Decarbonizing Corporate and Contracted Fleets

TRANSITION TO ZERO TAILPIPE EMISSION VEHICLES

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Metro Vancouver Conference Day - May 12, 2022
https://orbit.gvrd.bc.ca/orbit/llisapi.dll/link/59296942

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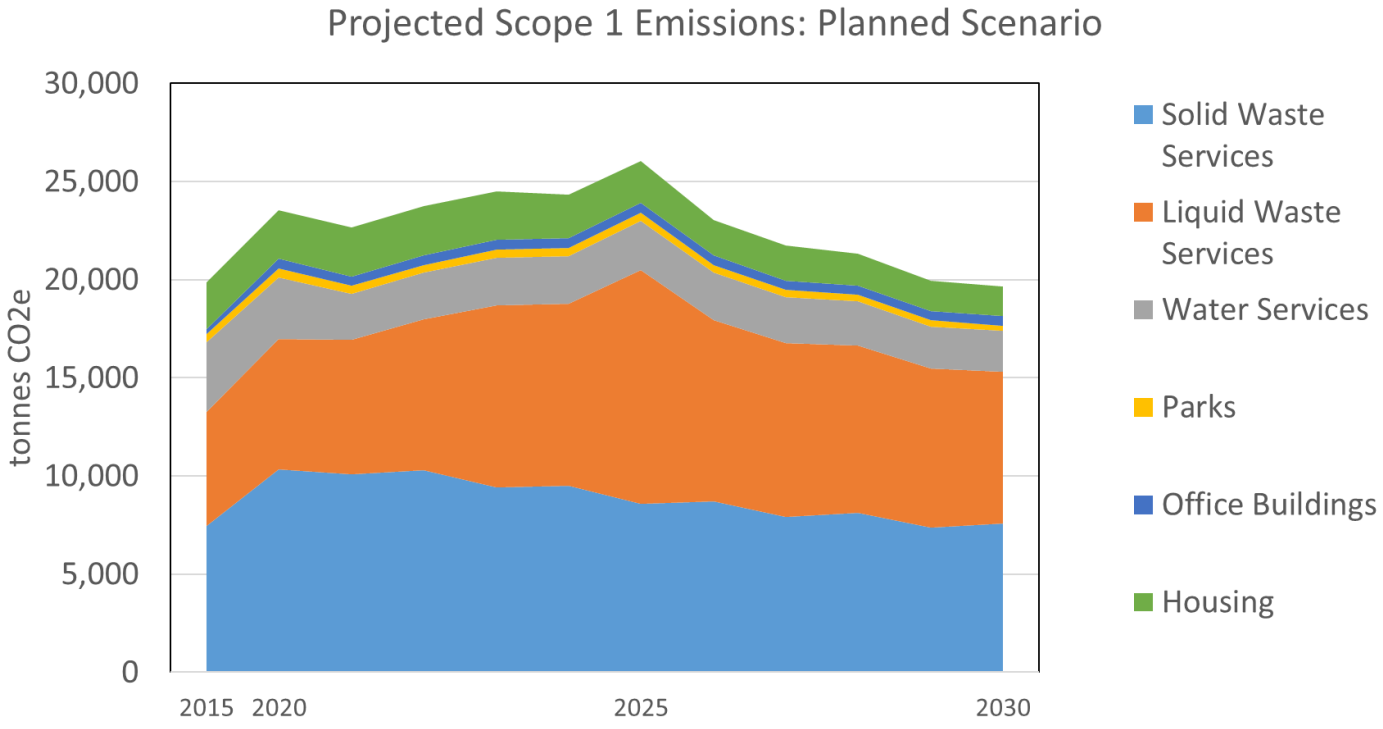
METRO VANCOUVER CORPORATE EMISSIONS

