



Municipal
Climate Change
Action Centre

MUNICIPAL CLIMATE CHANGE ACTION CENTRE *EV Charging Program*

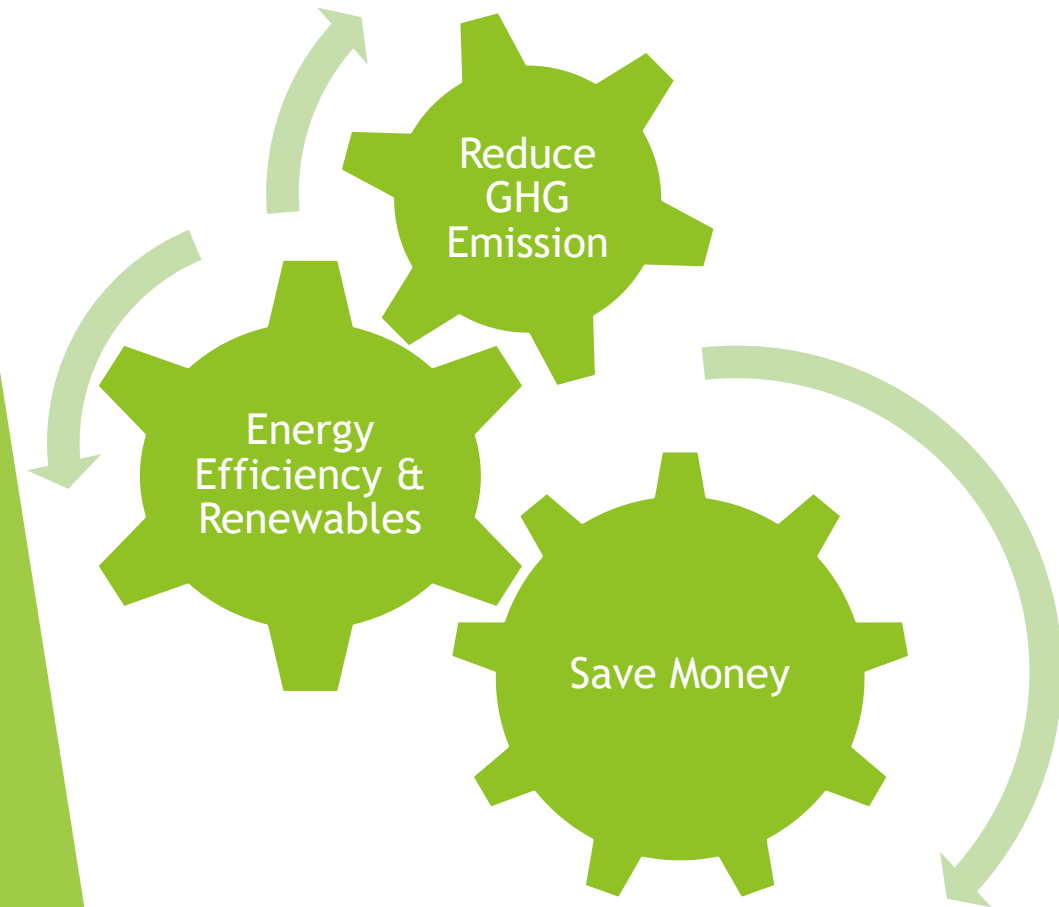
Town of Pincher Creek

April, 2022

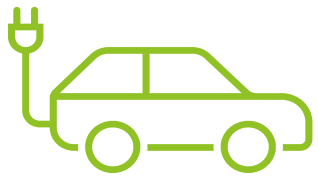


MUNICIPAL ENERGY PROJECT LEAD

WHAT IS THIS POSITION?



