ANNUAL GREENHOUSE GAS INVENTORY

Ziptrek Ecotours

January 1 to December 31, 2023

Completed By	Kyle Bouwknecht & Chloe Shore
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Completed	10/2/2025

synergy

Executive Summary

Ziptrek Ecotours is a zipline tour operator based in Whistler, BC. Ziptrek operates out of an A frame cabin onsite with office space at the Whistler Conference Centre. The company leases 4 summer transit vans, 1 truck and 2 winter vans. This is Ziptrek's first year measuring and reporting their carbon footprint.

Ziptrek's 2023 business operations resulted in 128 tCO_2e (tonnes of carbon equivalent). The largest emission source was gasoline at 42.3 tCO_2e (33% of the footprint) followed by purchased goods at 28.2 tCO_2e (22%) and business travel at 23.0 tCO_2e (18%).

Ziptrek has set an emissions reduction target of 39% by 2030 based on 2023 levels. To achieve this goal, Ziptrek should prioritize implementing reductions to their 4 highest emission sources, with attending international meetings virtually and securing alternative-fuel vehicles as top priorities.

This report was completed in partnership with the BC Tourism Sustainability Network and serves as an entry point for Ziptrek to understand its GHG emissions hot spots and start planning for reducing these emissions.

Inventory Information

Company Name	Ziptrek Ecotours		
Contact Information	Simon Moffatt	smoffatt@ziptrek.com	(778) 793-5272
Company Description	One A frame cabin, office space at the Whistler Conference Centre, and all other outbuildings; 4 leased summer transit vans, 1 truck and 2 winter vans.		
Reporting Period	January 1 to December 31, 2023		
Inventory Boundary	**Scope 1 (Direct Emissions)** - Gasoline, Propane		
	Scope 2 (Indirect Emissions from Purchased Electricity) - Purchased Electricity (BC Hydro)		
	Scope 3 (Indirect Emissions from Other Sources) - Waste, Purchased Goods & Services, Company Travel, Staff Commuting		
Scope 2 Approach	Location/Market Based Emissions Calculation		
Consolidation Approach	Operational Control: Accounting for 100% of emissions from operations over which the company has operational control.		
Primary Measurement	Greenhouse gas emissions measured in Carbon Dioxide Equivalent (CO_2e)		
Reporting Guidelines	Aligned with those defined in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, Revised Edition (The GHG Protocol, www.ghgprotocol.org)* . Emissions factors reviewed & approved by Ostrom.		

Summary of Results

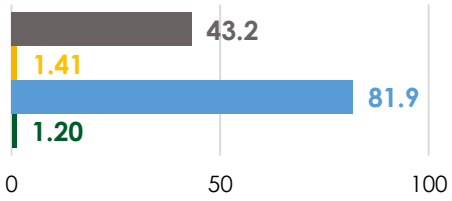
Total tCO_2e	128

Equivalent to:

