

Peel's Climate Change Master Plan and Green Fleet Strategy

June 14, 2019

Amy Yates, Project Manager
Public Works

Adam Vaiya, Advisor
Office of Climate Change and Energy Management

Difficult decisions

Leaders face pressure from all angles

POLITICS

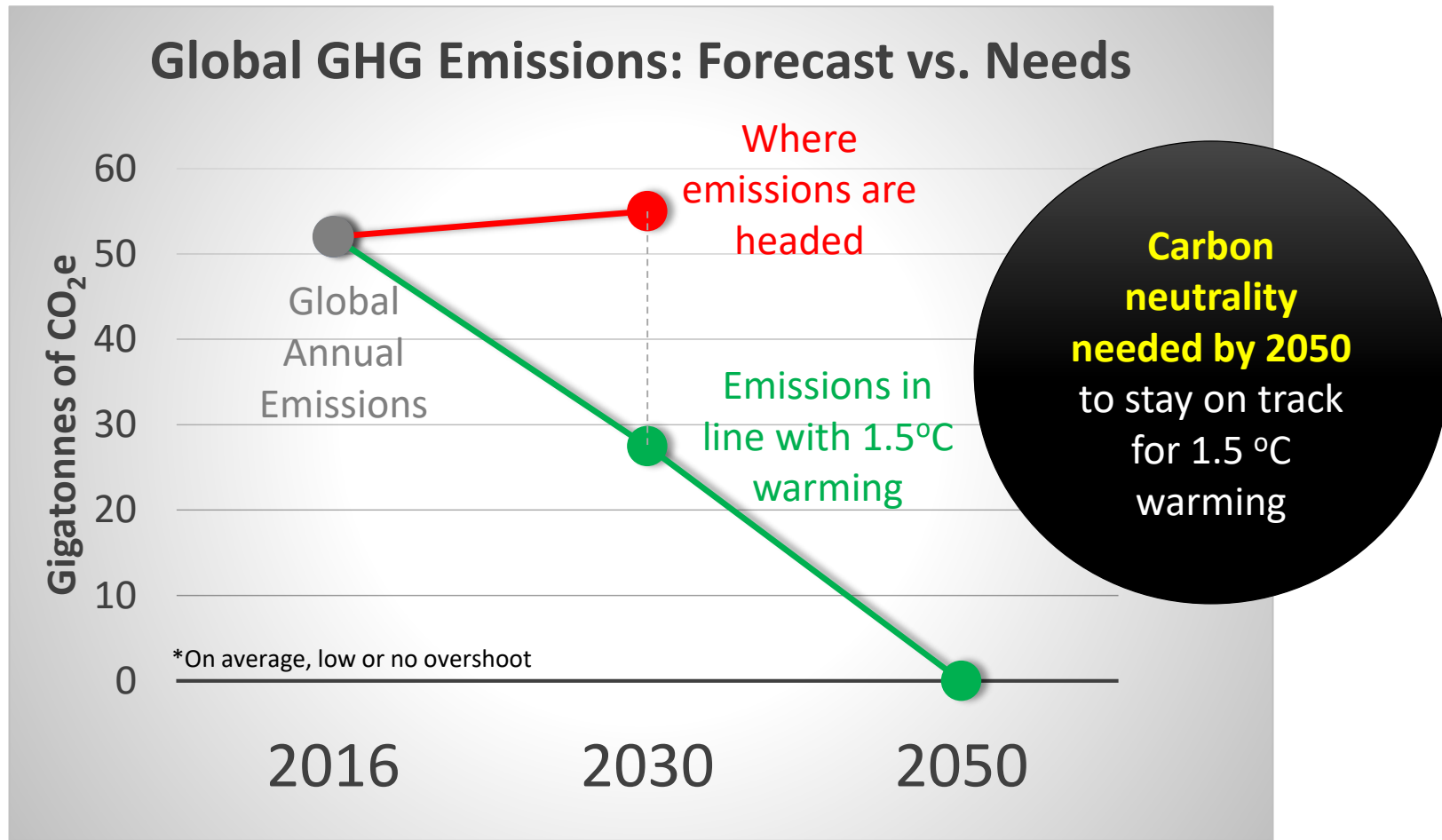
March 13, 2019 11:59 pm

Now that Kingston has declared a climate emergency, what does it mean?



