

PLUG 'N DRIVE

DRIVING OUR CLEAN ENERGY
FUTURE

Clean Air Partnership
September 15, 2017

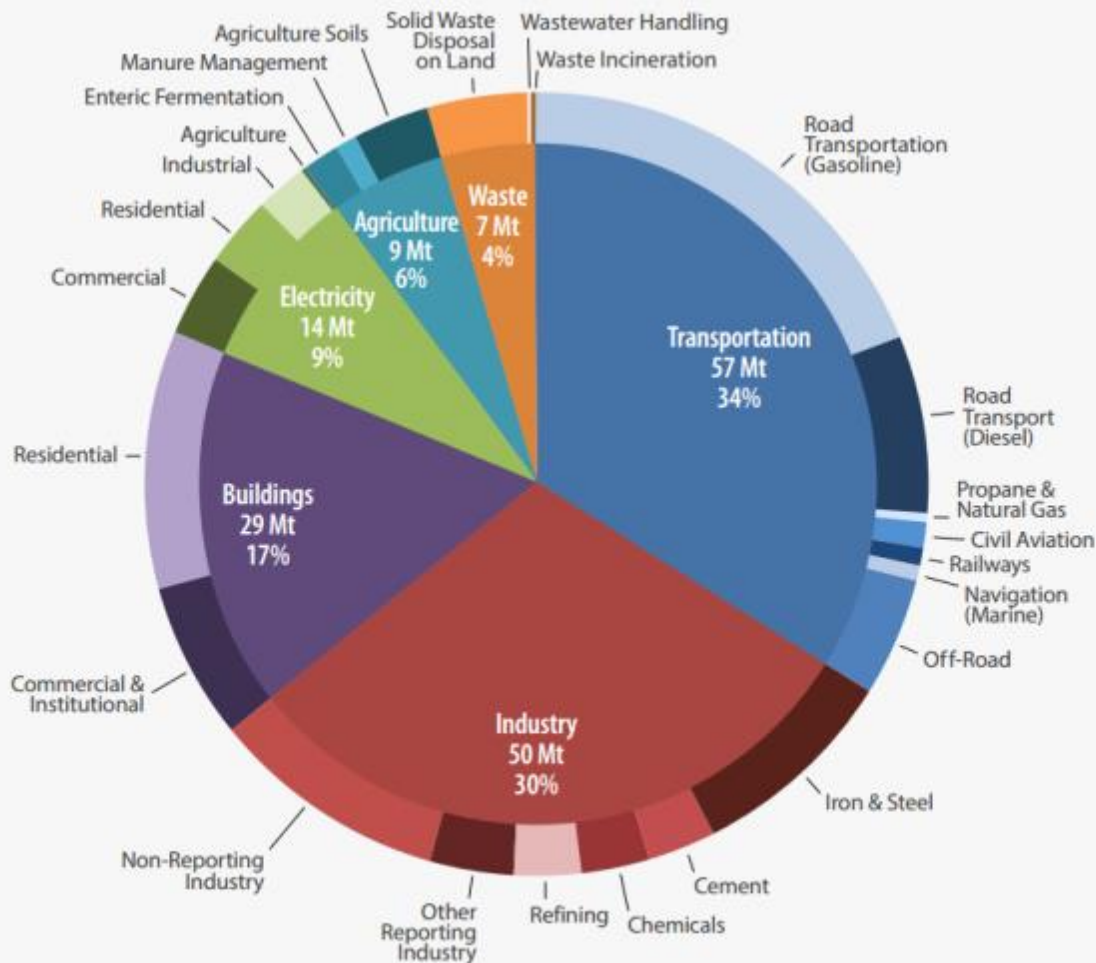


Agenda

1. The EV landscape
2. Range of EVs on the market
3. Benefits/Issues of EV adoption
4. The EV Business Case
5. EVs in the Future



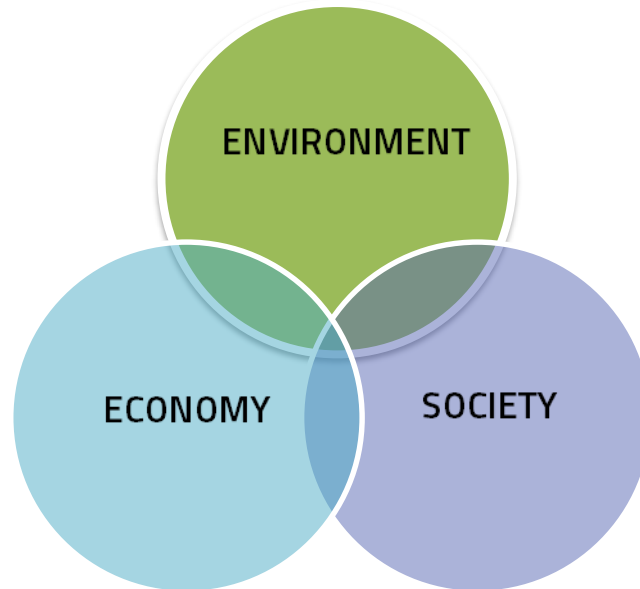
GHG Emissions by Sector



Source: National Inventory Report 2014 (2012 data),
Ontario's Long-Term Energy Plan and Greenhouse Gas Emission Report regulation (O.Reg 452.09) data

