ability to operate multiple rates
- Accessibility
- OEM model, time and material vs comprehensive care
- Minimum uptime requirements

BC Hydro resource on how to choose an EV charger (link)

BUSINESS LICENCE

- Renewal: November/December
- Update licence type immediately preceding full installation of charger
  - Renew or update your business licence here
- To qualify for the lower fee, you will need:
  - Electrical permit (shows power output)
  -

business licence requirement: off-site charging



Electrical Permit:

- Each business licence requires a distinct charging port with a power output of at least 50 kW
- Date of installation for any off-site must be May 1, 2023 or later

Consider BC Hydro Public EV Charging Program as an alternative

Thank you!
Questions?

Email: electric_vehicles@vancouver.ca

Appendix

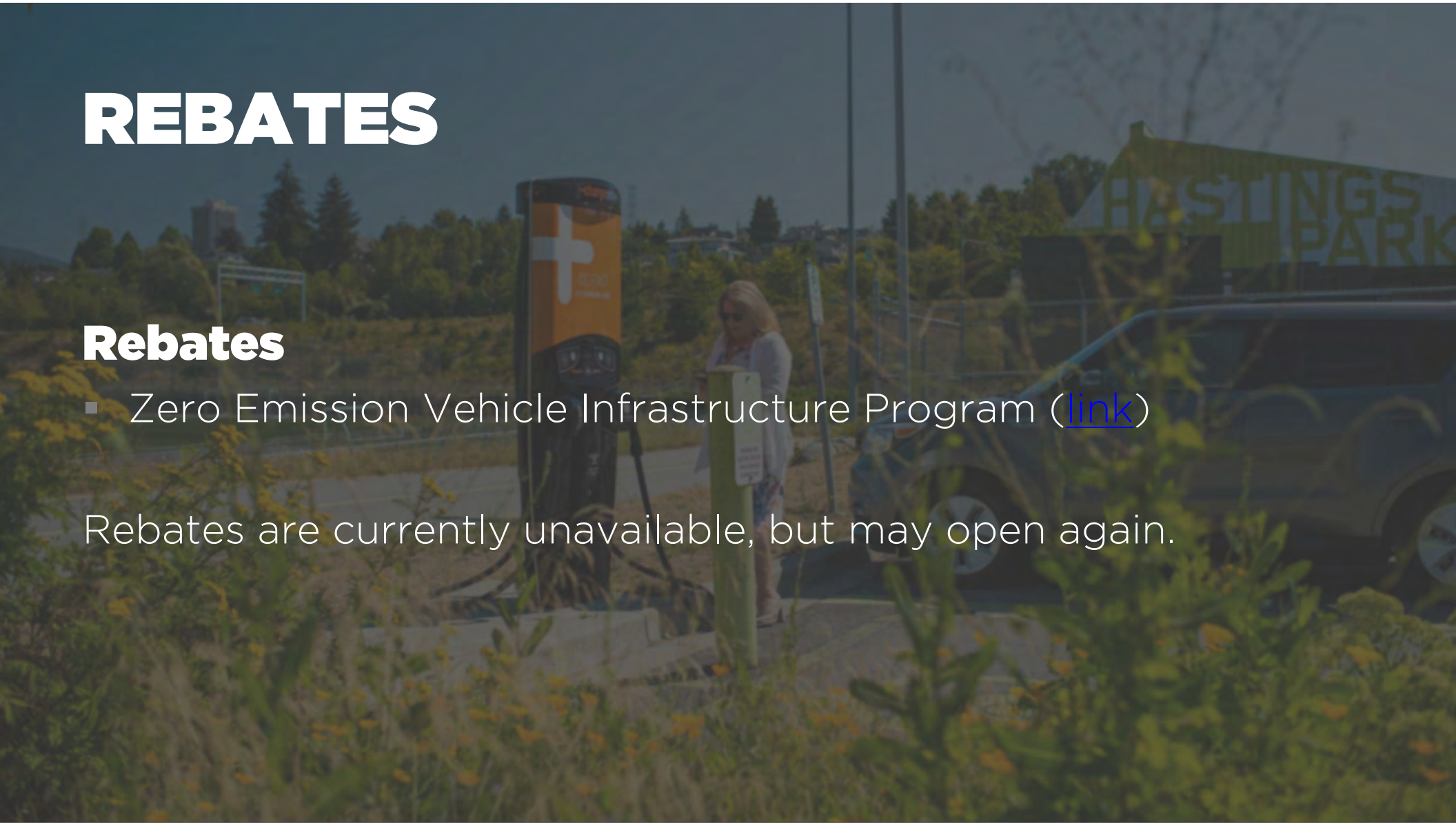
Types of EV Chargers

Type	Suitable For	Cost to Install*
Level 1 (~1 kW)	• Overnight or long stays	• <$1,000 per charger • Uses existing electrical infrastructure (120 V)
Level 2 (~3-6 kW)	• Overnight parking • Stays of a few hours • Top ups (stays of a few hours)	• ~$6,000 to $14,000 per port • Can typically be installed on existing electrical infrastructure (240 V)
DC Fast Charging (50+ kW)	• Short stays (up to 40 mins) • On-the-go charging	• ~$125-$175K per charger • Electric upgrades are typically needed

* Includes charging stations and electrical/infrastructure upgrades (if needed)

BC Hydro resource on how to select an EV charger (link)