Car Round Trips	2,348 Vancouver - Whistler

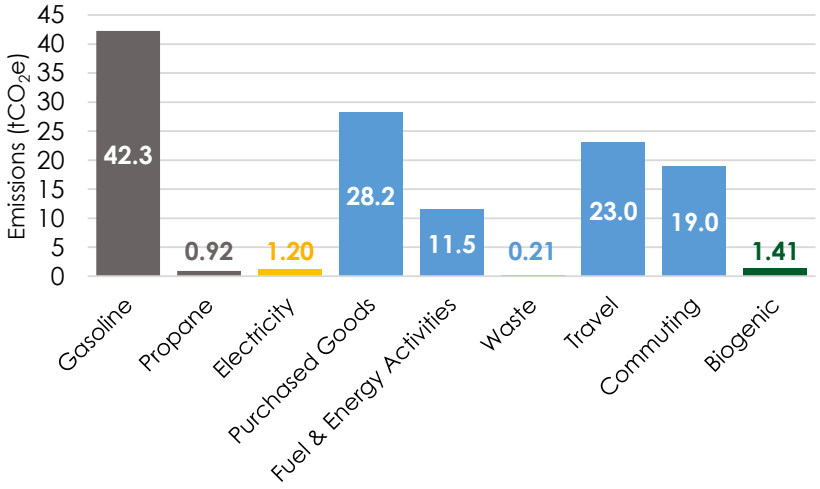
Carbon Footprint by Scope

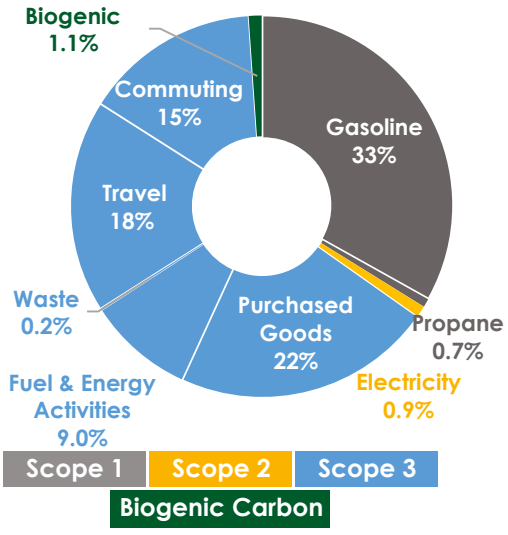
	tCO_2e	
Scope 1 (Direct)	**43.2**	34% of total footprint
Scope 2 (Indirect)	**1.20**	0.9% of total footprint
Scope 3 (Indirect)	**81.9**	64% of total footprint
Biogenic Carbon	**1.41**	1.1% of total footprint
TOTAL EMISSIONS	**128**	



Carbon Footprint By Activity

Emissions by Activity





Emission Reduction Target

Reduction Target	-39% by 2030

Target Emissions	77.4 2030

Ziptrek has committed to reducing emissions by 31% by 2030 based on 2023 levels.

✓ Highest Impact Initiatives

	Request to attend international meetings virtually
	Establish an organizational low-emission travel policy
	Purchase electric vehicles to replace conventional fuel vehicles
	Purchase low emission vehicle alternatives such as E-bikes or electric ATVs to use in place of gas vehicles when applicable
	Create a purchasing policy to prioritize purchasing non-safety equipment second-hand or post-consumer recycled
	Provide subsidized transit passes for staff and leverage Ziptrek's position to advocate for improved transit service

Notes on Targets

Ziptrek has set a target to reduce emissions 31% by 2030 based on 2023 emissions. To achieve this target, It is recommended Ziptrek focus on their four highest emission sources; gasoline, purchased goods, business travel and commuting. Attending international meetings virtually and replacing gas power vehicles with alternative fuel vehicles are likely to see the biggest reductions in emissions and should be a high priority.