Sustainability Winner

- EVs emit 57-96.5% less CO₂ than a gas vehicle
- Driving an EV is ~67-90% cheaper than a gas vehicle
- Electricity is Made Locally
- Charge batteries at night, taking advantage of surplus base-load electricity



Barriers to EV Adoption

Our Goal:

Work with government and industry to increase EV sales to 5% of total market share by 2020. Currently, EVs account for less than 1%.



Significant lack of awareness of EV purchase incentives



Limited knowledge of long-term cost savings



Common misconceptions that EVs lack range, so-called 'range-anxiety'

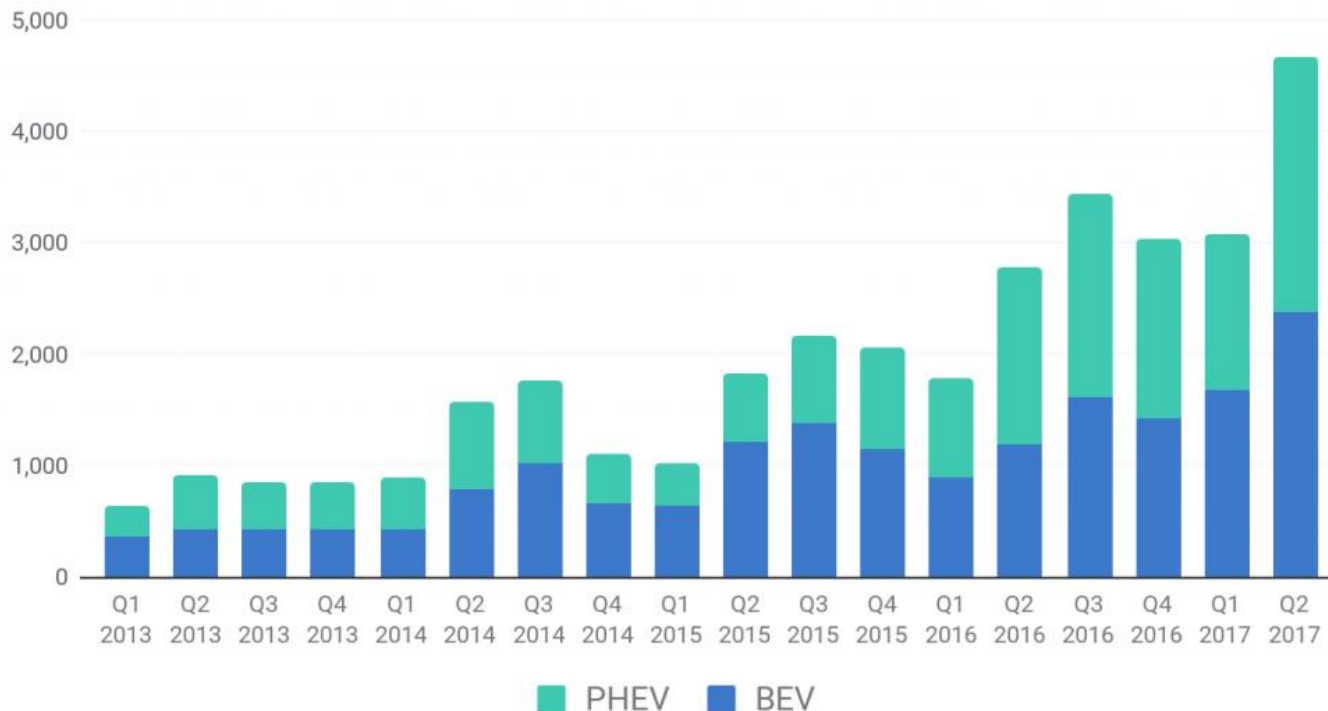


Low awareness of the link between car choice and climate change/GHG emissions

Current Outlook - Canada

- Approximately 37,000 EVs have been sold in Canada.
- Q2 2017 EV sales totaled nearly 5,000.
- Percent of PEV sales is 0.7% on average for Canada, same for Ontario.
- In Q2 Ontario sold more EVs than Quebec for the first time since 2013.
- 40 EV models are now available in Canada.