PURPOSE OF PRESENTATION



EV's & Charging

Background &
Forecasting



Pincher Creek

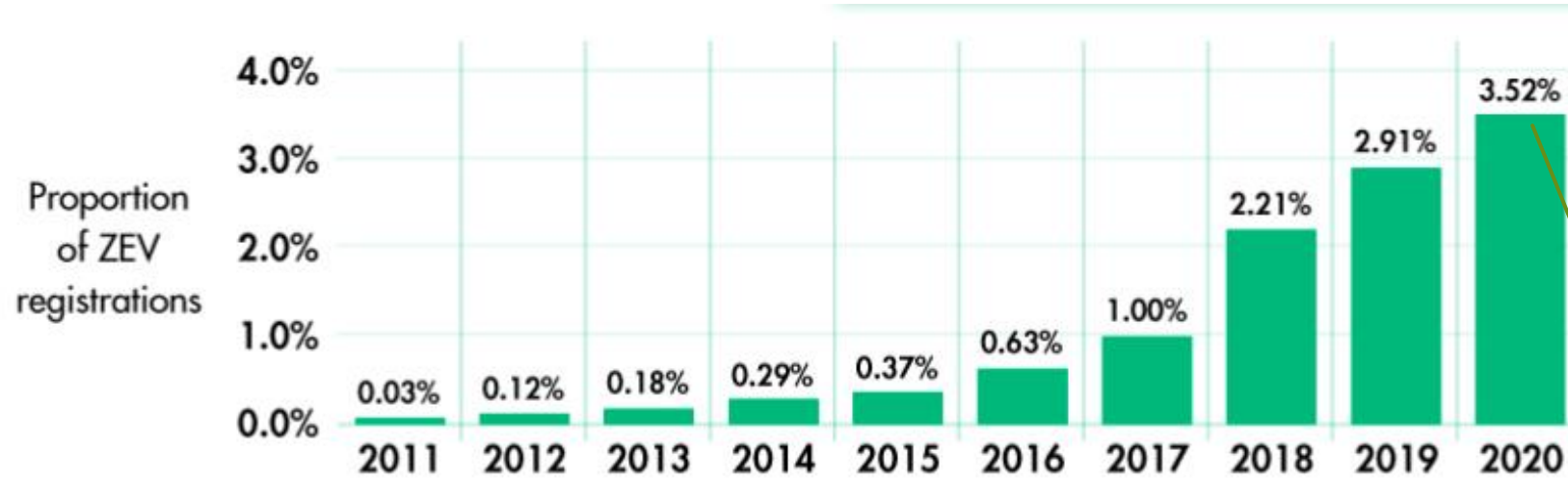
Existing Chargers
& EV's



MCCAC EV Program

Funding & Path
Forward

ELECTRIC VEHICLES (EV'S) & PLUG-IN HYBRID ELECTRIC VEHICLES (PHEV'S); WHO CARES?