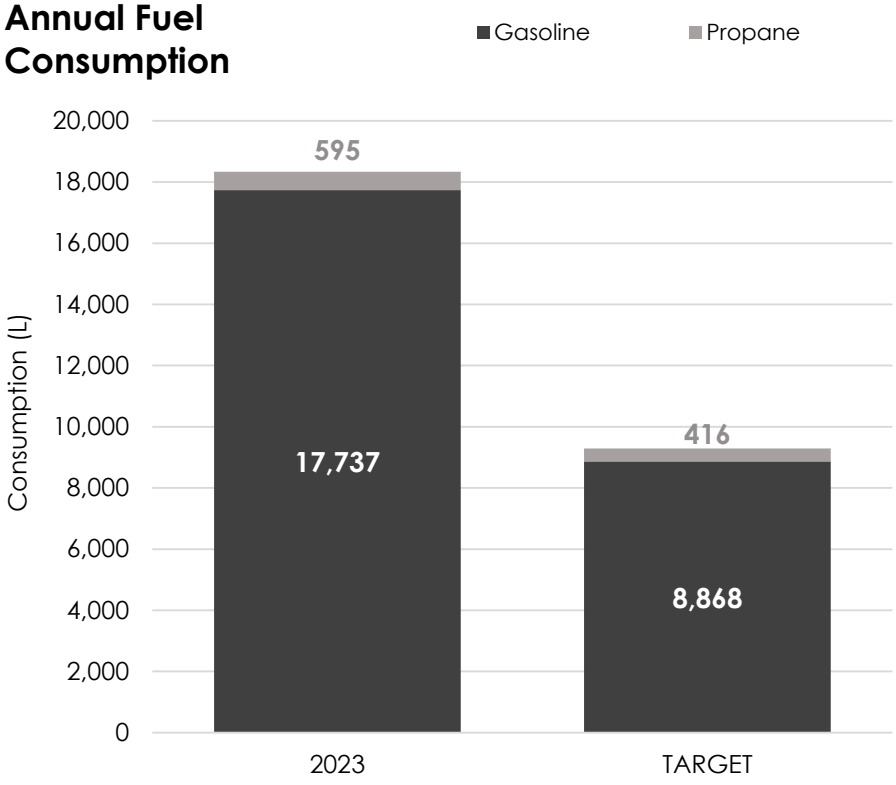
Reduction Opportunities Legend

Cost	
Free / Cost Savings	$
< $4,999	$
$5,000 < $50,000	$$
$50,000 < $150,000	$$$
> $150,000	$$$$

Impact	
No Impact	Does not materially reduce carbon footprint but is an important sustainability initiative
Low	<2% reduction in emissions source
Medium	2% - 10% reduction in emissions source
High	>10% reduction in emissions source

Fuel

Annual Fuel Consumption



Analysis

Ziptrek uses gasoline in their transit vehicles and trucks, while propane is used to heat the A frame cabin. A small portion (~3%) of gasoline is consumed in generators.

Fuel consumption in 2023 resulted in 43.2 tCO_2e, 34% of the total footprint, with gasoline making up 97% of fuel consumption.

Gasoline is Ziptrek's largest emission source and should be a priority for emission reduction efforts. Ziptrek aims to reduce fuel consumption by 50% by 2030 by electrifying half of its fleet.

