





# HEAT EAT GROW GO

**LOCAL SOLUTIONS TO CARBON POLLUTION**

## Are you EV ready?

By: Steve Lapp

[Carbontakedown.com](http://Carbontakedown.com)

A blue Chevrolet Bolt EV is parked at an ivy Charging Network station. The car is viewed from the rear passenger side. The charging station is white and blue with the ivy logo. The background shows a brick building and trees under a blue sky with clouds.

**Electric Vehicles:**

**An Essential Part of  
Ontario's  
Low Carbon Future**

# 15 Minutes

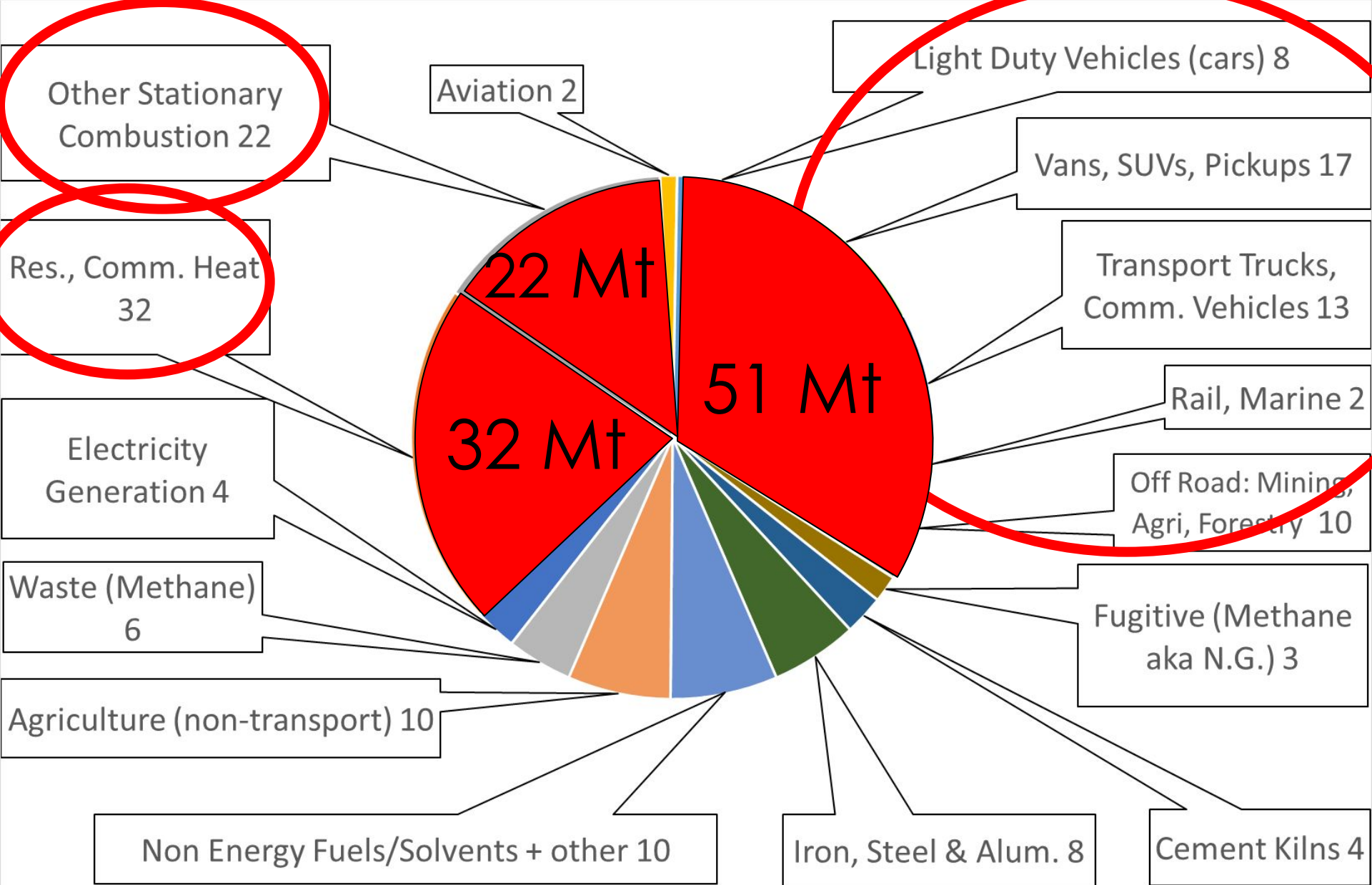
- Ontario's GHG Emissions

## EVs

- Plenty of EV options
- Keeping things in perspective
- “Mythinformation”

Your Questions

# Ontario GHG Emissions

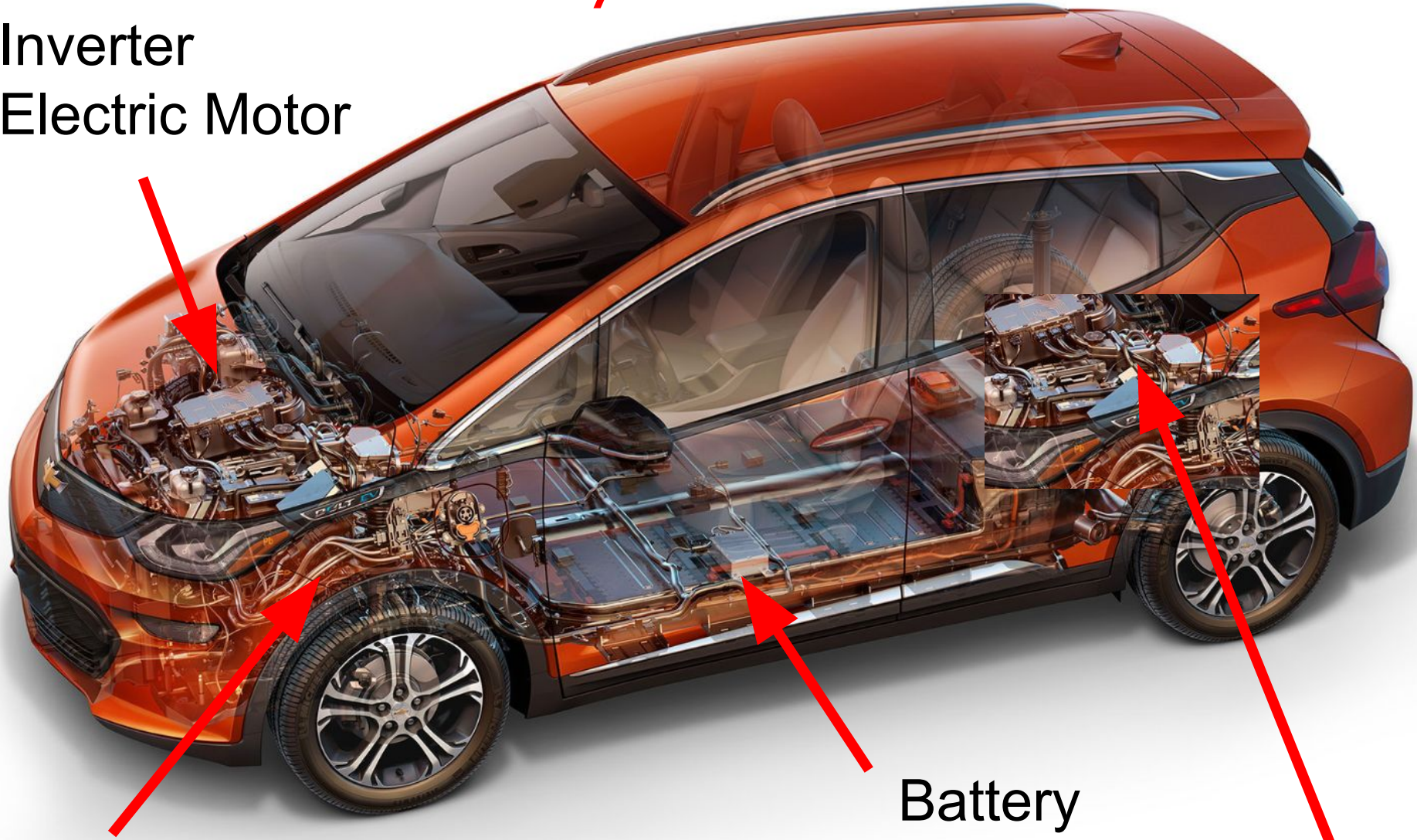


# Ontario 2021 - 151 Mt GHG

What makes an  
EV an EV?