Next decade matters

The world is not on track to limit the temperature rise to 1.5 °C



Data Source: IPCC Special Report on the impacts of global warming of 1.5°C (2018)

Graphic Source: World Resources Institute

Next decade matters

The Region is not immune to the effects of climate change

By mid-century the Region is projected to be warmer, wetter and wilder





Previous decade counts

Leadership stepped up to the challenge

2017: Council's Statement of Commitment Endorsed

- Outlined **principles and desired outcomes** to ensure concrete action is taken
- Acknowledged **GHG Emissions Reduction Targets**
- Provided direction for **Climate Change Master Plan**



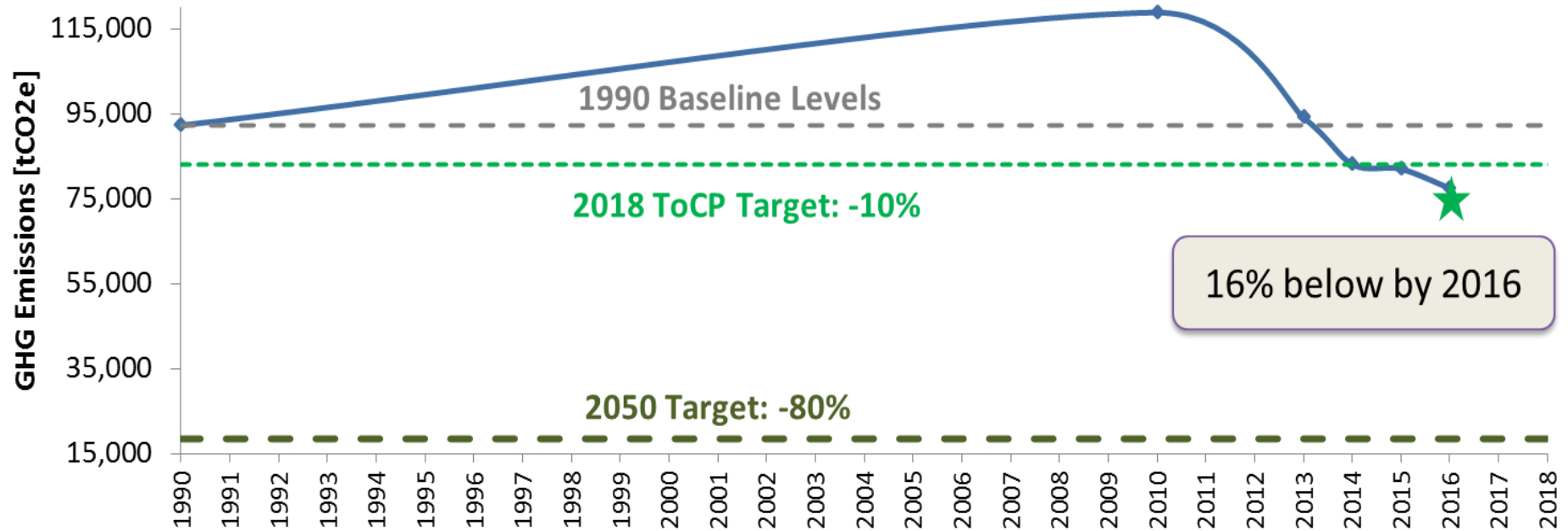
Previous decade counts

Important climate change actions at the Region



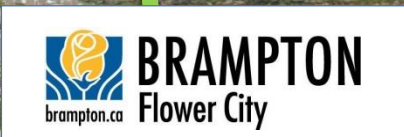
Previous decade counts

The Region's Organizational GHG Emissions are dropping



And counts even more!