Metro Fleet and Contracted Hauling was 43% of total emissions in 2020



DECARBONIZING METROFLEET

Fleet Trends

- current and future

Getting to Ownership

- setup for success

MetroFleet Green Fleet Plan

- building the foundation

FLEET TRENDS

Transition to ZEV

Passenger Vehicles

Work Vans

Pickup Trucks

Utility & Construction Equipment

Medium & Heavy Trucks

Light Duty

Heavy Duty

In progress	2024 to 2050
100% electric by 2030	Electrify with battery or H_2

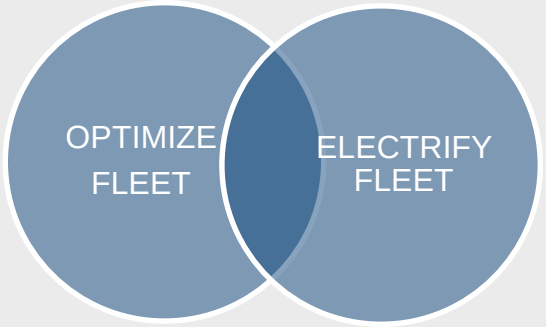
GETTING TO OWNERSHIP

Breaking down barriers

AVAILABILITY	COST	CHARGING	OPERATIONAL IMPACTS
• flexible EV contracts • delay replacement	• prioritize positive ROI • access incentives • optimize fleet	• plan in time for EVs • develop infrastructure	• charging needs • efficient driving • plan for power outage

METROFLEET GREEN FLEET PLAN

Work in progress



Buy EV First

- contracts for EVs
- strategic replacement plans

Infrastructure Work Underway

- 60 additional chargers in 2023
- reviewing needs at sites

Staff Engagement

- EV working group
- demos and feedback

Questions

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MARKET TRENDS

Work Vans

Pickup Trucks

Utility & Construction Equipment

Heavy Trucks

Light Duty

Heavy Duty

Long Haul

In progress

2024 to 2050

ACCELERATING THE TRANSITION TO ZERO-EMISSION TRUCKS

Scope of Work

- Business cases for zero-emission trucks in:
  - Municipalities with corporate or contracted waste collection trucks
  - Contracted hauling of regional solid and liquid waste residuals
- Review municipal decarbonization studies and pilot tests
- Stakeholder workshop
- Identification of pathways to decarbonization
- Recommendations for feasibility study

Electric Municipal Solid Waste Collection Truck being Piloted in the Seattle Area

LEARNINGS TO DATE

Available Technology

- EV (Peterbilt 520EV, Mack Electric LR, Lion Electric)
- Hydrogen fuel cell not available yet for waste collection