# BEV – Battery Electric Vehicle

Inverter  
Electric Motor



Battery

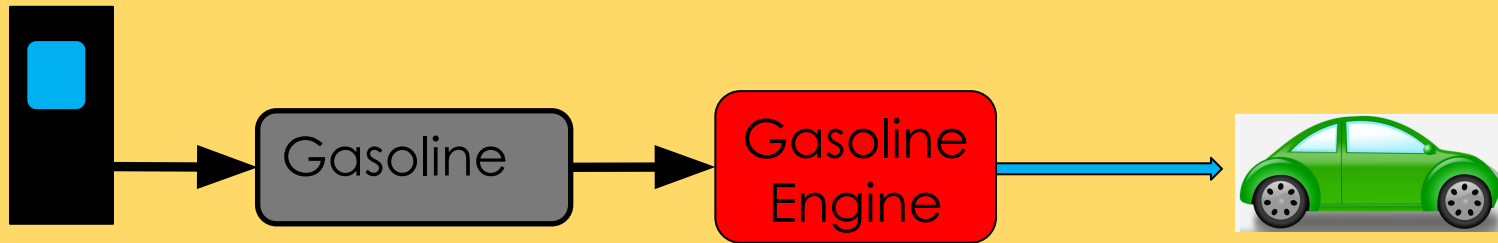
Reducing gears and differential

4 Wheel Drive – add a motor



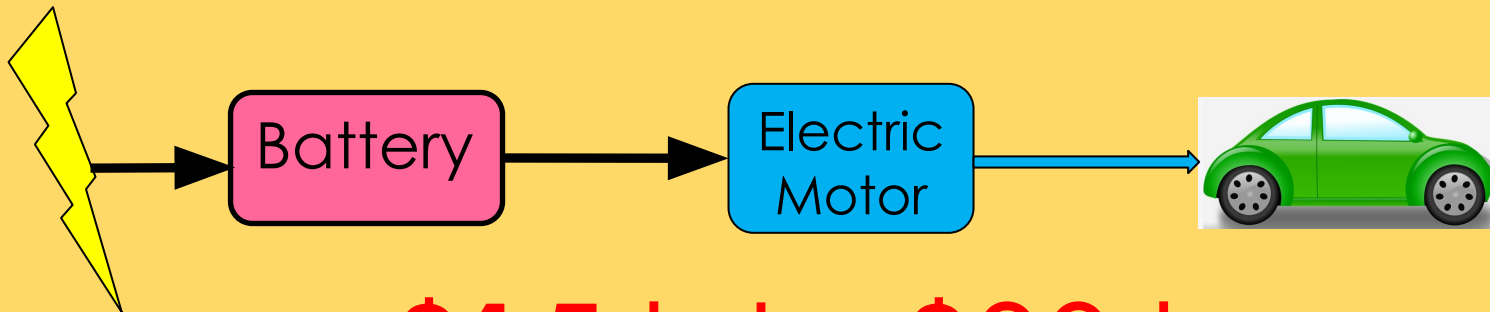
Operating Cost?

10 litres to go 100 km costs **\$13 - \$16**



# At Home Charging

EV requires 20 kWh to go 100 km, costing **\$0.56 - \$5.72**



**\$15 k to \$30 k**

**Savings over 200,000 km**

Is there an  
EV for you?