From collaboration towards resilience



Path forward

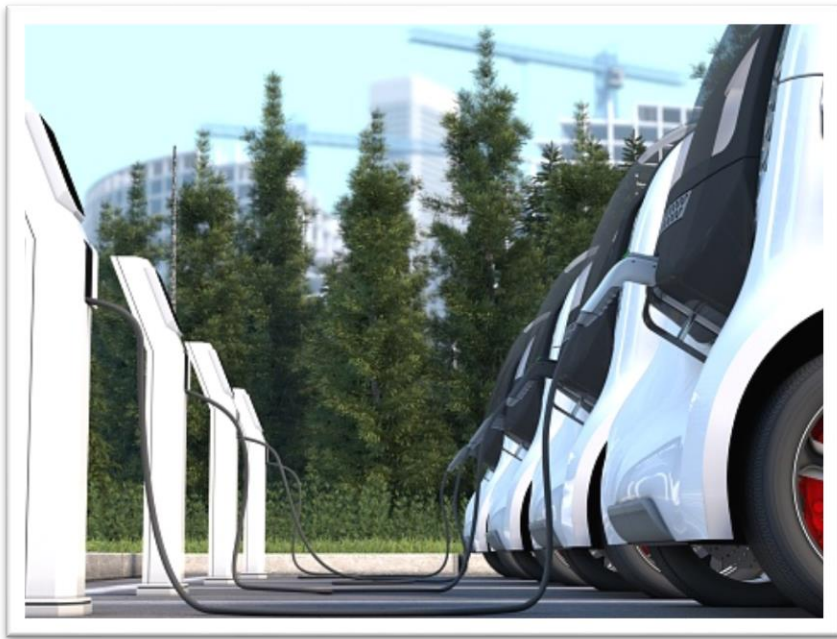
Climate Change Master Plan

- Recommended Outcomes
- Proposed Targets
- Guiding Principles
- 10-year Horizon (2020-2030)
- Actions, Costs, Timelines & Roles

Path forward: Outcome # 1

The Region can *Reduce Emissions*

A sustainable community is provided through progressive leadership committed to reducing the organizational GHG Emissions are 45% below 2010 levels by 2030; and sustainable community for future generations



Path forward: Outcome # 2

The Region can *Be Prepared*

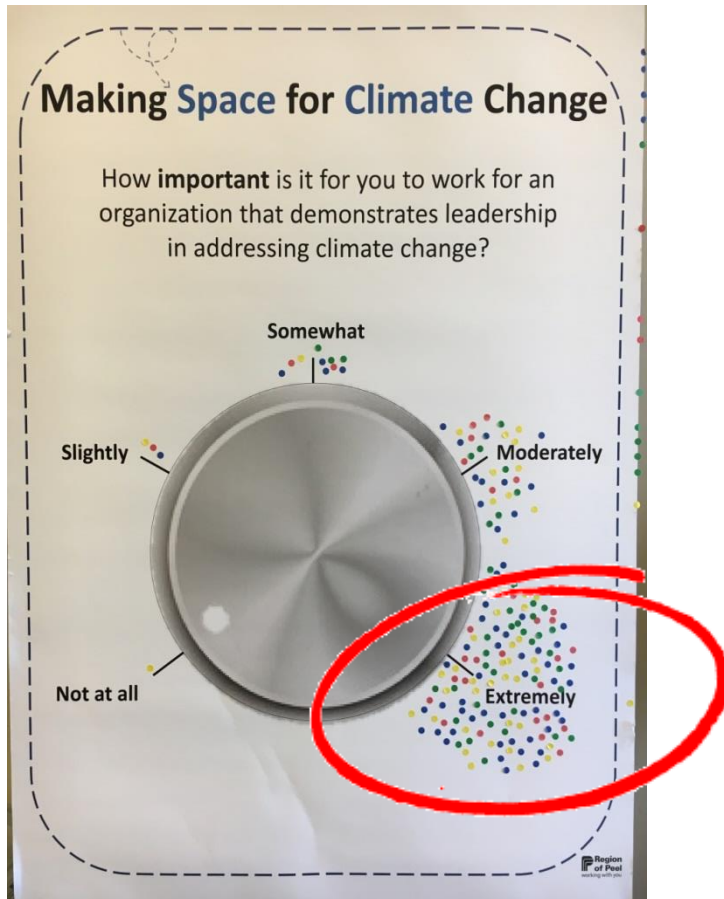
A safe, secure and connected community is provided by ensuring Regional services and assets are more resilient to extreme weather events and future climate conditions



Path forward: Outcome # 3

The Region can *Build Capacity*

Climate change is considered in all decision making through organization-wide climate literacy, planning and accountability



Path forward: Outcome # 4

The Region can *Invest*

Innovative and sustainable approaches are used to invest in climate actions



Path forward: Outcome # 5

The Region can *Monitor and Report*

Progress on addressing Regionally funded climate change work is consistently reported, available, and widely understood.