tCO_2e	43.2

% of Total	34%

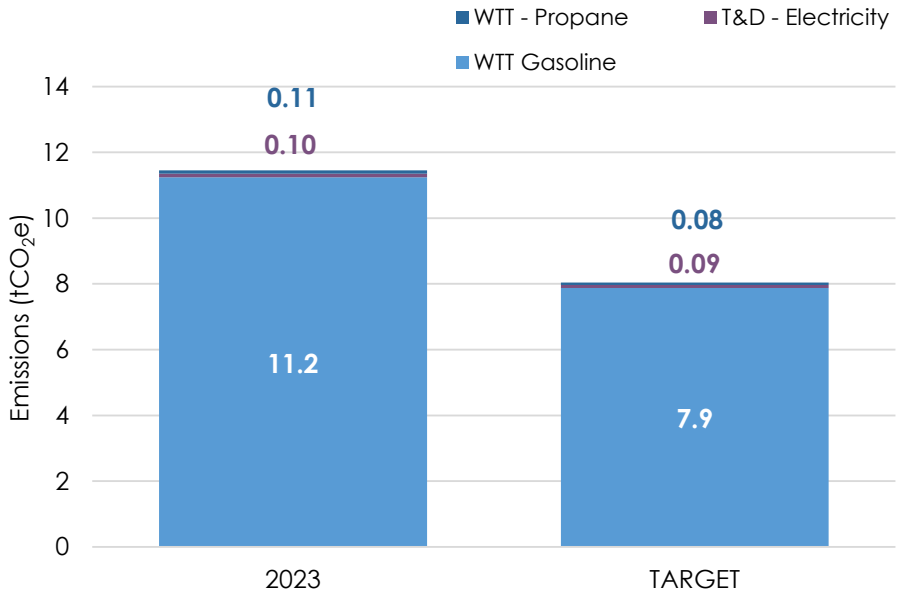
Litres / day	50.2

Recommended Actions

✓	Action	Estimated Cost	Impact
☐	Purchase electric vehicles to replace gas vehicles. EV ranges have gone up while costs have come down and, when paired with rebates and funding programs, EVs may have a lower total cost of ownership than conventional fuel vehicles. **Top Decarbonization Opportunity:** Ziptrek should identify the fleet vehicle that is the largest fuel consumer and plan to replace it with an EV. See the 'Resources' section for links to funding, rebates, and EV model information.	$$ - $$$	Up to 95% Reduction
☐	Purchase low emission vehicle alternatives such as E-bikes or electric ATVs to use in place of gas vehicles when applicable.	$-$$	Low to Medium
☐	Conduct an energy audit at the A frame cabin to identify and prevent heat loss in the space.	$	Low
	Sustainability Goal:	**Reduce fuel consumption by 30% by 2030**	

Fuel & Energy Activities

Annual Fuel & Energy Emissions



Analysis

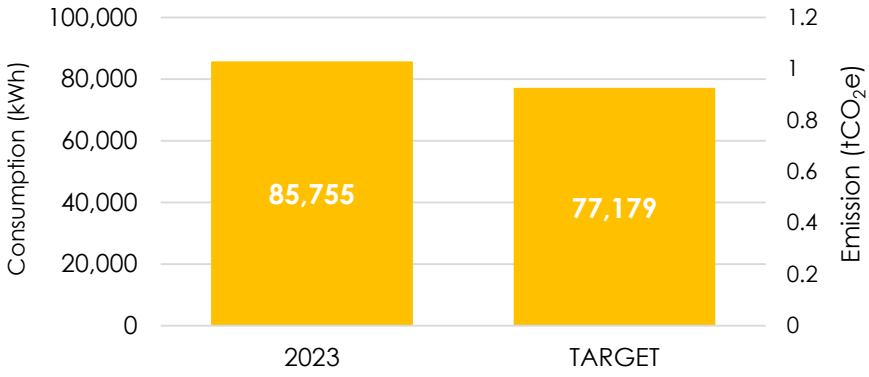
Well to tank (WTT) and transmission & distribution losses (T&D losses) are emissions associated with the procurement, processing and transportation of fossil fuels and electricity. As a result, these emissions are a product of fuel consumption and electricity use and will reduce in proportion with electricity and fuel reductions.

tCO_2e	11.5

% of Total	9.0%

Electricity

Annual Electricity Consumption



☐	Ensure all lights are LEDs.
☐	Ensure all computers, monitors, and printers and turned off and unplugged at night.
☐	Switch desktop computers for laptops, as laptops use up to 80% less energy.

Analysis

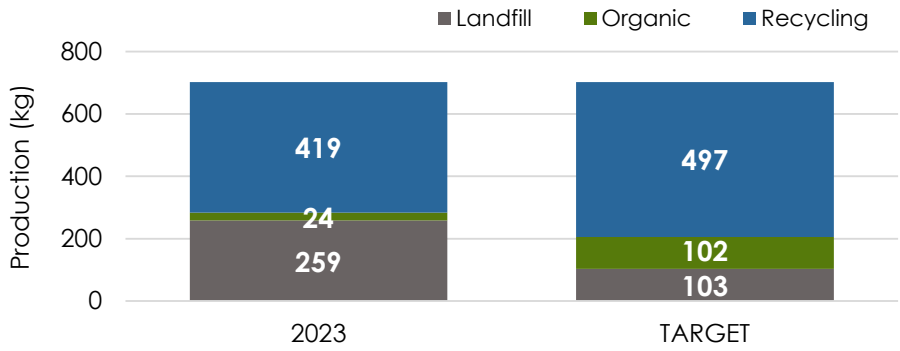
Purchased electricity is used in the admin office located in the Whistler Conference Centre. Total emissions came to 1.20 tCO_2e, 0.9% of Ziptrek's 2023 footprint.
As this is a small portion of Ziptrek's footprint with minimal control, Ziptrek aims to reduce consumption 10% by 2030 over 2023 emissions by implementing energy saving initiatives.