Quarterly Canadian EV Sales





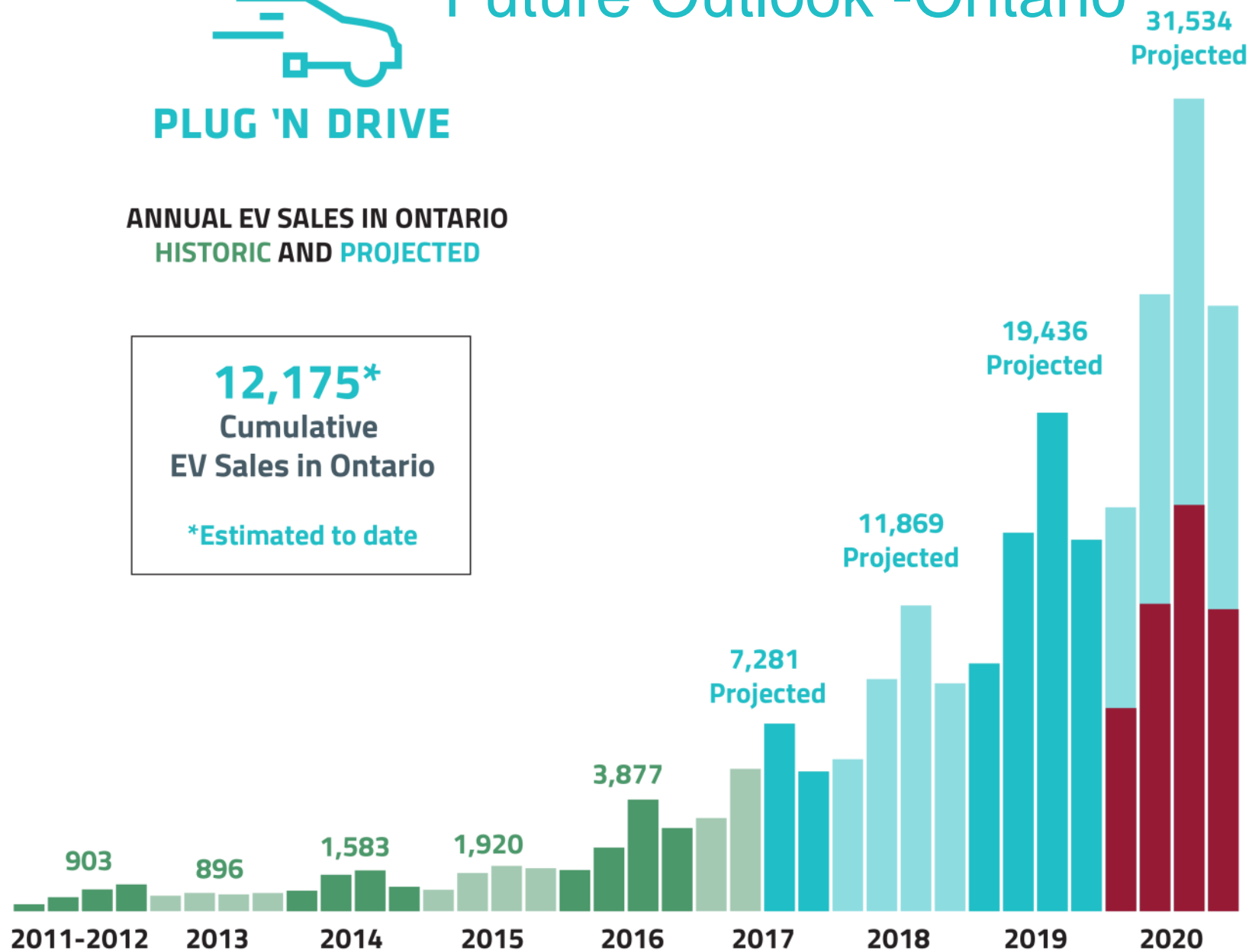
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Future Outlook -Ontario

ANNUAL EV SALES IN ONTARIO HISTORIC AND PROJECTED

12,175*
Cumulative
EV Sales in Ontario

*Estimated to date



**Ontario's Goal
14,161**

5% of all
new-vehicle
sales by 2020

Assuming current EV programs and incentives remain in place

**ASSUMING 63% INCREASE PER YEAR
(NAVIGANT RESEARCH - 2016)**



COST



Focus Electric
\$17,498



Nissan LEAF
\$18,698



Kia Soul Electric
\$21,395



Ford C-Max Energi
33 km Electric + 884 km Gas



Chevrolet VOLT
85 km Electric + 590 km Gas



Chevrolet BOLT
383 km Electric

RANGE



CARGO SPACE



Volvo XC90 PHEV
15.8 cu. ft.



Chrysler Pacifica PHEV
32.3 cu. ft.