Path forward... recommended outcomes

#1 Reduce Emissions

#2 Be Prepared

#3 Build Capacity

#4 Invest

#5 Monitor & Report

Climate Change Master Plan for approval by Council, Fall 2019



Climate Change in Peel Region

<https://youtu.be/g57fbUv4wyE>



Green Fleet Strategy



Green Fleet Strategy Background

- Directed to develop a Green Fleet Strategy which aligned to climate change Term of Council Priority
- Received by Council in May 2018 and includes all fleet with exception of Peel Police fleet vehicles
- Strategy positioned the Region to advance toward short, mid and long-term GHG emission reduction goals
 - Ultimately 80% below 1990 levels by 2050



Strategy Development



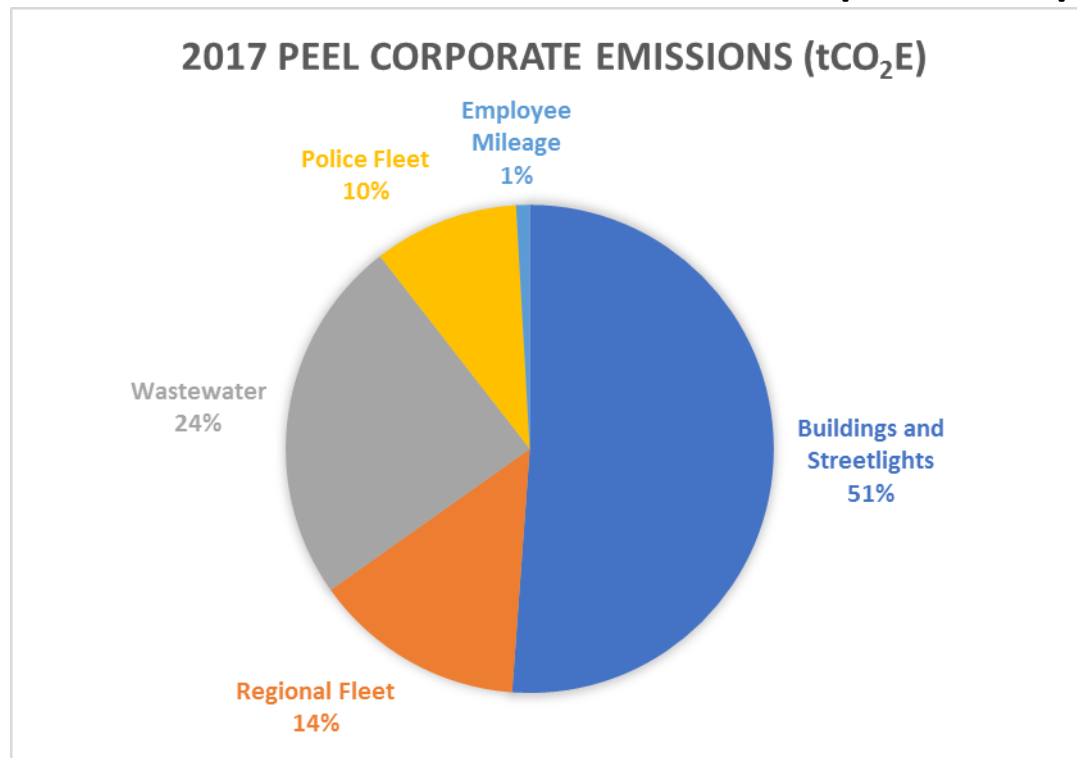
Strategy Development

- Technical study conducted to identify opportunities and options to consider for the fleet
- Eight different scenarios were considered and a balanced approach was screened in with the preferred approach forecasted out to 2050
- Scenario included commercially viable technologies and fuels currently available
- May change in time as technology advances and new fuels become available



Peel's Corporate GHG Emission Inventory

- Total fleet contributed 23% of the 2017 corporate emission profile of 70,448 tCO₂e
- The Regional fleet for the Green Fleet Strategy accounts for 14% of the 2017 corporate profile