\$250

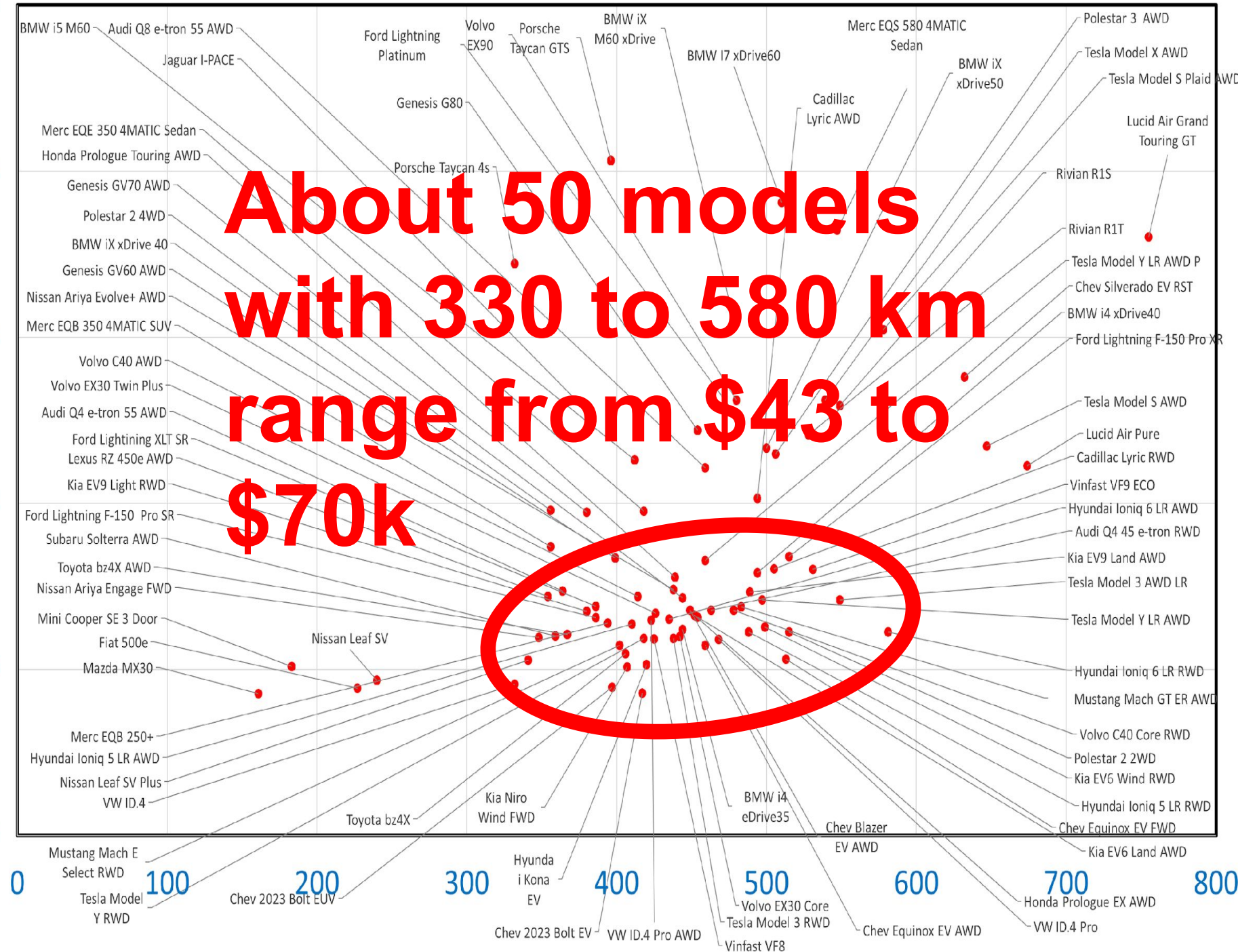
\$200

\$150

\$100

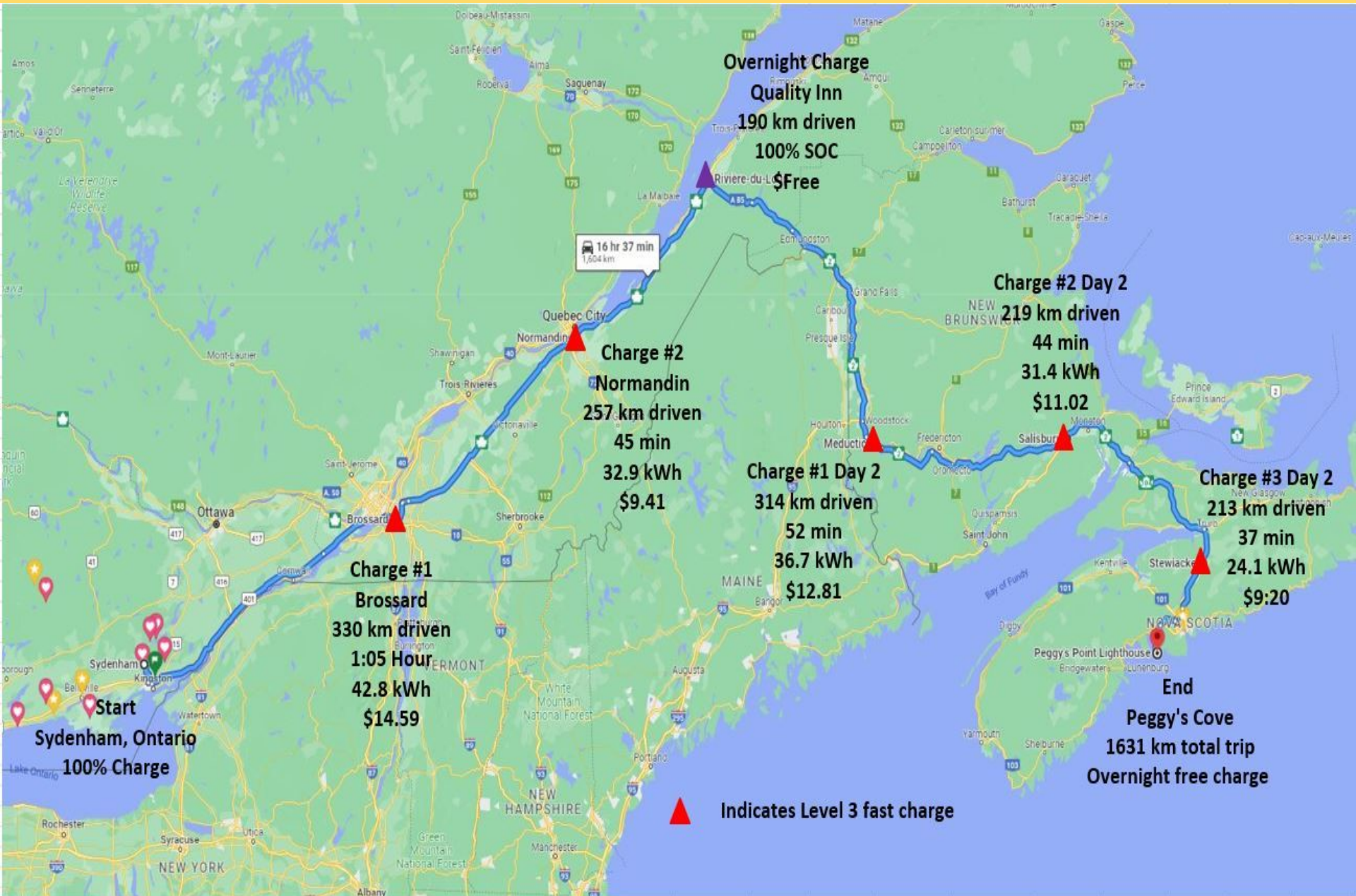
\$50

\$0



# Long Distances?

- Generally long distance trips are repeats – you get to know the spots to charge
- The number of charging apps needed is indeed not ideal, but workable. Not always being able to pay by credit card is annoying, but workable if you use a smart phone.
- Cost is about the same as driving a hybrid sedan.



