

# JOURNEY TOWARDS AN ELECTRIFIED FLEET

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Tyler Seed / Ontario Power Generation / 11.20.18

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# What We'll Cover Today

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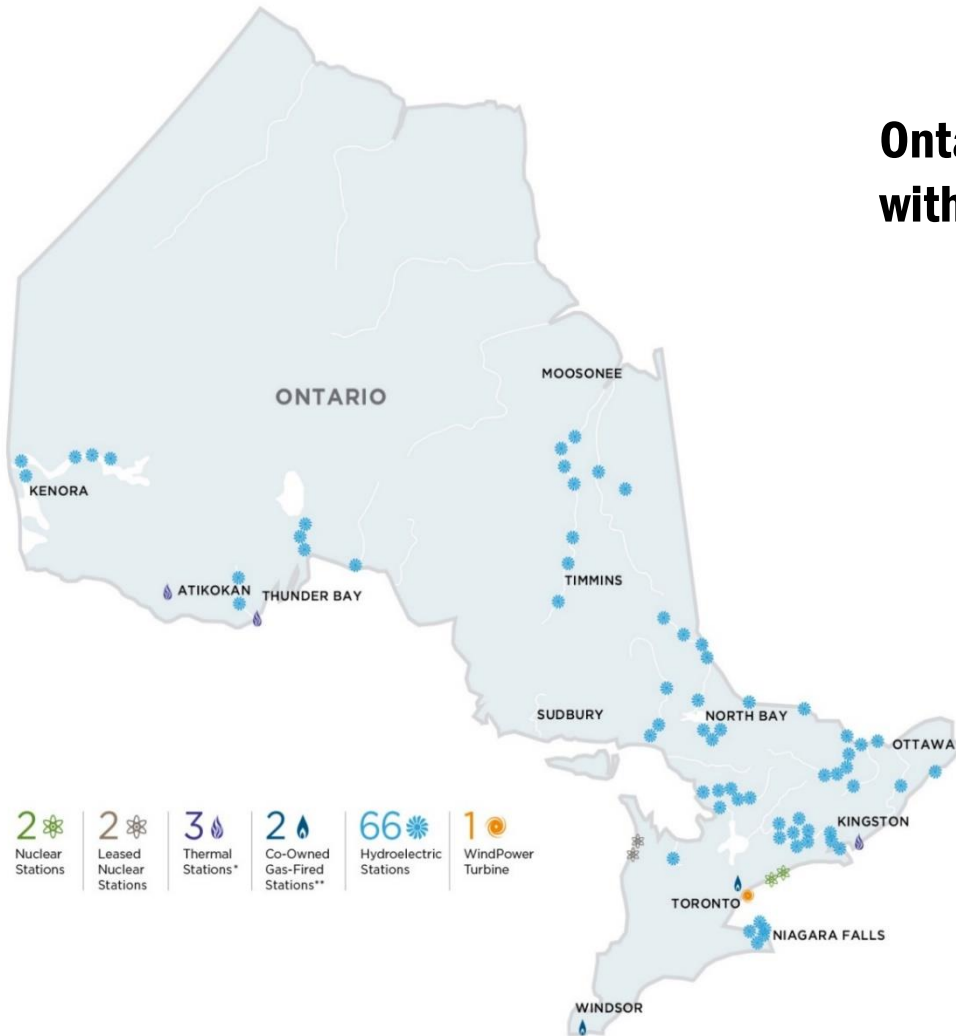
- I. OPG and Efficient Electrification
  - Who is OPG?
  - Emissions and fuel use
  - OPG's Electrification Program
- II. Fleet Electrification
  - Progress
  - Results
  - Lessons
- III. Opportunities to Collaborate