2021 Q1-Q3:
65,00
EV's/PHEV's

2020:
56,000
EV's/PHEV's

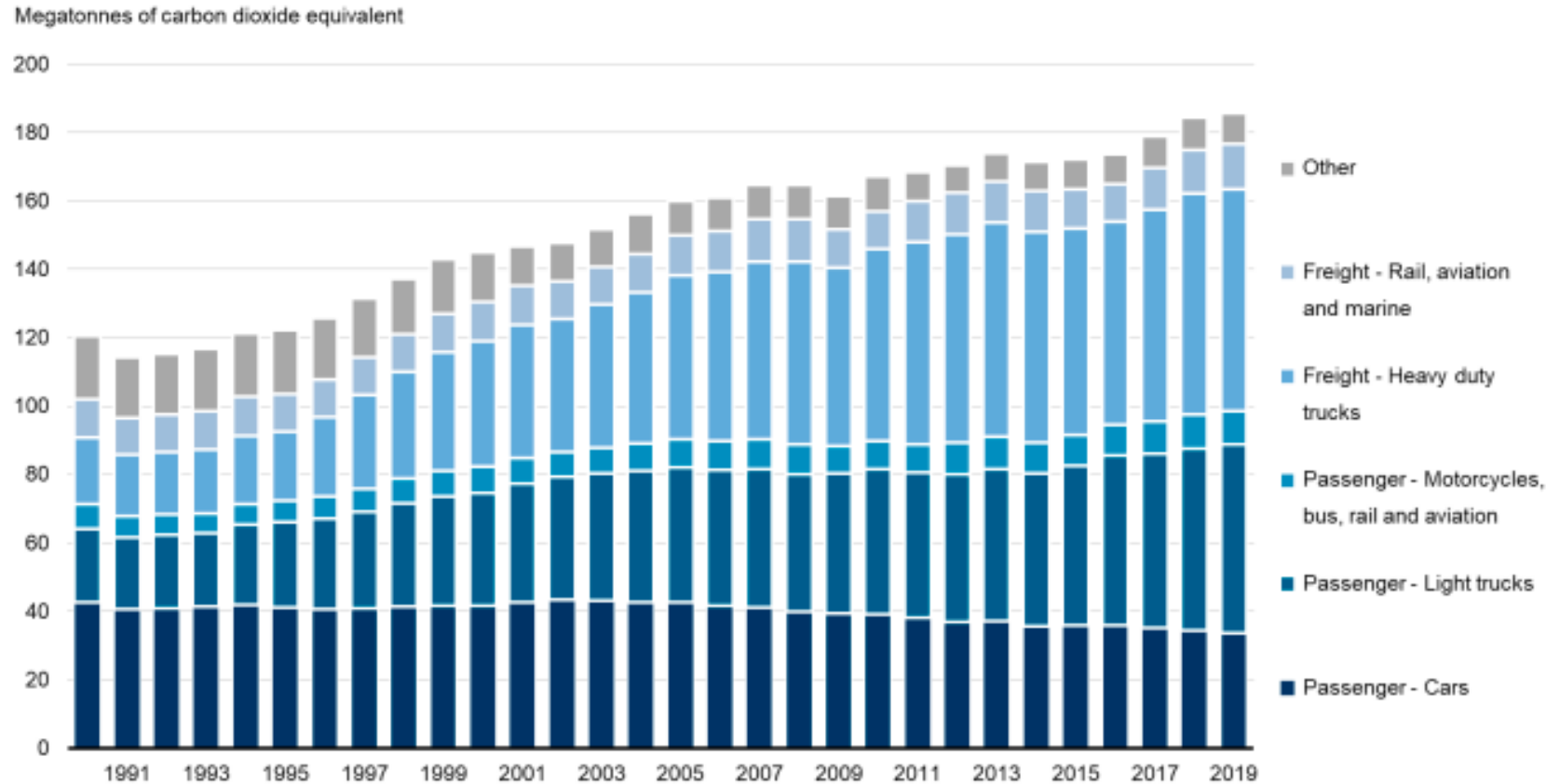
- ▶ Increasing Demand
- ▶ Reducing GHG Emissions
- ▶ Manufacturers switching over
- ▶ Canada's 2030 target = 50% new cars Zero-emission
- ▶ Canada's 2035 target = 100% Zero-emission
- ▶ Increasing incentives for EV's

ELECTRIC VEHICLES; WHY DO THEY MATTER?

Key results

- In 2019, the transport sector was the second largest source of GHG emissions, accounting for 25% (186 megatonnes of carbon dioxide equivalent) of total national emissions
- Between 1990 and 2019, GHG emissions from the transport sector grew by 54%. The growth in emissions was mostly driven by increases from freight trucks and passenger light trucks

Figure 5. Transport sector greenhouse gas emissions, Canada, 1990 to 2019



[Data for Figure 5](#)

ELECTRIC VEHICLES; COMMON MISCONCEPTIONS



- ▶ **Travel Distance:** Up to 400km/charge depending on vehicle



- ▶ **Battery loss:** ~1%/yr on average



- ▶ **Maintenance:** Lower with EV's (no oil changes, spark plugs, etc.)



- ▶ **Winter:** Cold start issues are not prevalent, warm up fast with resistance heating (no need to idle). Does use more battery in Winter