Peel's Fleet and Equipment Composition

- Peel's fleet consists of over 700 vehicles and 465 pieces of equipment

Vehicle Classification	Unit Count	Example Vehicles and Equipment
Light-Duty Vehicles	614	Passenger Cars, Vans, and SUV's, Ambulances, Transhelp Buses
Medium-Duty Vehicles	38	Construction and Low Profile Dump Trucks
Heavy-Duty Vehicles	58	Dump and Vector Trucks
Heavy-Duty Equipment	45	Articulated Loaders and Backhoe's
Standard Equipment	420	Forklifts, Generators and Pumps
Total	710 vehicles, 465 pieces of equipment	

Fleet Related GHG Emission Profile

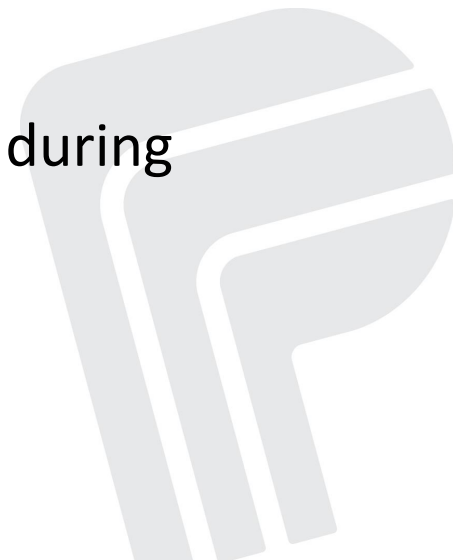
- The fleet emission profile has continued to grow with increased demands for vehicles and Regional services
- Began measuring GHG impact in 2010 and estimated 1990 baseline

Peel's Fleet Historical GHG Emissions (excluding Police and Employee Mileage)

	1990	2010	2013	2014	2015	2016	2017
GHG Emissions (tCO₂e)							
TOTAL	3,957	6,785	8,723	9,679	9,601	10,181	9,893

Historical Fleet Initiatives

- Have slowed the rate of growth in fleet GHG emissions through:
 - Implementing over 50 hybrid vehicles
 - Right-sizing vehicle needs with client groups
 - Alternate fuel transitions (e.g. TransHelp propane/gasoline fleet)
 - Biodiesel produced and used since 2007
 - Lighter vehicle components and LED lighting during upfitting



Initial Strategy Actions

- 15 Initial Strategy Actions identified in 5 categories
 - Resourcing
 - Fleet Monitoring and Data Analysis
 - Alternative and Renewable Fuel Research and Transitioning
 - Procurement, Green Vehicle Specifications and Vehicle Selection Hierarchy
 - Stakeholder Engagement, Education and Outreach, and Fleet Operational Best Practices