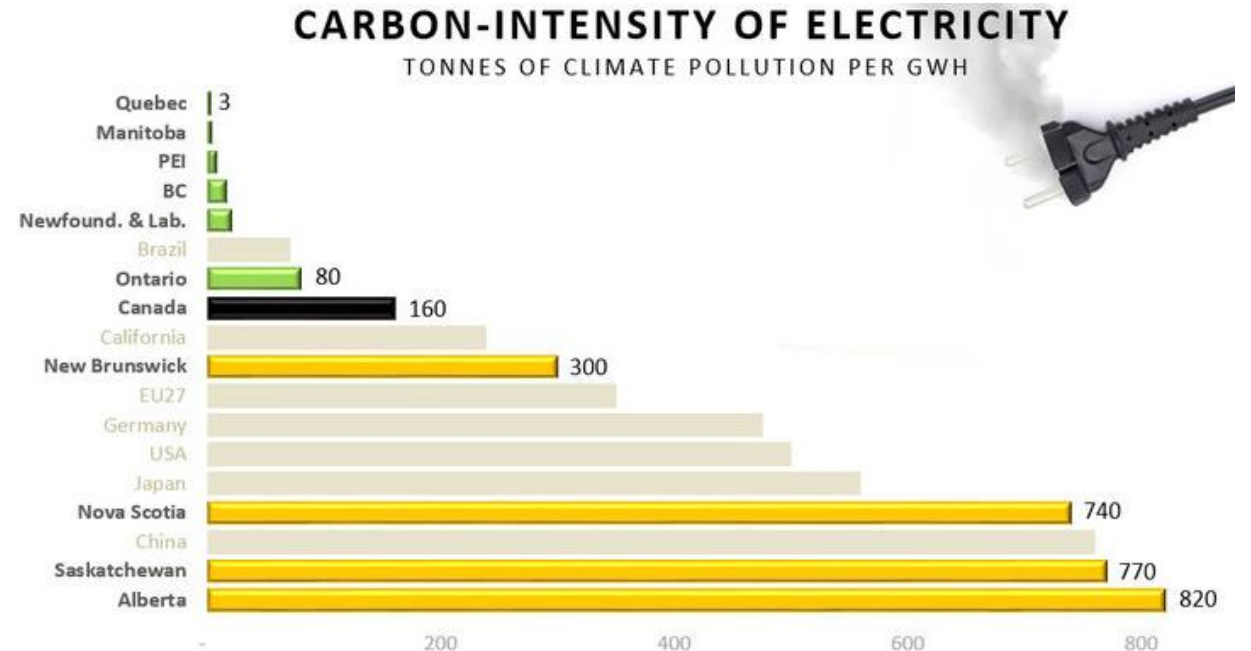
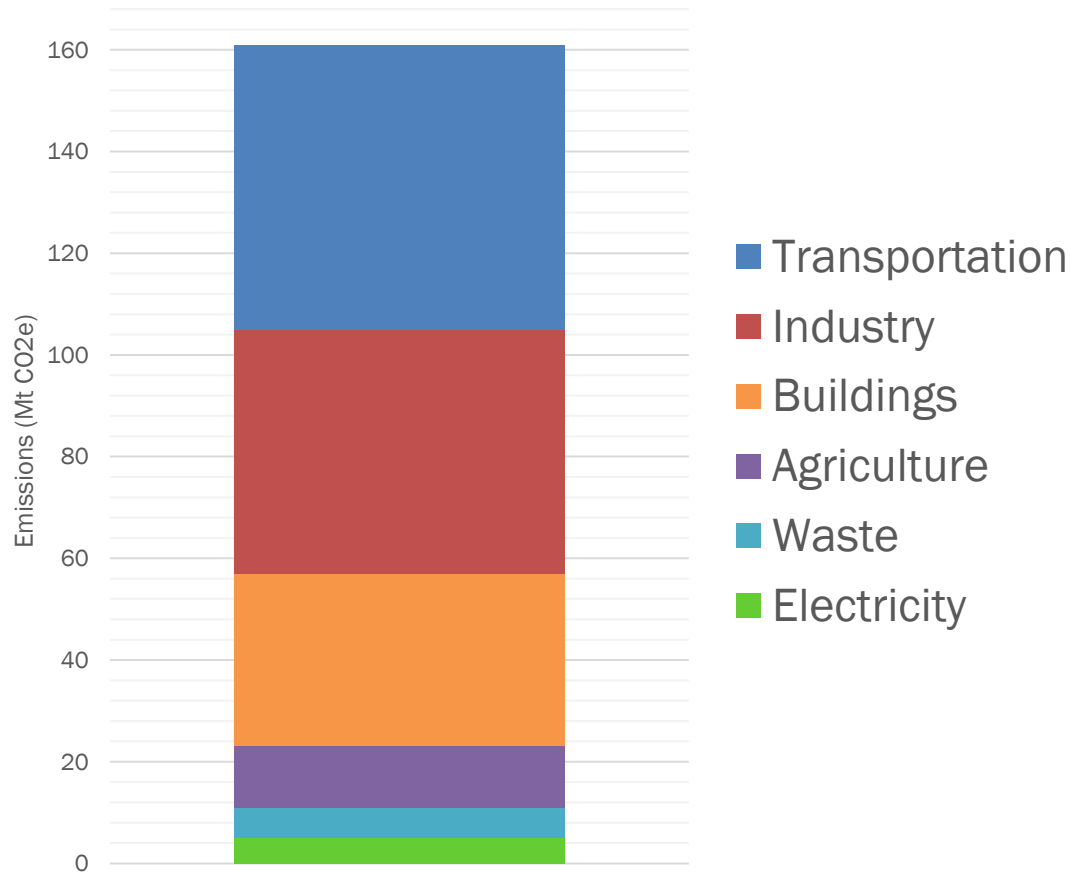
# Who we are