Hyundai Sonata PHEV
13.3 cu. ft.



Hyundai IONIQ
4.5 Hours



Volkswagen e-Golf
5 Hours

FULL CHARGE



BMW i3
5 Hours



Benefits to Fleet Operators

VARIABLE COST SAVINGS

\$1,900 average annual fuel savings

Based on 20,000 km/year, \$1.05/litre of gasoline and off-peak electricity prices (on-peak = \$1,600 average annual savings)

Low to no maintenance costs

Fully electric cars do not have transmissions or exhaust systems and do not require oil changes

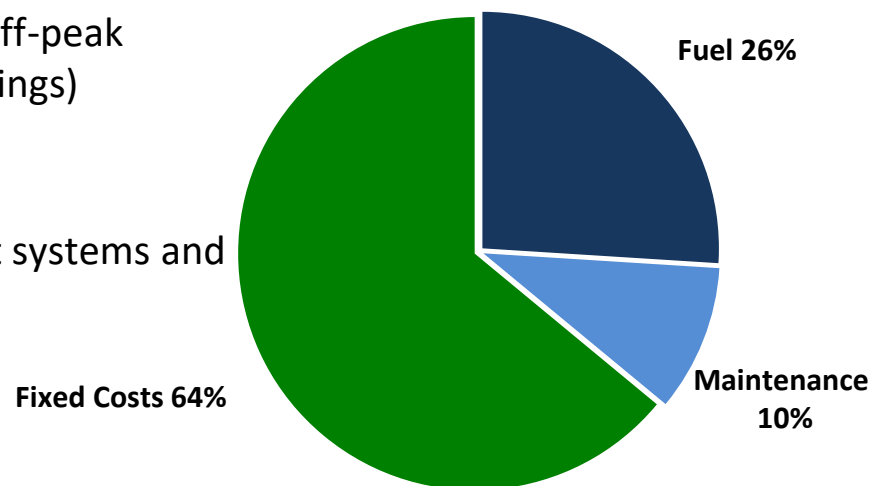
FIXED COST SAVINGS

Insurance reductions of up to 5%

(based on provider)

Upfront Purchase Price Reductions of up to \$14,000

[Ontario's Electric Vehicle Incentive Program](#) (Min. 36 Month Lease)





Benefits to Fleet Operators

CHARGING STATION BENEFITS

Install public charging at corporate office:

LEED Certification, Employee Recruitment/Retention, Brand Image

Access to [Green Infrastructure Fund](#)

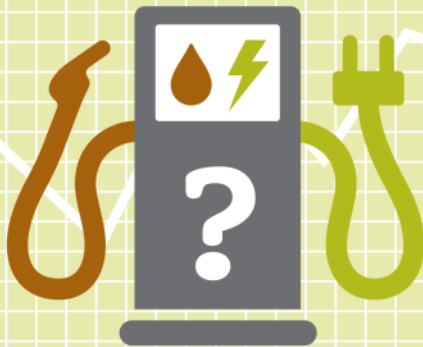
ENVIRONMENTAL BENEFITS

EVs lower emissions by up to 90%, helping your company meet its sustainability goals





Business Case for Electric Vehicle Use in Service Vehicle Fleets



FINAL REPORT ON PROJECT EVAN (ELECTRIC VEHICLE ANALYSIS)

JUNE 2013

Data logging

**3 Gas Cars
Vs.
3 Electric Cars**

Electric Cars Win!

Lower Cost to Maintain
Produce 21x less CO₂ Emissions
Payback in a Few Years

BUT

EVs Depreciate Faster

Early adopters pay the price for new technology and R&D

Incentives can offset the purchase price

Limited Access to Public Charging

The Province is investing

\$20 million EVCO program resulted in 500 new public charging stations this year, with another 500 scheduled next year

No workplace charging incentives exist

Plug'n Drive is advocating for workplace charging rebates.

Also, municipal tax offsets could encourage malls and other large properties to install.

Limited opportunities to test drive electric cars

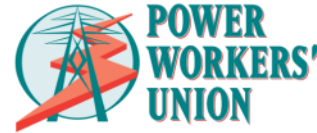
The EVDC is a one-stop-shop

For education and experiential learning where visitors can test drive a number of electric vehicle makes and models



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EV Headlines – Reasons for Optimism



Quebec implements ZEV mandate

United Kingdom to ban diesel and gas cars by 2040

Volvo to Electrify All New Models from 2019 On

Japan now has more charging stations than gas stations

Shell CEO to make his next car electric

Electric car sales reach 40% increase in the U.S.

The Chevrolet Bolt and Tesla Model 3 to push electric cars into the mainstream



Thank You!



Dav Cvitkovic
dav@plugndrive.ca

647-717-6941

plugndrive.ca