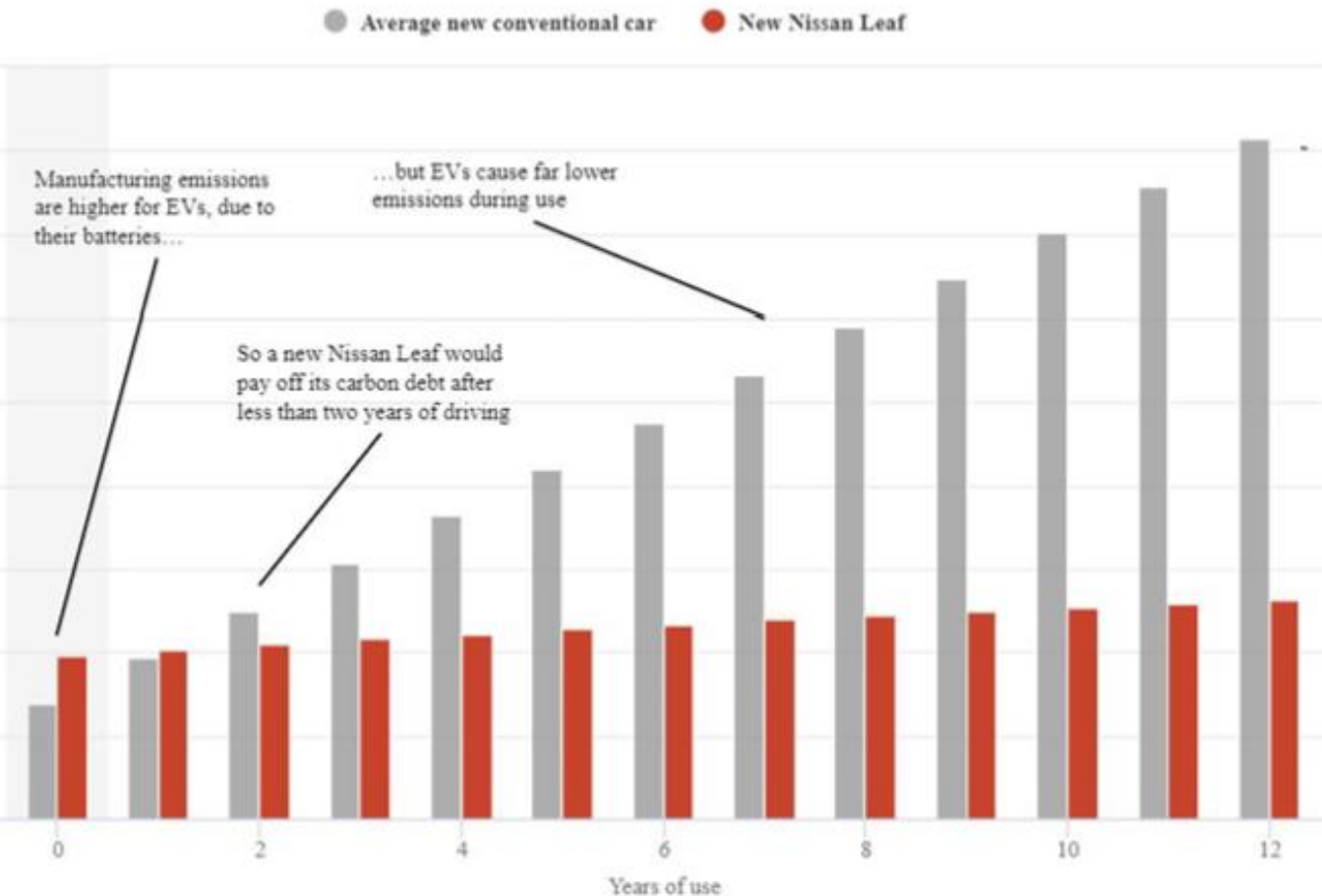


- ▶ **GHG Emissions:** EV's do have a higher GHG intensity to build. Offset emissions within 6-16 months due to zero tailpipe emissions