**Ontario's largest and lowest cost electricity producer, with a dual commercial and public service mandate:**

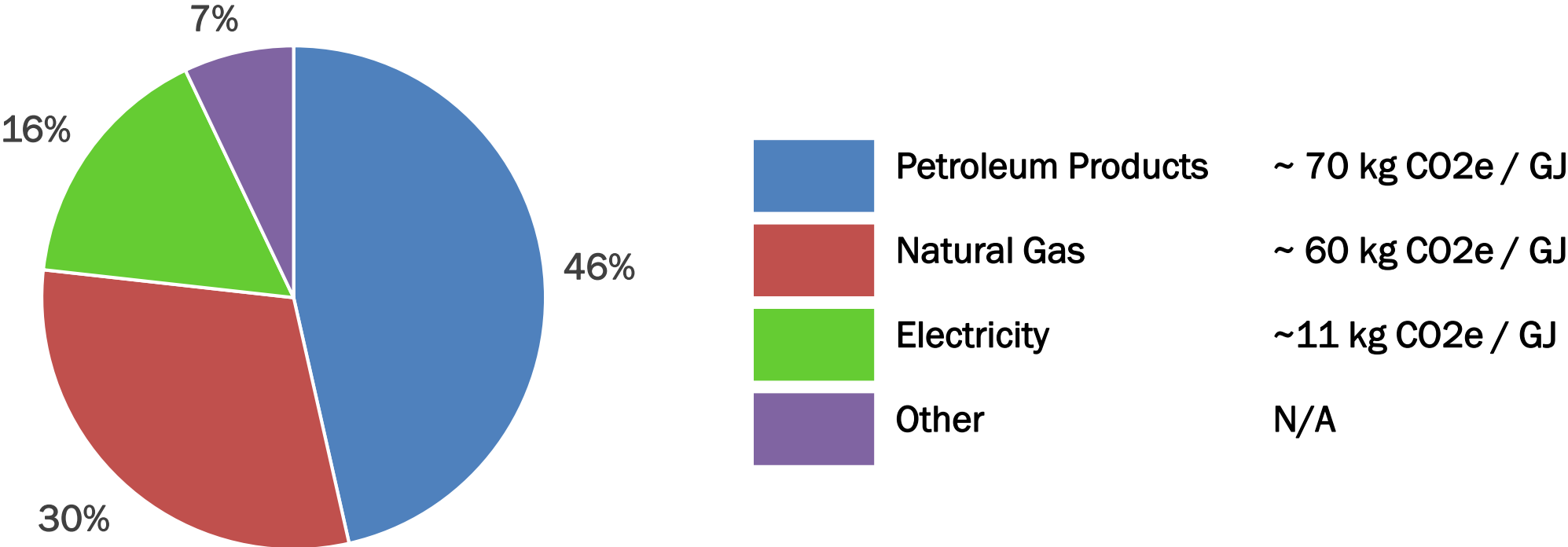
- *We provide 50% of Ontario's electricity*
- *Our power is 40% lower cost than other generators*
- *The power we produce is 99% free of GHG emissions*