Performance Issues

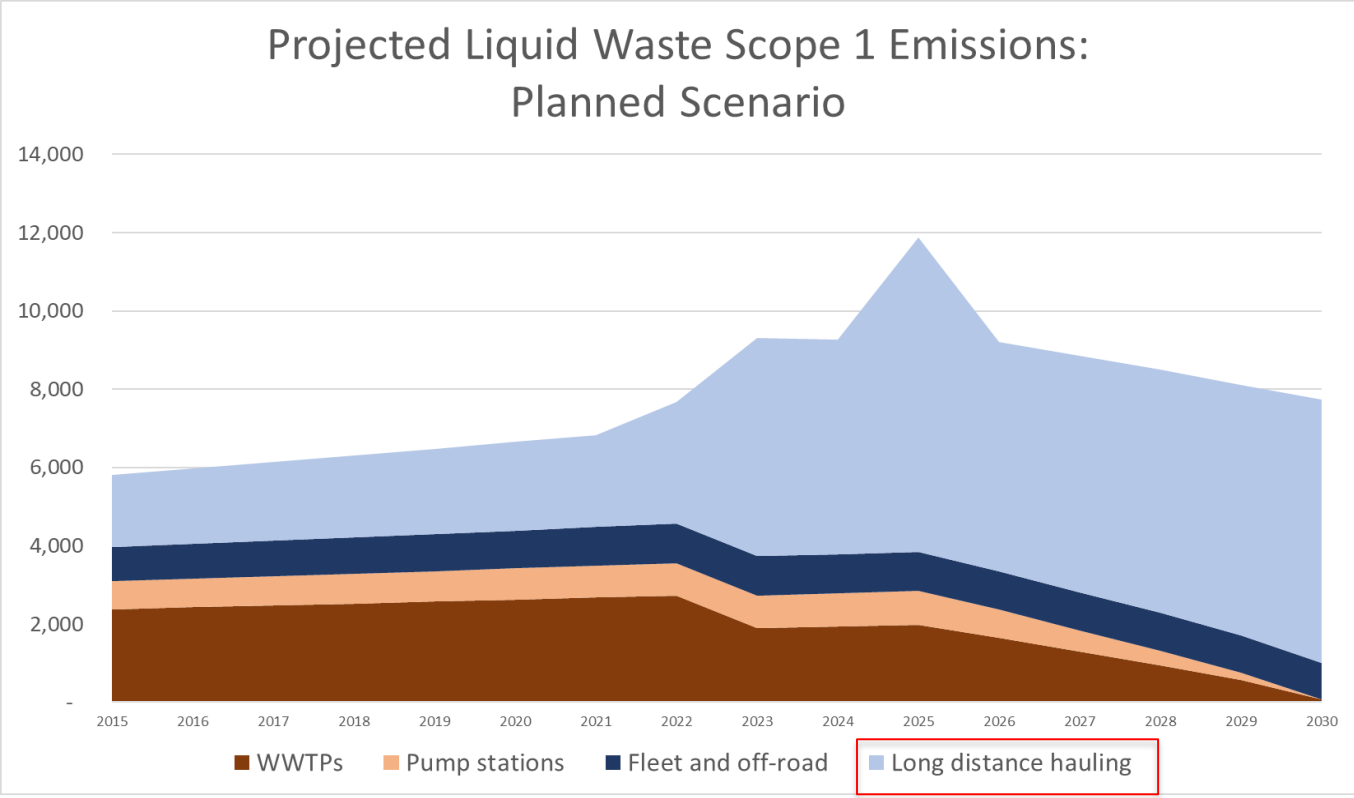
- Shortened battery capacity from heavy loads, long routes, steep terrain
- Energy demands exceed charging site's energy infrastructure

Potential Solutions

- Encourage waste reduction and organics diversion
- Optimize vehicle routes to maximize battery charge
- Grid upgrades or new utility connections

Municipal solid waste truck at North Shore Recycling and Waste Centre

ADDRESSING CONTRACTED HAULING EMISSIONS



- Long distance hauling is main forecasted source
- Plans:
  - build biosolids dryer
  - decarbonize contracted long-distance hauling

REDUCING CONTRACTED HAULING EMISSIONS

Assessment Study

Objective: Use 100% low-GHG fuels for long distance hauling

- Technology scan involving industry representatives
- Supporting infrastructure assessment
- Capital and operating cost analysis
- New or amended policies to support procurement requirements
- Transition plans

REDUCING CONTRACTED HAULING EMISSIONS

Future Technology for Long-Distance Trucking

Technology	Pro	Con
Electrical $$$	• Zero emission electricity in BC	• Limited travel distance • Significant payload reduction • Lack of charging infrastructure
Hydrogen $$-$$$	• Full payload • Potential to retrofit existing trucks	• Lack of fueling infrastructure • Emissions from hydrogen production
Tailpipe Carbon Capture $	• Simple add-on to truck • No fueling/charging infrastructure needed	• Uncertain end use market for CO_2 • Moderate payload reduction

REDUCING CONTRACTED HAULING EMISSIONS

Near- and Long-Term Transition Plans

Challenges

- Contractors' capacity to bid on low/zero-emission hauling services
- Access to charging or fueling in off-grid remote areas

Potential Solutions

- Short-term improvement plans: renewable diesel
- Partnerships with other users of hauling services and disposal sites
- Collaboration on charging and fueling infrastructure development

Electric Truck for Waste Collection at BC Trucking Association Expo

Discussion and Insights

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