- ▶ **Recycling:** Batteries are used in second-life applications or recycled

ELECTRIC VEHICLE CHARGING; ENERGY DISTRIBUTION CHANGES



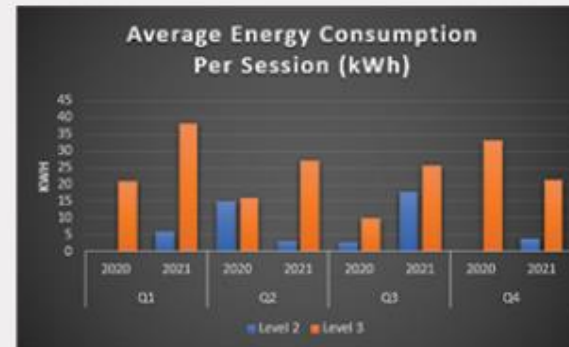
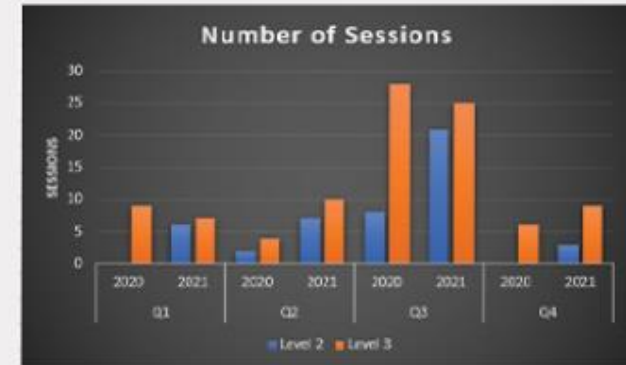
- ▶ Most EV and PHEV owners will do primary charge @ home
- ▶ Shift from going to the gas-station
- ▶ Metaphor: Filling gas tank with natural gas at home
- ▶ Charging stations needed for visitors, tourism, shared accommodations / apartment. Additional benefits:
 - ▶ Serve tourism. Incentivize people to stop in community & spend time in parks/recreation
 - ▶ Employee benefits
 - ▶ Enables fleet expansion

ELECTRIC VEHICLE CHARGING; EXISTING ATCO STATION

- ▶ Level 2 & Level 3 Charging Station at Kettles St. & East Ave.
 - ▶ Installed as part of SouthGrow Peaks to Prairies Initiative
 - ▶ ATCO fully owns & operates stations
 - ▶ 2020 Gas Avoidance: 286 L
 - ▶ 2021 Gas Avoidance: 661 L
- ▶ SouthGrow Network:
 - ▶ 2019: 3,000 L avoided, 250 unique drivers/quarter
 - ▶ 2020: 11,000 L avoided, 800 unique drivers/quarter
 - ▶ 2021: 35,000 L avoided, 2,350 unique drivers/quarter

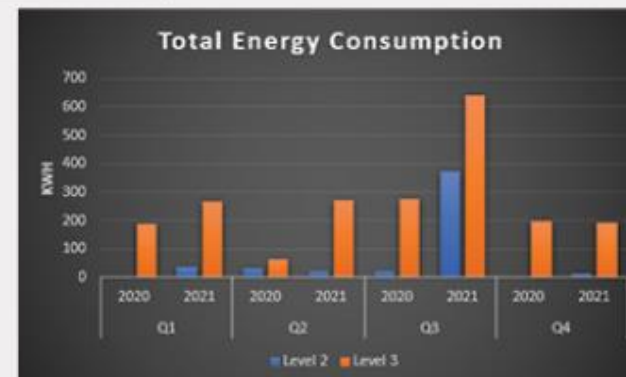


Up 54%
from 2020 to 2021



Up 46%
from 2020 to 2021

Up 131%
from 2020 to 2021



ELECTRIC VEHICLE CHARGERS; LEVEL 1, LEVEL 2, LEVEL 3?



Figure 4- Typical 120 volt plug with an electric vehicle charging adapter. This is considered a Level 1 charger.

LEVEL 1

- ▶ Regular 120 Volt
- ▶ Full charge: 9-12 hrs (5-8 km/hr)
- ▶ Come with EV's
- ▶ Best use: At home



Figure 5 - A 240-volt Level 2 charging station can be installed at home or at work to charge an electric vehicle.

LEVEL 2

- ▶ 240 Volt
- ▶ Full charge: 5-10 hrs (30-90 km/hr)
- ▶ Best Use: At home, workplace, recreation centers, golf courses, etc.



Figure 6 - Level 3 charging station is the fastest method of charging an electric vehicle.

LEVEL 3

- ▶ Higher voltage, 3 phase
- ▶ Full charge: 20-45 mins (Up to 1,600 km/hr)
- ▶ Best Use: Rest stops, quick amenities (parks, restaurants, etc.)