# Ontario's GHG Emissions by Sector



# Ontario's Fuel End-Use by Type



# **Electrification Program Goals**

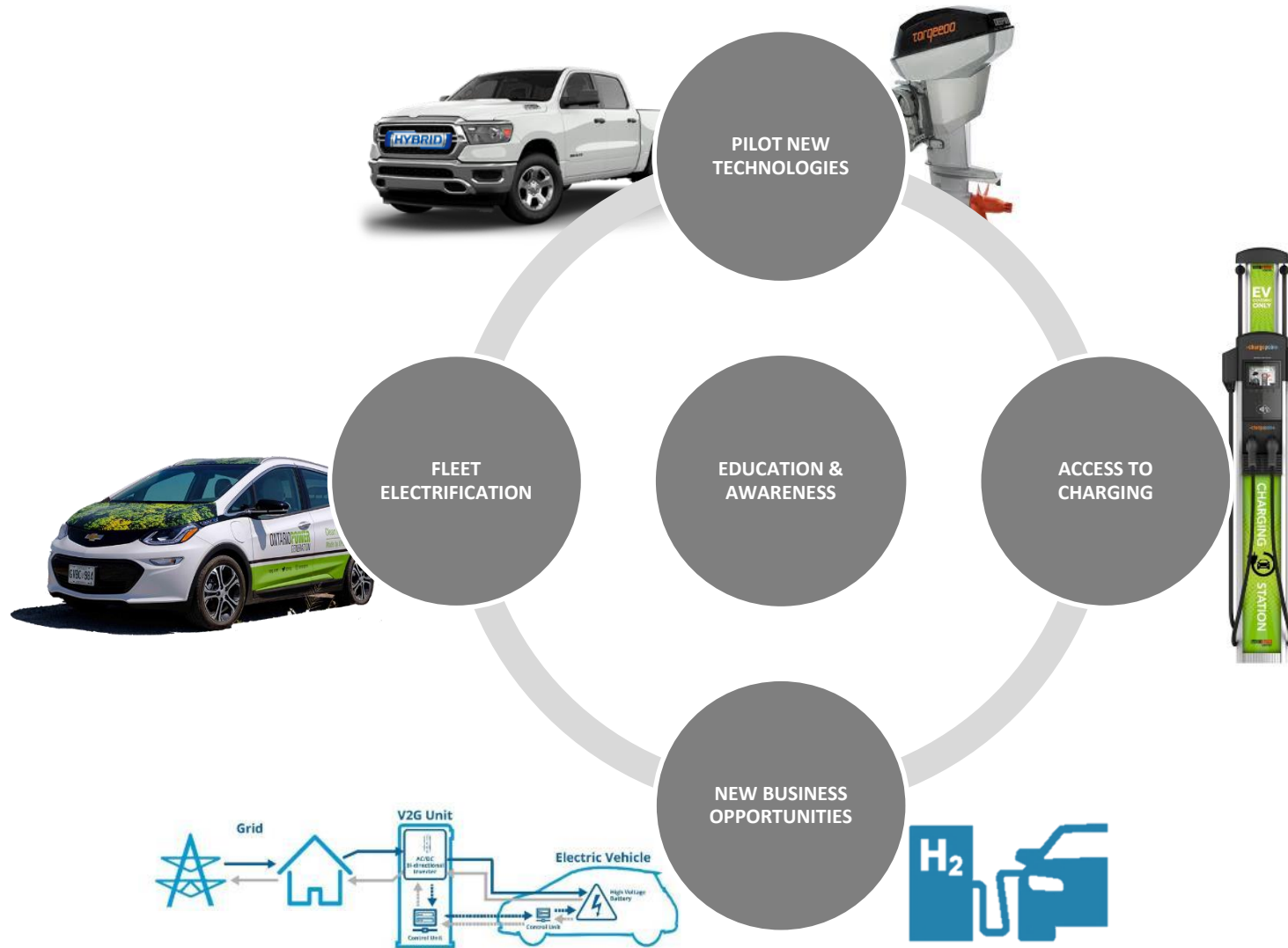
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**Leverage OPG's clean electricity to support the electrification of transportation.**