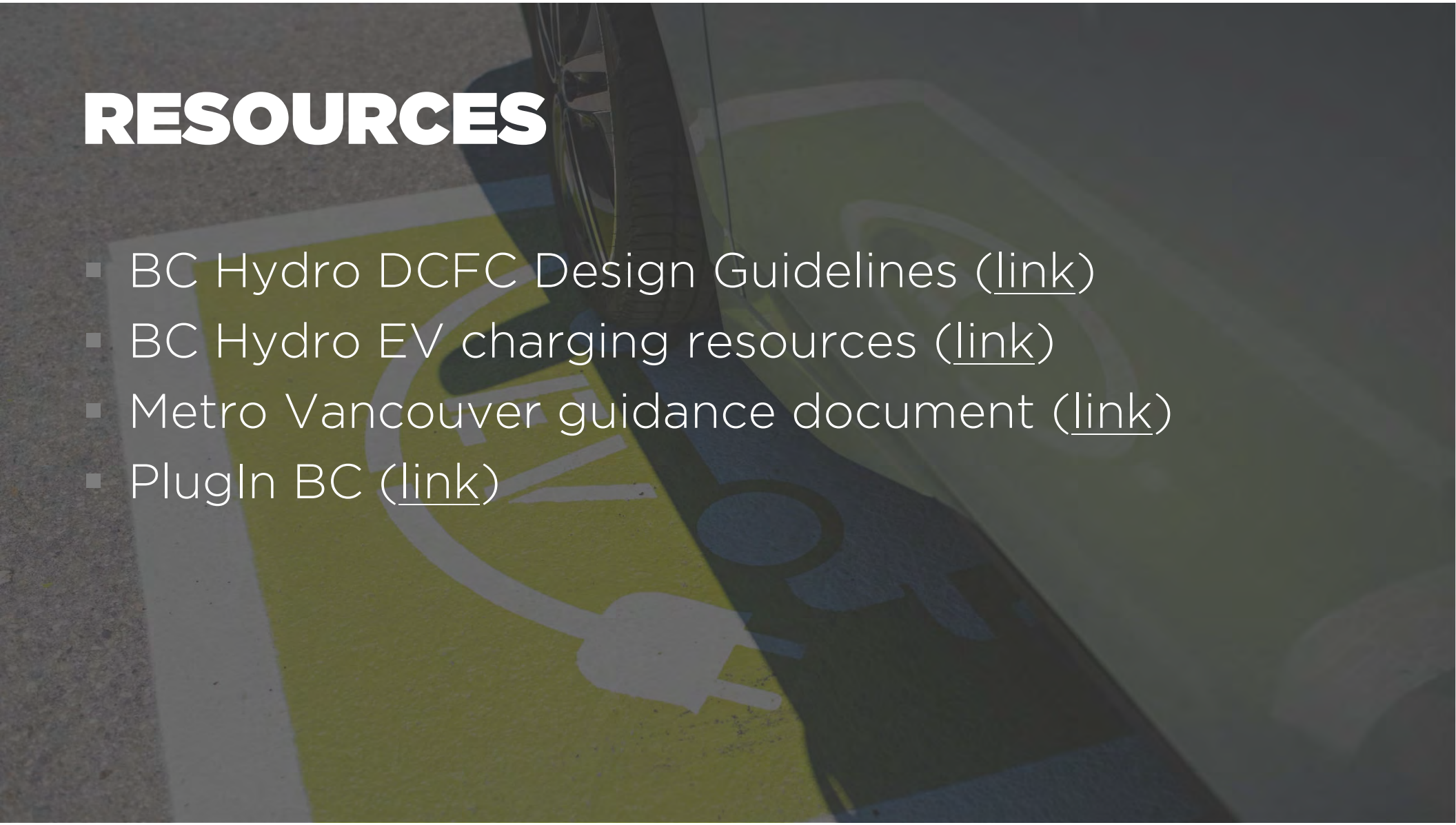
REBATES



Rebates

- Zero Emission Vehicle Infrastructure Program (link)

Rebates are currently unavailable, but may open again.



RESOURCES

- BC Hydro DCFC Design Guidelines (link)
- BC Hydro EV charging resources (link)
- Metro Vancouver guidance document (link)
- PlugIn BC (link)