**Overnight Charge**  
Quality Inn  
190 km driven  
100% SOC  
\$Free

**Charge #2 Day 2**  
219 km driven  
44 min  
31.4 kWh  
\$11.02

**Charge #1 Day 2**  
314 km driven  
52 min  
36.7 kWh  
\$12.81

**Charge #3 Day 2**  
213 km driven  
37 min  
24.1 kWh  
\$9:20

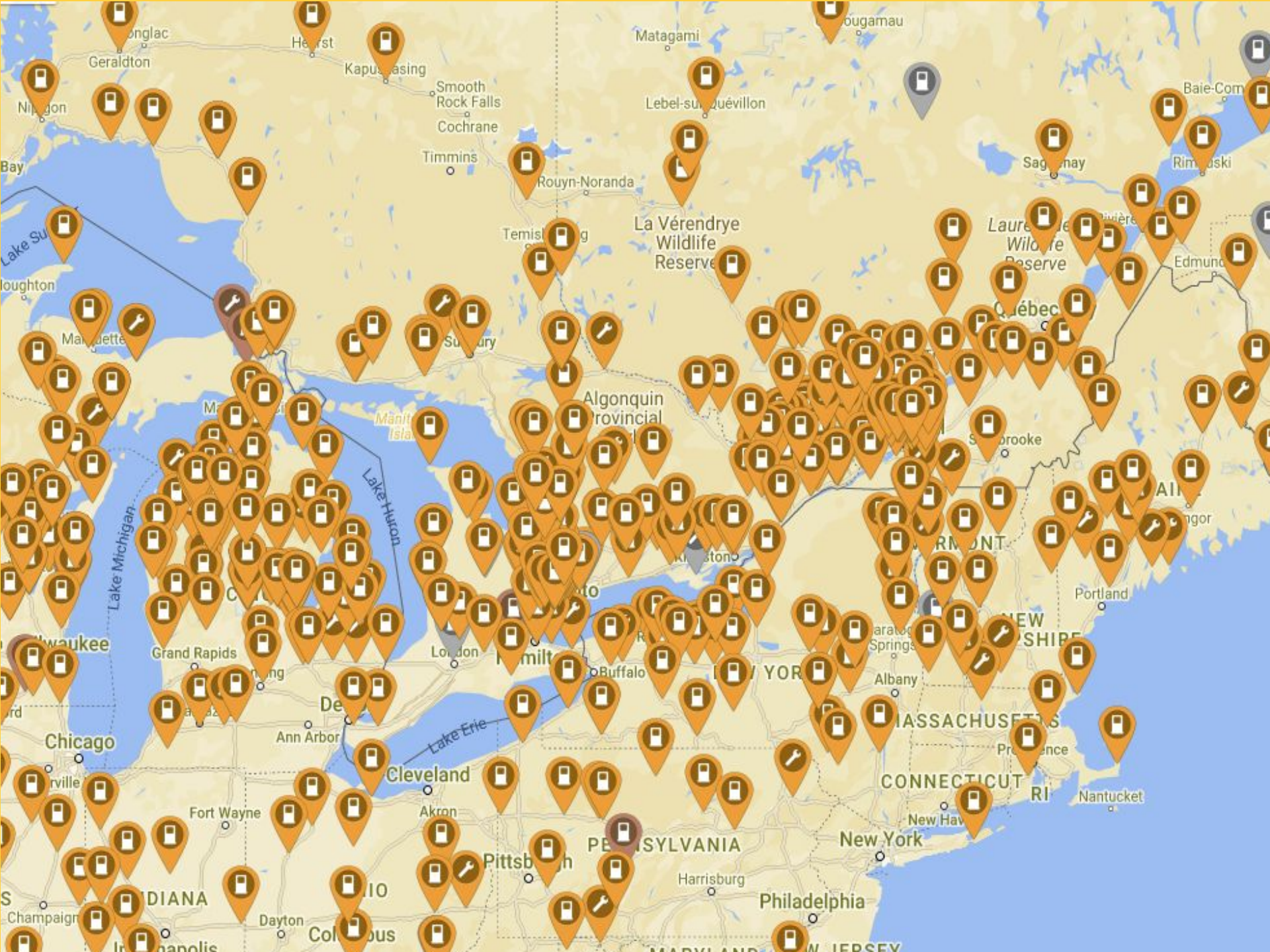
**Charge #2**  
Normandin  
257 km driven  
45 min  
32.9 kWh  
\$9.41