**Maximize the use of existing clean generation investments with increased electricity demand.**

**Create new commercial growth opportunities for OPG.**

# Electrification Program Activities





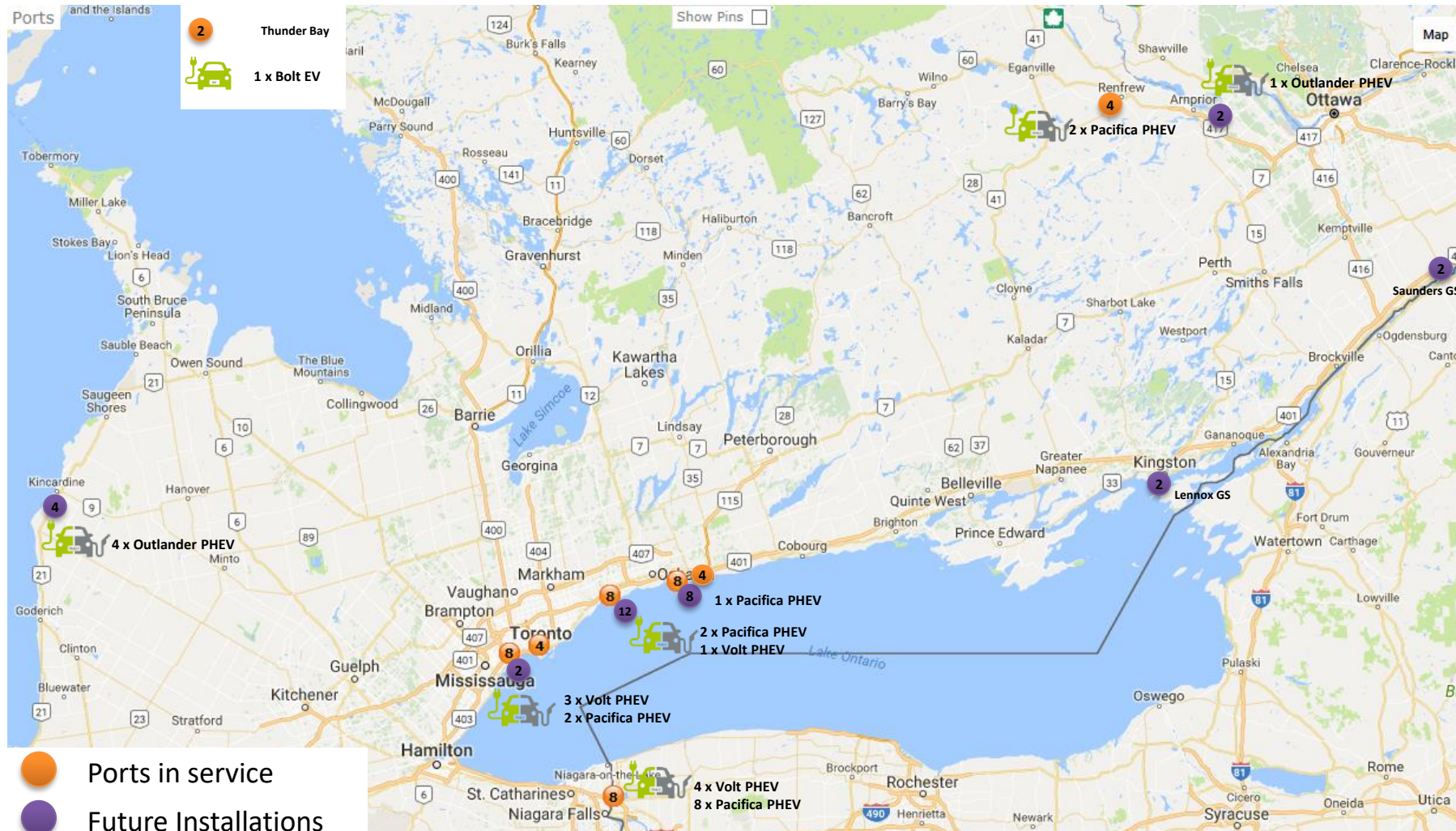
# Fleet Electrification



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# OPG EVs and Charging Network