MCCAC EVM CHARGING PROGRAM; WHAT IS IT?

Funding up to 100% of costs for Level 2 & Level 3 Charging Stations on municipally owned landed

Available Funding:

- ▶ Up to 100% of costs to a max of \$10,000 per Level 2 station
- ▶ Up to 100% of costs to a max of \$150,000 per Level 3 station (depending on kW output)
- ▶ \$200,000 available per municipality
- ▶ \$3.4 million in province wide funding

Costs rebated post-completion



MCCAC EVM CHARGING PROGRAM; FUNDING ELIGIBILITY

Eligible for municipal land only.

Eligible expenses:

- ✓ Capital costs for equipment (chargers), sub-panels, transformers downstream of electrical service
- ✓ Install & construction costs
- ✓ Engineering & design costs related to install
- ✓ Permitting expenses
- ✓ Barriers, site signage, parking space painting
- ✓ Electrical service upgrades on case-by-case basis

Ineligible expenses:

- × GST, land, legal
- × Operating/maintenance costs
- × Administration
- × Preliminary site assessment & electrical demand costs

TOWN OF PINCHER CREEK; POTENTIAL LOCATIONS

EXISTING LEVEL 2 & 3 CHARGER (ATCO)

REC CENTER LEVEL 2

CRC CENTER LEVEL 2

PW (PRIVATE) LEVEL 2

MCCAC EV VEHICLES FOR MUNICIPALITIES; FUNDING ELIGIBILITY

Funding for PHEVS (Plug-in hybrid electric vehicles) & EV's up to:

- ▶ 30% for non-road vehicles (utility vehicles, Zamboni, etc.)
 - ▶ Max rebate of \$50,000/vehicle
- ▶ \$7-\$14,000 for light duty vehicles (Toyota Prius, Chevrolet Volt & Bolt, etc.)
 - ▶ Maximum of \$60,000 sale price
- ▶ 30% for medium & heavy duty vehicles (Garbage/loading vehicles)***
 - ▶ Maximum rebate of \$300,000/vehicle