**Charge #1**  
Brossard  
330 km driven  
1:05 Hour  
42.8 kWh  
\$14.59

16 hr 37 min  
1,604 km

▲ Indicates Level 3 fast charge

**End**  
Peggy's Cove  
1631 km total trip  
Overnight free charge



Mythinformation



# EV Sales Plummeting?

FORD

## Ford dramatically scales back EV plant amid plummeting sales in blow to Biden's green energy goals

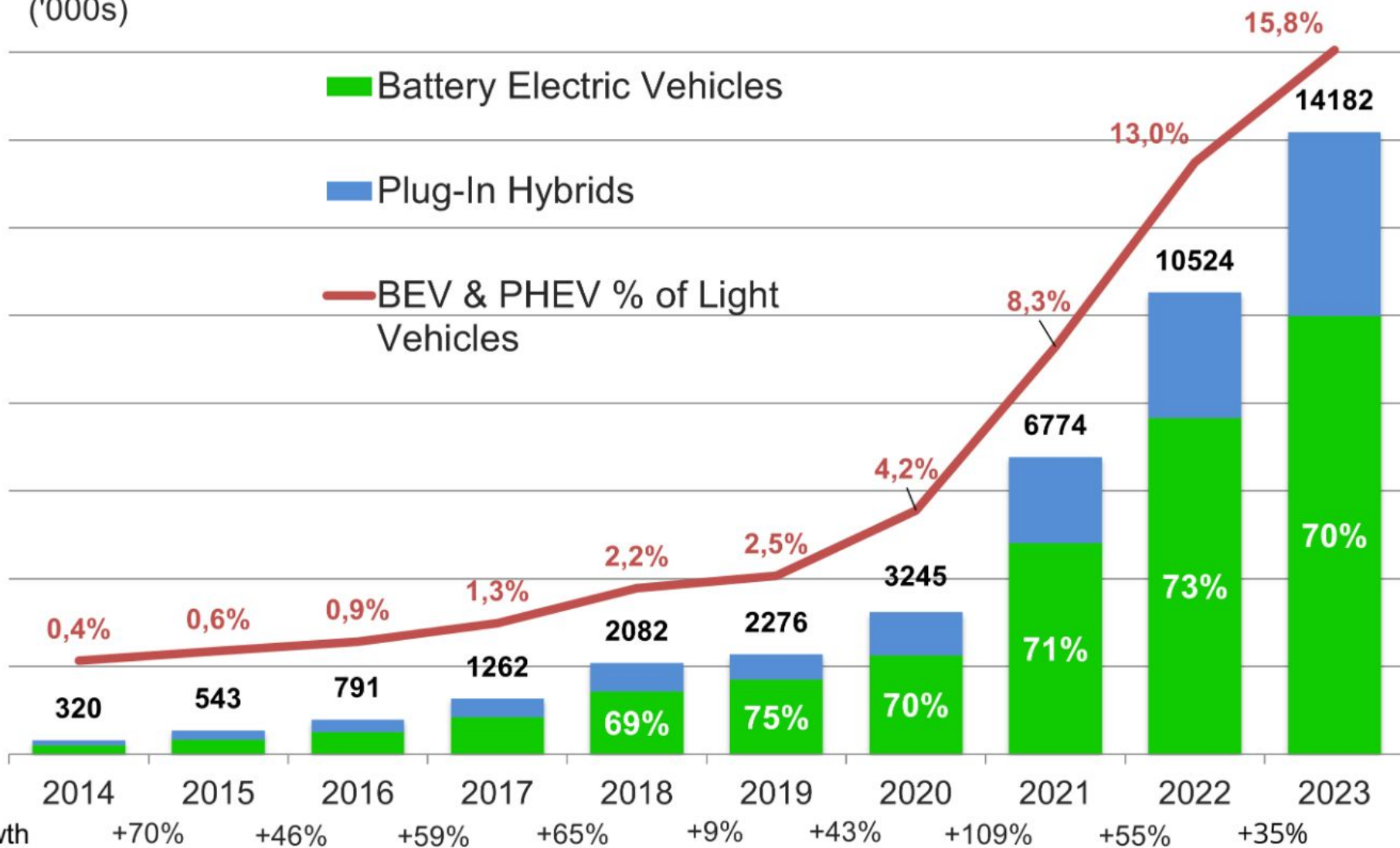
'This deal was a disaster from the start,' top Michigan Republican says