# Fleet Electrification Status Update

## FLEET ELECTRIFICATION

**29** electric fleet vehicles

### YTD stats



**4.3 MWh** consumed  
(1 MWh in October)



**2049 L** of gasoline saved  
(489 L in October)



**4540 kg** of GHGs saved, or the equivalent of **116 trees** growing for 10 years  
(1083 kg in October)



**34,668 km** travelled - the distance over halfway around the Earth!  
(8,273 km in October)

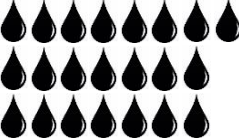
## WORKPLACE CHARGING & EMPLOYEE EVs

**52** chargers installed

### YTD stats



**23 MWh** consumed  
(3.5 MWh in October)



**10,946 L** of gasoline saved  
(1694 L in October)



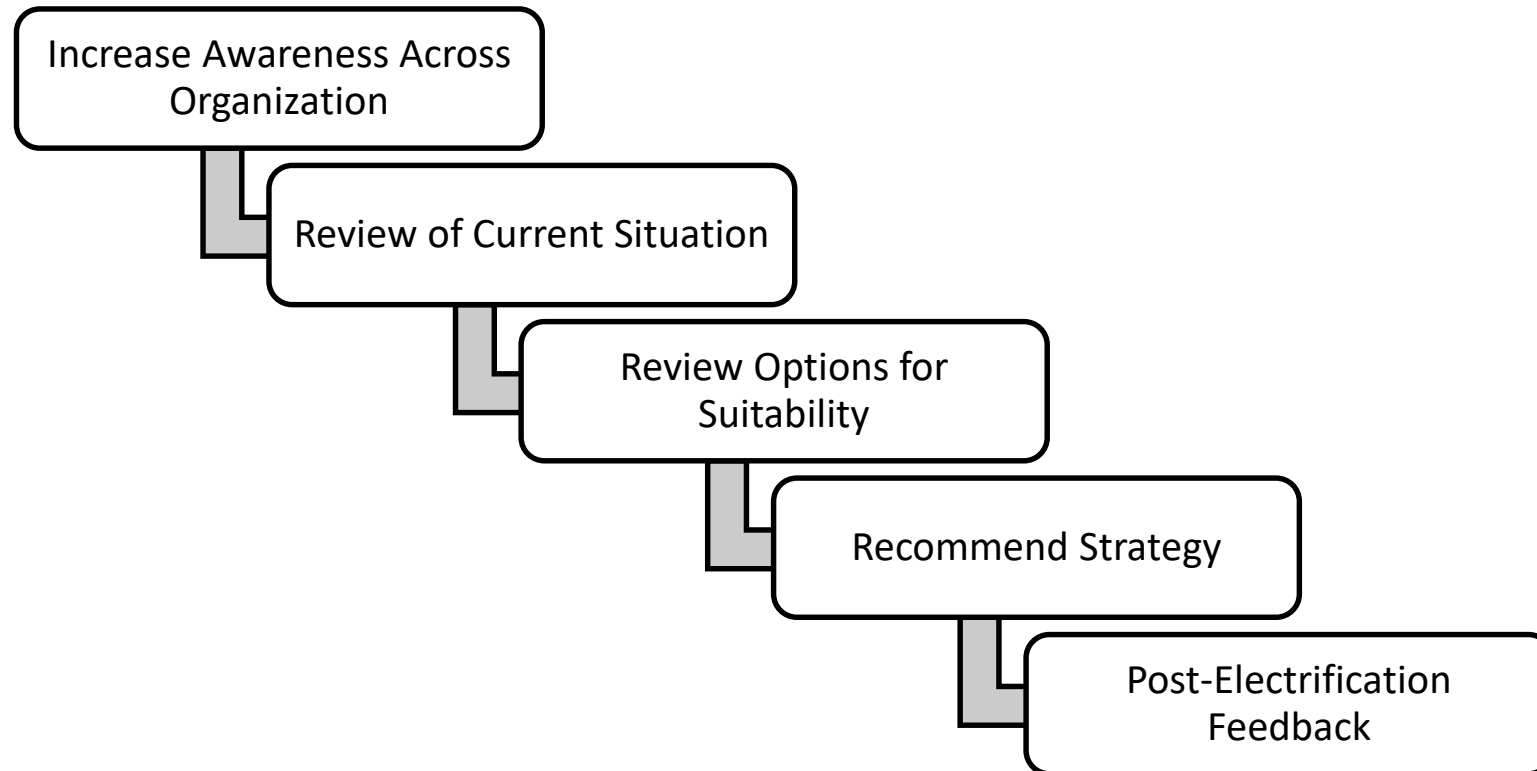
**24,256 kg** of GHGs saved, or the equivalent of **622 trees** growing for 10 years  
(3755 kg in October)