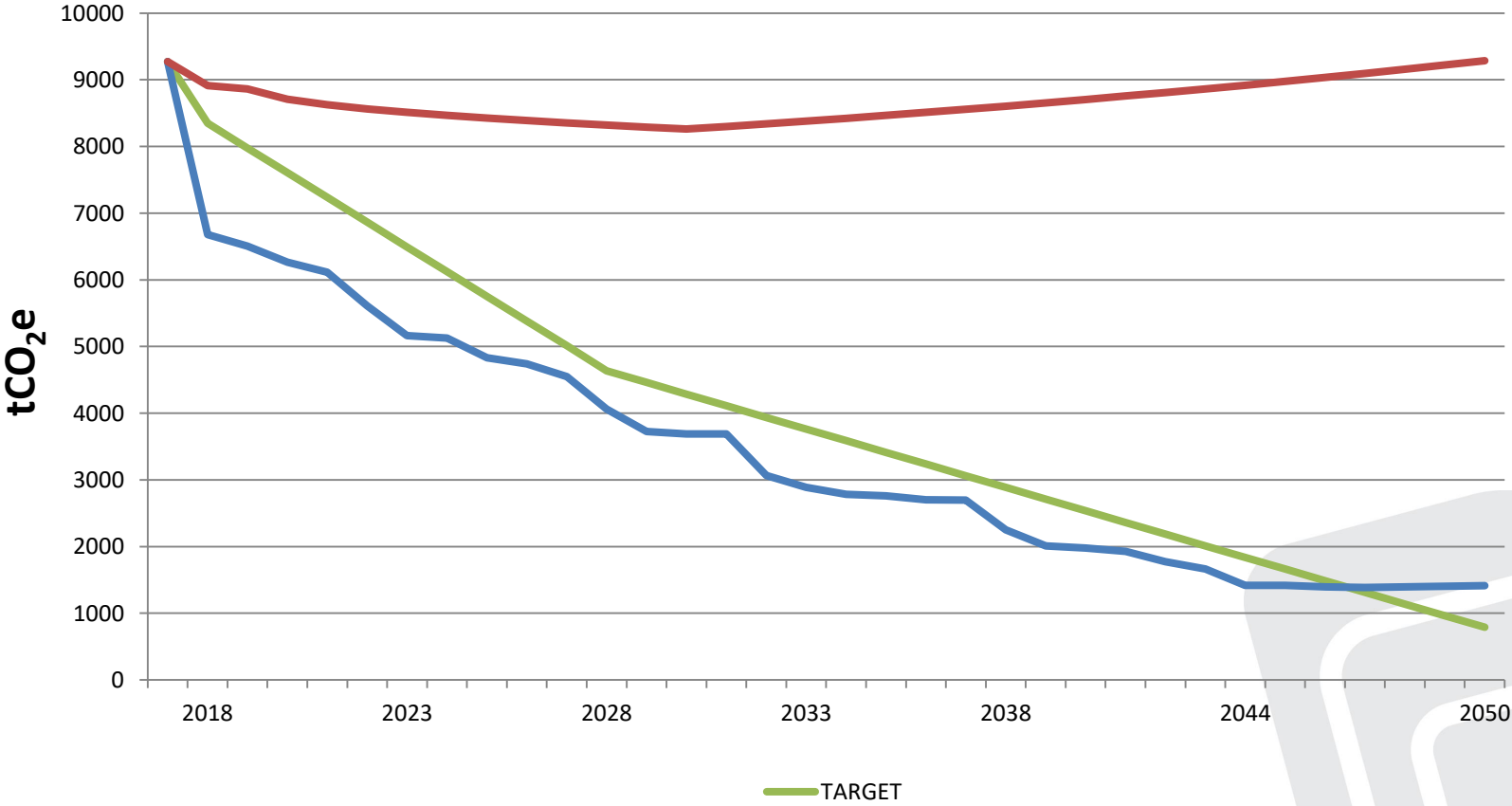


Strategy Technology and Fuel Summary

- High focus on battery electric vehicles in light-duty fleet over time
- Alternate fuels (ethanol and biodiesel) in short and medium-term
- Transitions to compressed natural gas and renewable natural gas in medium and heavy-duty fleet and equipment