BC Hydro Public EV Charging Program

December 7, 2023

joe.english@bchydro.com
victor.chow@bchydro.com

BC Hydro
Power smart

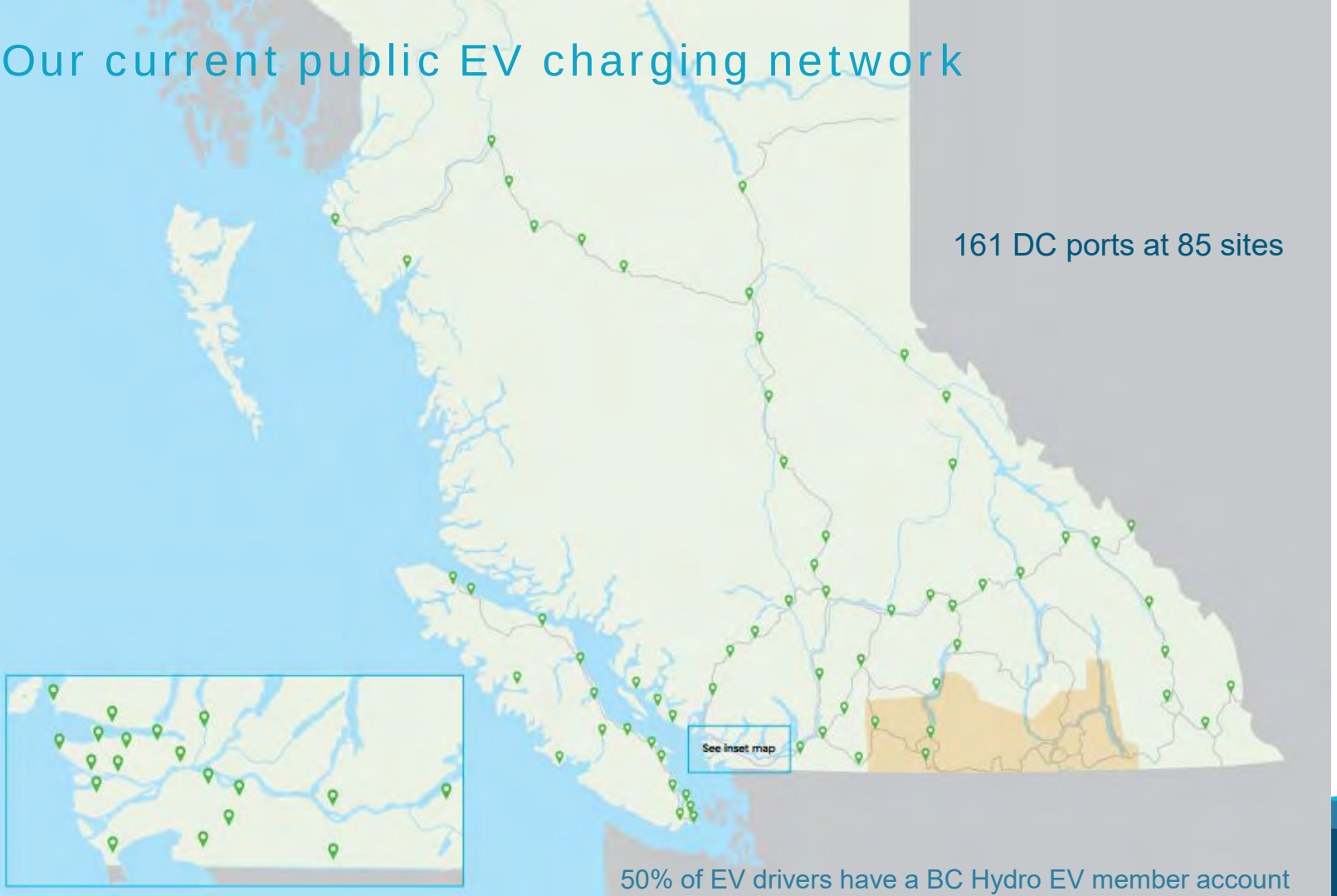
BC Hydro's Transportation Electrification Role

The Government of B.C's target is for 100% ZEV sales by 2035

- Primary energy supplier to power B.C's transformation to zero-emission transportation
- EV adoption: awareness, residential charging programs, public charging and fleet programs
- To accelerate British Columbia's transition to clean transportation we provide reliable and affordable public EV charging service
- Prescribed undertakings – such as **expanding the public charging network across B.C. (urban and non-urban)**

BC Hydro
Power smart

Our current public EV charging network



161 DC ports at 85 sites

50% of EV drivers have a BC Hydro EV member account

BC Hydro
Power smart

BC Hydro Network Overview

As of today, BC Hydro operates 156 EV fast charging stations at 84 sites across the Province, with over 52,000 drivers registered on the BC Hydro Network.

Proudly installing charging stations since 2013

Our Plan:

- 3000 public EV charge ports by 2032
- Geographic connectivity through all major travel corridors in B.C by 2024
- Increase power levels and number of ports per site
- Expand all remaining single port sites
- Improve accessibility

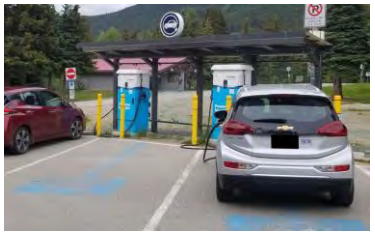
BC Hydro
Power smart

BC Hydro public charging focus

Make EV public charging readily accessible, convenient and affordable for all drivers in British Columbia