By Thomas Catenacci · Fox News

Published November 21, 2023 12:42pm EST

('000s)



# Global EV (BEV) and PHEV Sales

EVs Will crash the  
Grid!

- Quick fact: 1 Million EVs in Ontario will increase electricity demand by about 2.5%
- 10,000,000 EVs will be about 5-10% of our 2050 electricity needs

Will my  
EV battery fail?

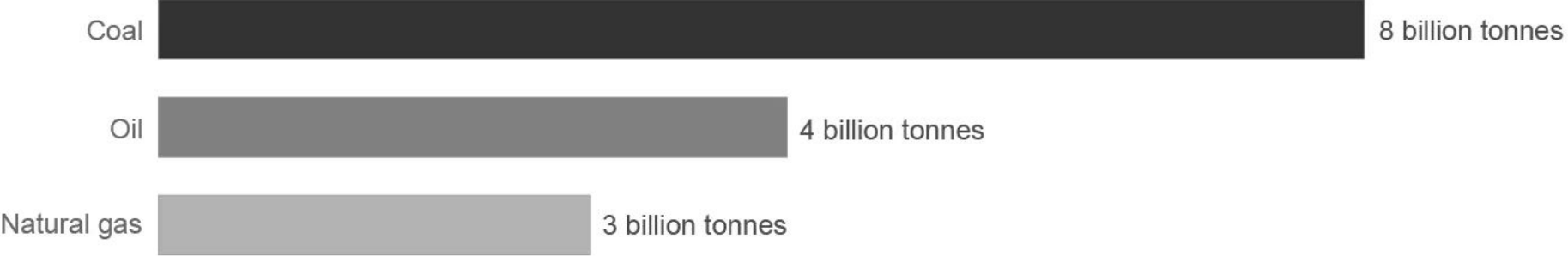
- In a 2013 UK study of 36 automakers by a aftermarket warranty supplier, ICE engine failure rates were 0.29% to 7.88%
- Outside of recalls, 1.5% of EVs in a study of 15,0000 EVs have had battery replacements. The majority under warranty.

# Manufacturing

# Mining quantities for low-carbon energy are just a fraction of what we mine for fossil fuels

## Fossil fuel production in 2019

The world mines an equivalent of 15 billion tonnes of fossil fuels every year.



## Mineral mining for low-carbon energy\*

The world mines 7 million tonnes of minerals for all low-carbon tech. In the IEA's Sustainable Development Scenario, which is a rapid deployment of clean energy, this will be 28 million tonnes in 2040.



\*The total mineral production for solar, wind energy, geothermal, hydropower, electric vehicles, battery storage, nuclear, and grid networks.  
Data sources: International Energy Agency (IEA); US Energy Information Administration (EIA); BP. Author: Hannah Ritchie.

# Impact?

Slide thanks to



# Front of Mind

- Continued use of fossil fuels untenable. Human suffering, extinctions and costs - **unacceptable**.
- The solutions are not perfect.
- “Mythinformation” can stop us from taking a better path.
  - Very low operating costs
  - EVs do reduce GHG emissions - Manuf./Use
  - There are enough minerals
  - You can travel long distances
  - Batteries have long lives



**Thank You  
for Your Attention**

**Questions?**

Steve Lapp

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