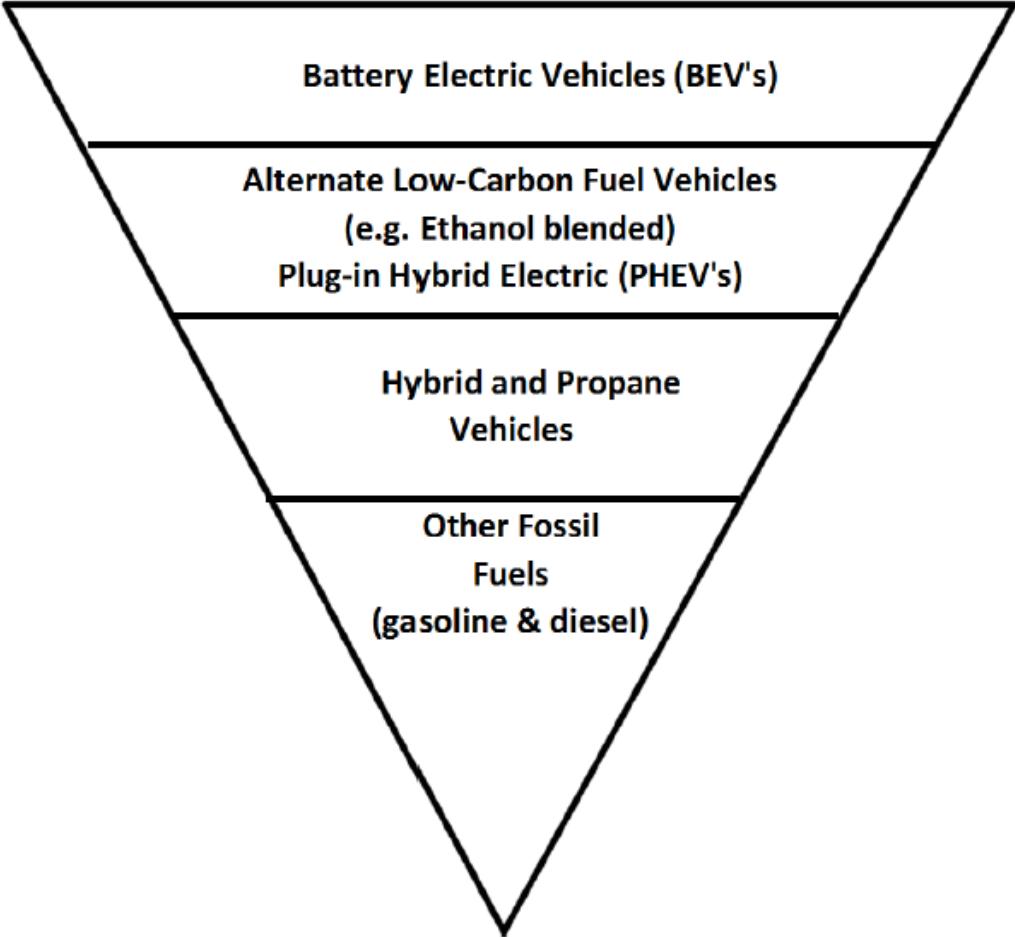


Potential GHG Impact (2019-2050)



Developing Vehicle Selection Hierarchy

Example: Light-Duty Fleet



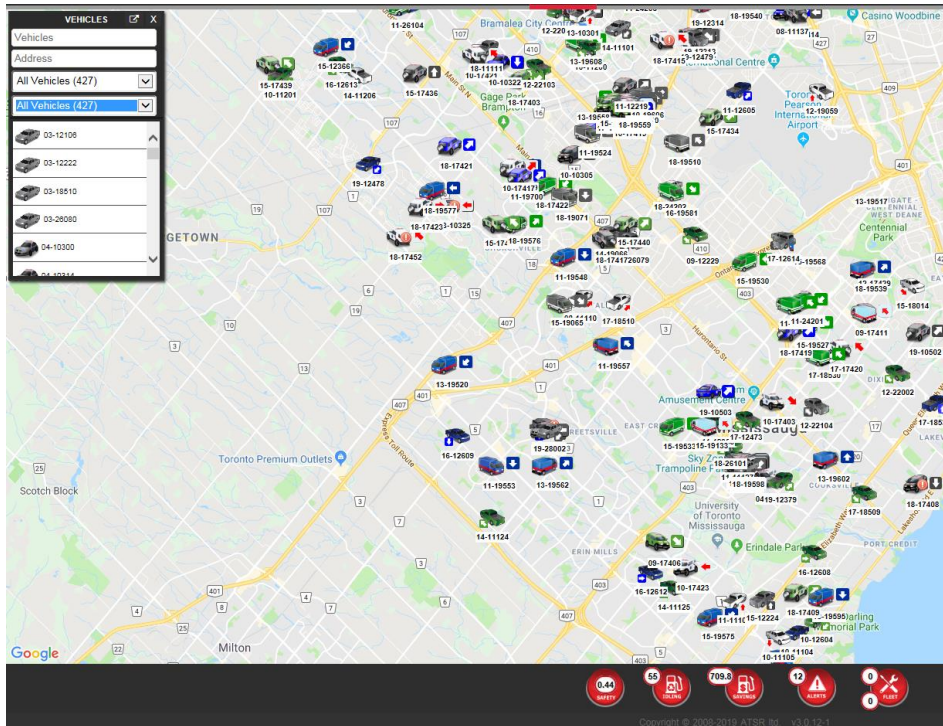
GHG Reduction Potential



Initiatives Completed and Underway



Automatic Vehicle Location (AVL)