Highway Charging

Lillooet



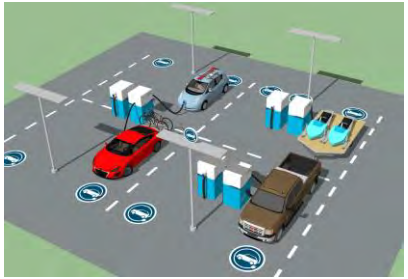
Coquihalla Highway

Community Charging

Downtown Victoria

UBC – Wesbrook Neighborhood

Hub Charging



Upcoming Surrey Hub Site

BC Hydro
Power smart

Expanding Strategic Partnerships

BC Hydro is building site partnerships to achieve its 2030 objectives

- BC Hydro invests capital to build charging stations and maintains & operates the stations at BC Hydro's cost
- Reliable services with high customer satisfaction ratings and accessible sites
- More charging stations per site to increase accessibility and higher power levels (e.g. dual port 184kW)
- Rates are based on cost-recovery to make the service affordable for all British Columbians (i.e. not profit-driven)

BC Hydro
Power smart

Benefits for Station Hosts

Reliability sets us apart

Our service model includes a dedicated EV Operations team. That means most outages are resolved within 24-48 hrs and stations are routinely inspected.

- Demonstrate climate action leadership
- Provide your community and customers with 24/7 access to EV charging
- Drive traffic and visitors to your community and local businesses
- Brand association with a trusted and Top 3 “Most Loved Brand” in B.C.

BC Hydro
Power smart

Our Site Selection Criteria

- ✓ Space for a minimum of 6 charging ports, w/ additional room for future expansion
- ✓ 24/7/365 public access
- ✓ Safe, well-lit site
- ✓ Close to amenities – public washrooms, snack/coffee shop
- ✓ Close to main transportation corridors
- ✓ 10 year lease, with option to renew

BC Hydro
Power smart

Our Gas Station Host Partners (to date):

- Sayward – Mid-Island Coop
- Duncan – Peninsula Coop
- Tynehead - Esso
- McLeod Lake – McLeod Lake Indian Band
- Vancouver Grandview Hwy – Superstore
- Agassiz – Seabird Island Band
- Anahim Lake – Ulkatcho First Nation (under construction)
- Wonowon – Petro Canada (under design)

BC Hydro
Power smart

Some Considerations for Gas Stations

Minimum clearances from EV Charging Equipment:

- 6.9m from gas pump (or 12.9m assuming 6m charge cables)
- 3.9m from fuel tank fill port (or 9.9m assuming 6m charge cables)
- 2.4m from fuel tank vent (or 8.4m assuming 6m charge cables)

BC Hydro
Power smart

Seabird Island Band - Agassiz

BC Hydro
Power smart

Sayward Junction Gas – Mid-Island Coop

BC Hydro
Power smart

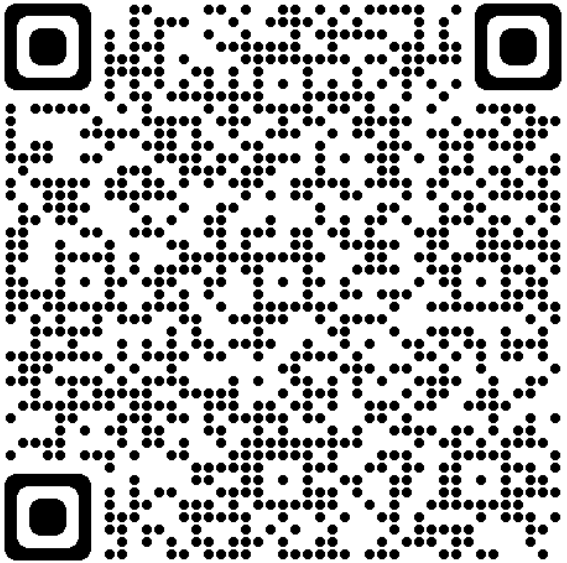
Tse’khene Food & Fuel – McLeod Lake Indian Band

BC Hydro
Power smart

Next Steps

We make it easy for you to get started:

- Confirm interest in participating in BC Hydro Public EV Charging Program
- Review our site selection criteria, identify suitable site(s)
- Reach out to Joe or Victor directly, or fill out our online intake form
- We'll be in touch to set up an introductory call



BC Hydro
Power smart

Q & A

BC Hydro
Power smart