**185,217 km** travelled!  
(28,670 km in October)



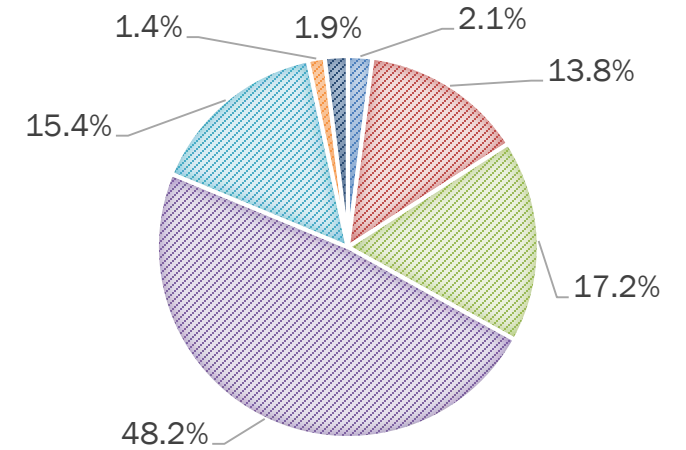
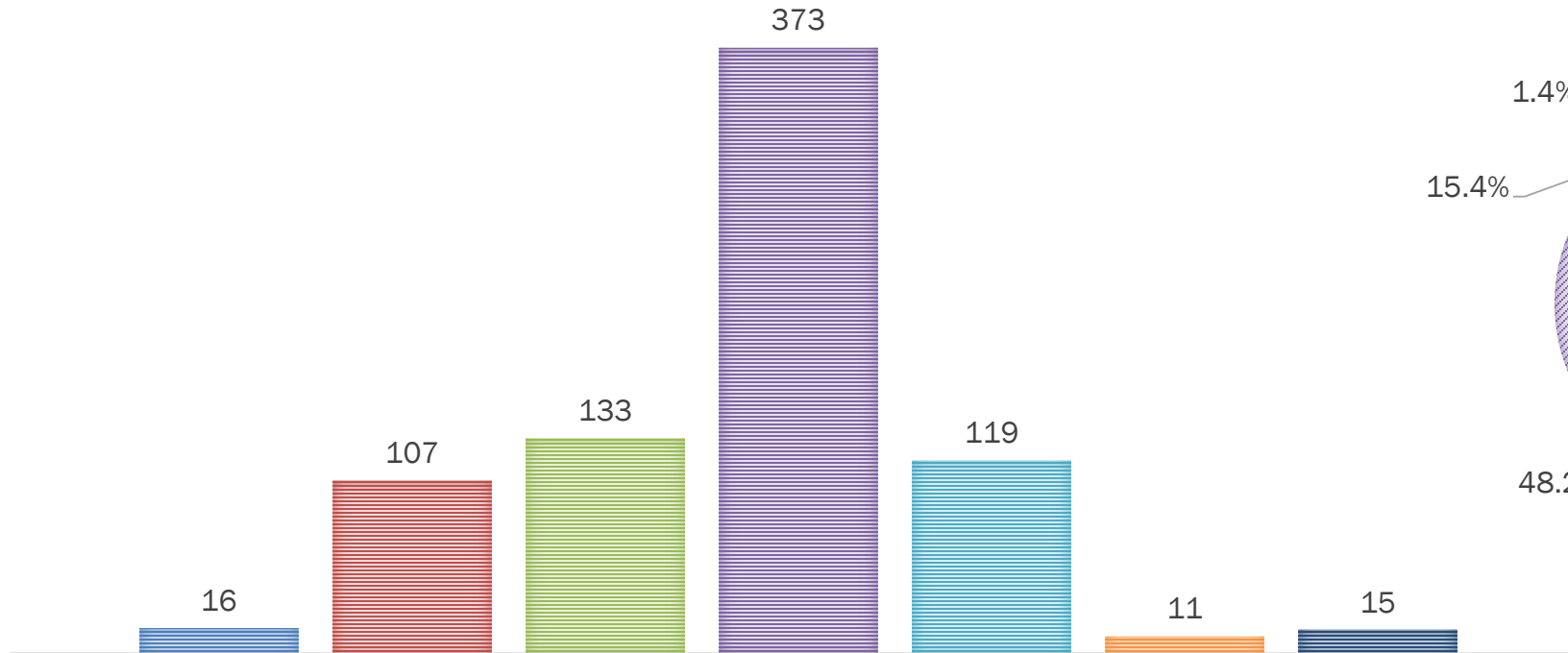
# Our Process