- Now installed on majority of the fleet
- Provides good reporting on utilization and stats (e.g. idling)
- Can inform behaviour-change and technology opportunities

Battery Electric Vehicles



- 19 units purchased so far
- Estimated to reduce GHG impact by 26 tCO₂e/year
- Options for light-duty operations still limited
- Cargo capacity and price for larger size options are a challenge

E85 Fuel Pilot



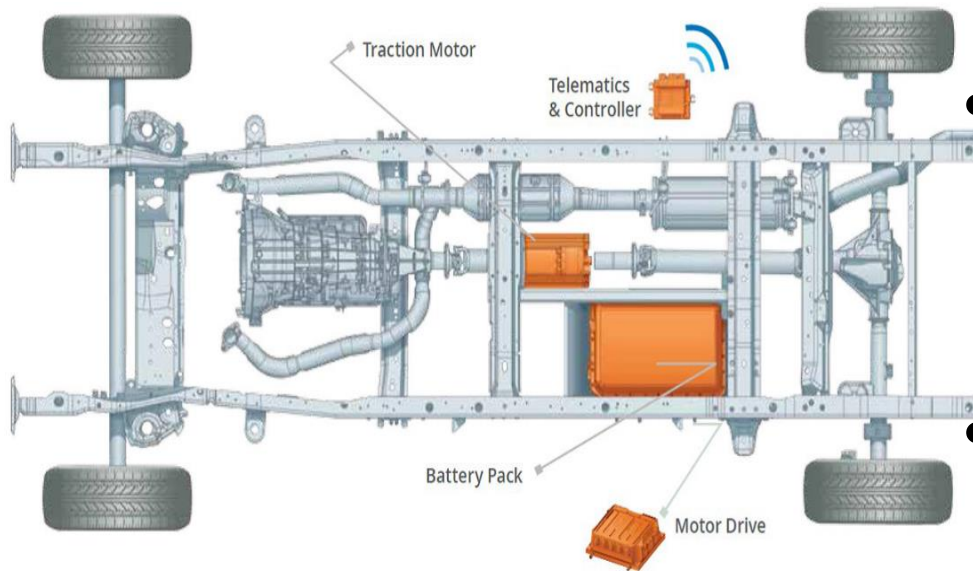
- E85 higher blend of ethanol in gasoline
- 20 fleet vehicles included in year-long pilot (mix of trucks and vans)
- About 30% more fuel used for same distance travelled (less energy per L) which was expected
- Some operational challenges with blend in winter
- Significant GHG reduction potential
- pilot saved 132 tCO₂e (1.3%)

E85 Fuel Expansion



- Approved to expand to additional 220 PW vehicles
- E85/E70 blends will be used to account for operational findings in winter
- Expected GHG reduction - 581 tCO₂e/yr (5.8%)
- Cost impact for additional PW vehicles is only \$50K per year

Hybrid Ambulance Pilot



- Eight of the 2019 units to be upfitted
- Bolt on addition that provides continuous propulsion support
- Just over 6 year payback from fuel savings
- GHG reduction of 57 tCO₂e/yr (0.5%)

Anti-Idle Campaign and PW Challenge



- Excessive idling (>3 mins) wastes over 13,000L of fuel each month
- Developing an internal-facing campaign to reduce excessive idling
- Include signage, tailgate talks, monitoring through AVL system and training enhancements
- PW challenge starting this fall
- GHG reduction potential of 470 tCO₂e/yr (4.75%)

Expediting **Green Fleet** successes via:

Collaboration Opportunity	Examples
Sharing Data, Resources and Experiences	<ul style="list-style-type: none">• Financial returns, environmental results, and operational implications from alternative fueling pilot projects and anti-idling initiatives• Sharing Fleet related policies, KPIs, RFP templates, leadership presentations, etc.
Procurement Support	<ul style="list-style-type: none">• Expression of Interest for vehicles with desired “green” specifications• Collaborating on a work type/load specific vehicle suitability criteria for upcoming replacements• Leveraging collective buying power to negotiate after-market technology discounts

Opportunity to discuss more this afternoon

Questions?