Funding stream also covers leased vehicles funding

Max total funding is \$750,000/municipality

MCCAC EV VEHICLES FOR MUNICIPALITIES; COST COMPARISON

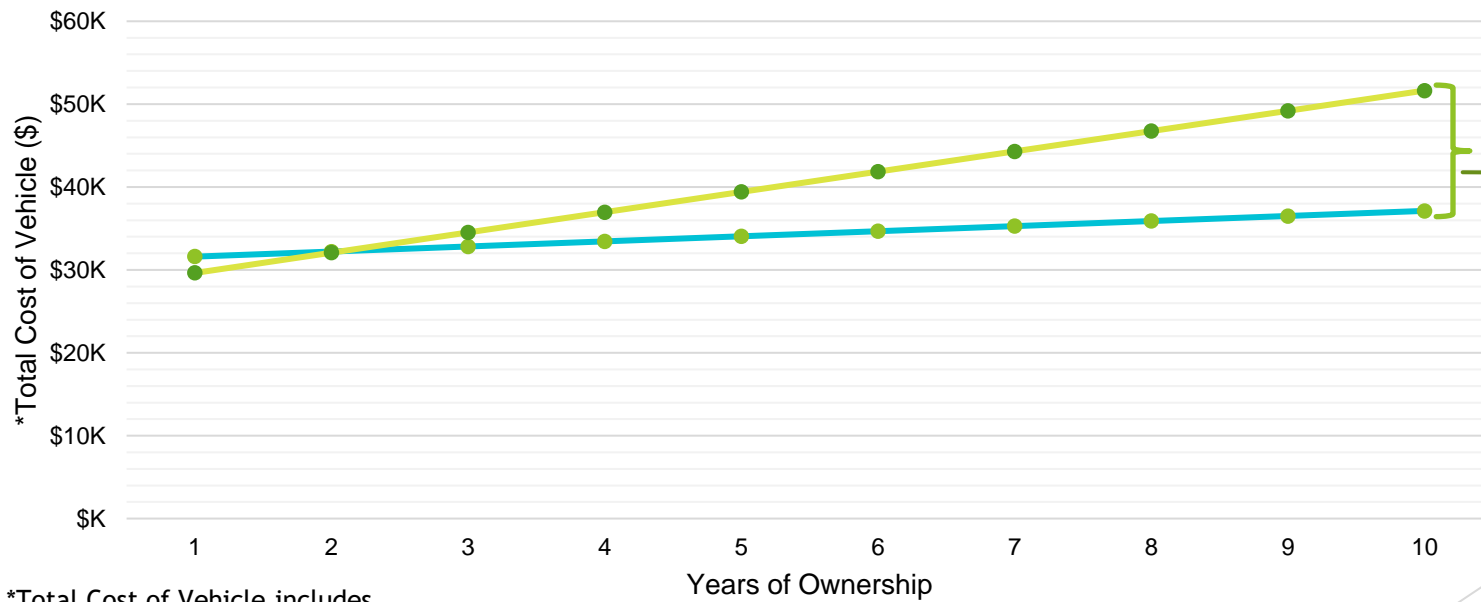


Chevrolet Bolt



Chevrolet Equinox

Lifetime Cost Analysis



*Total Cost of Vehicle includes Purchase, Fuel, and Maintenance Costs

—●— CHEVROLET BOLT EV —●— CHEVROLET EQUINOX

@ 10,000km/yr, \$1.65/L Gas, \$0.10/kW-hr Power:
 10 yr. savings (incl. purchase): ~\$14,000
 Annual fuel savings: \$1,200/yr.
 Est. maint. savings: \$600/yr.
 10 yr. Equinox emissions: 1.9X more

MCCAC EVM CHARGING PROGRAM; PATH TO LAUNCH

Council

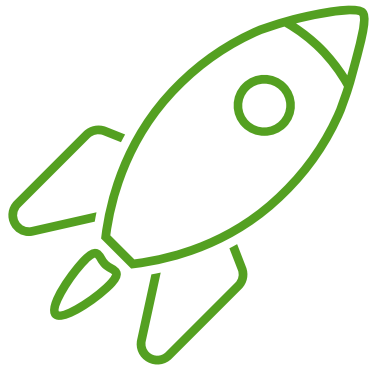
- 1) Review potential sites & provide guidance to move forward

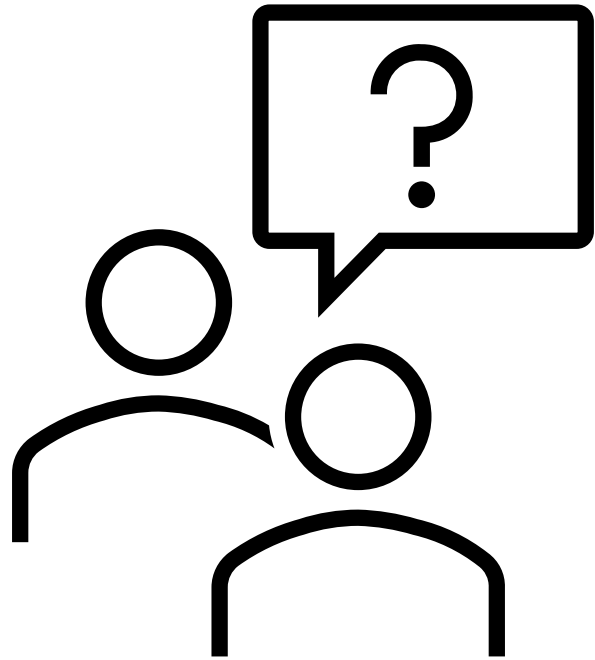
Administration

- 1) Provide guidance on up-front funding allocation
- 2) Sign funding offer letter
- 3) Assist with setting up & management of financials

Municipal Energy Project Lead

- 1) Review fine details of site & equipment selection
- 2) Develop RFQ and bid construction
- 3) Submit application for 100% funding
- 4) Manage contract with awarded bidder
- 5) Apply for & receive rebate





MCCAC EVM CHARGING; QUESTIONS