# Fleet Overview

■ Car ■ SUV ■ Van ■ LD Truck ■ HD Truck ■ Boat ■ ATV/RTV



# Progress at OPG: Cars

## Status

- 9 are already EVs – Chevrolet Volts and a Bolt

## Opportunities

- Many EV options available in market
- Building out the infrastructure

## Challenges

- Availability of charging stations
- Vehicle renewal cycle

16 CARS



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# Progress at OPG: SUVs

## Status

- 14 Outlander PHEVs in service, 3 on order

## Opportunities

- Higher ICE base vehicle price-point allows EV option to be more cost-competitive

## Challenges

- Lack of EV options

107 SUVs



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# Progress at OPG: Pickup Trucks

## Status

- Pending pick-up truck trial pilot

## Opportunities

- Largest percentage of vehicle in OPG
- Highest GHG emitting

## Challenges

- Lack of EV options
- Retrofits not available for Dodge RAM products

373 Trucks



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# Charging Lessons

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- *EVSE hardware and networks not interchangeable*
- *Importance of understanding your building's electrical service limitations*
- *Dispersed parking of existing fleet vehicles vs. centralized area for charging EVs*
- *The importance of stakeholdering. Ex. Parking spot assignments may involve approvals and coordination between multiple departments*

# Sample Pushback from Stakeholders

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“While I am excited about electric vehicles personally, I do not think they are a fit for my business unit.”

“I don’t think the technology is mature enough. We’re jumping into it too early.”

“I am interested in trying electric vehicles in my business unit, but I do not want to be forced to commit to a new technology.”







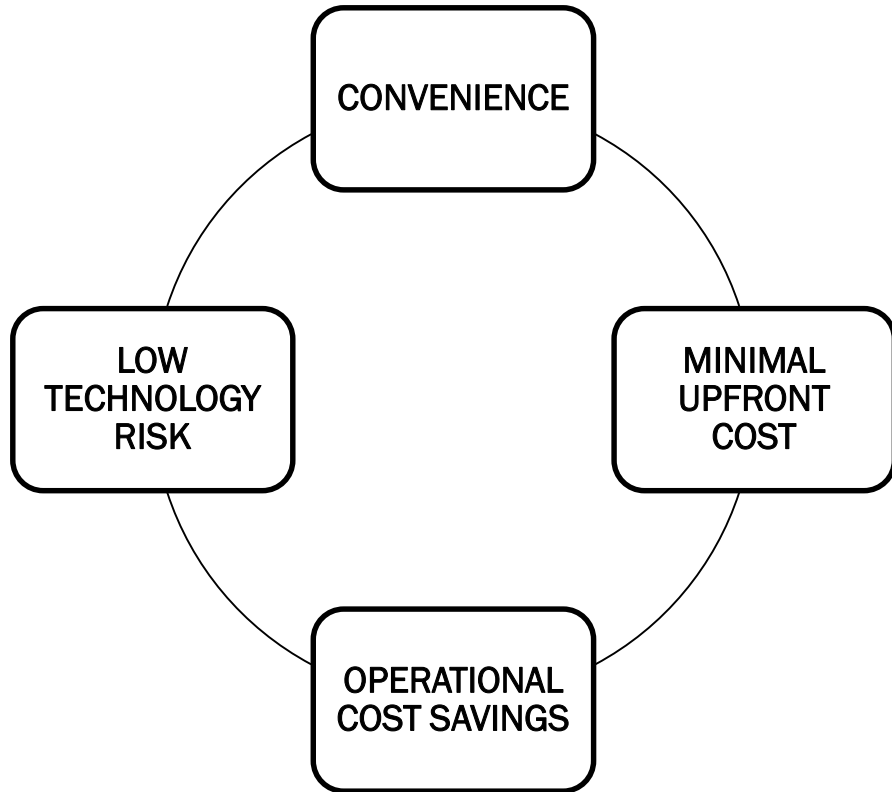
# Bolt vs. ICE (internal combustion engine)

*How did our EV stack up?*

- Cost of charging the entire trip: ~ \$65
- Cost of gas for comparable car: ~ \$300
- CO2 emissions to power the trip: ~ 0
- CO2 emissions for comparable car: 442 kg



# Opportunities to Collaborate



OPG offers:

- Financial strength
- Experience electrifying our own fleet
- Understanding of complex electricity infrastructure

We want to simplify fleet electrification and offset the high upfront capital investment to enable operational cost savings from day one.



# Questions?

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**THANK YOU.**