Recommendation: request sub-metering from landlords to better understand actual electricity consumption.

tCO_2e	1.20
% of Total	0.9%
kWh / ft^2	41.3

Waste

Annual Waste Production



☐	Talk to local climbing and outdoor gear suppliers about recycling and end-of-life options to keep destroyed gear out of the landfill.
☐	Conduct a waste audit to identify the need for more recycling streams or signage and education.
☐	Switch to reusable items to reduce overall waste production.

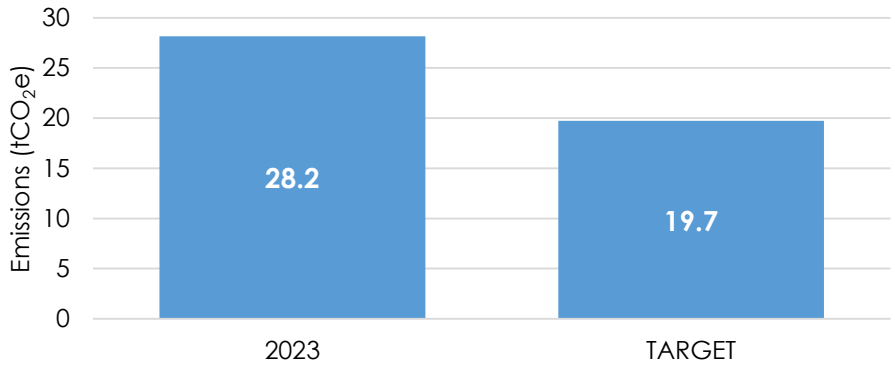
Analysis

Ziptrek's waste is a combination of office waste and used zipline equipment. Total emissions for 2023 came to 0.21 tCO_2e, less than 1% of the footprint.
Ziptrek diverted 63% of their waste from landfill by using recycling and compost, and has set a goal to increase their diversion rate to 85% by 2030.

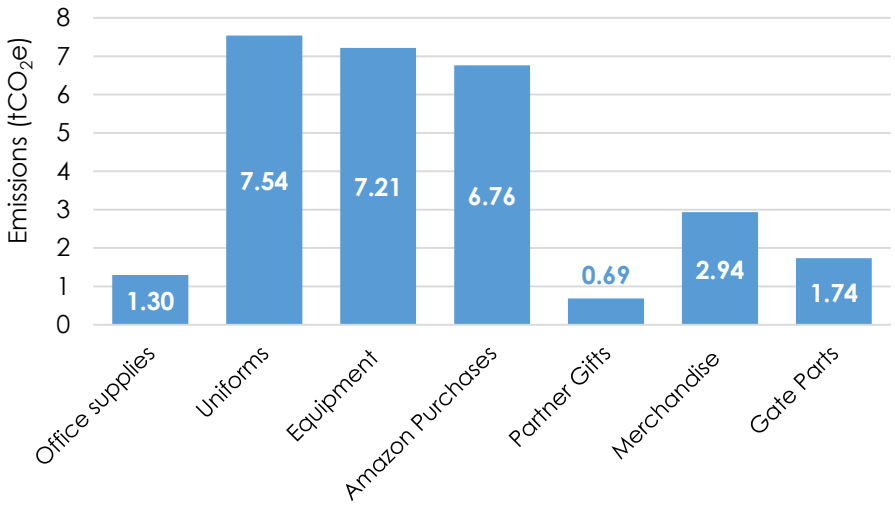
tCO_2e	0.21
% of Total	0.2%
63% Diversion Rate	

Purchased Goods

Annual Purchased Goods Emissions



Emissions per Purchase Category



Analysis

Purchased goods includes emissions associated with all purchases made by Ziptrek in the reporting year. Total emissions came to 28.2 tCO_2e, 22% of the total footprint, Ziptrek's second largest emission source.

Ziptrek's uniforms, equipment and Amazon purchases were the three highest purchasing categories at 7.54 tCO_2e, 7.21 tCO_2e and 6.76 tCO_2e, respectively.

Ziptrek has set a goal to reduce purchasing emissions 30% by 2030.

tCO_2e	28.2

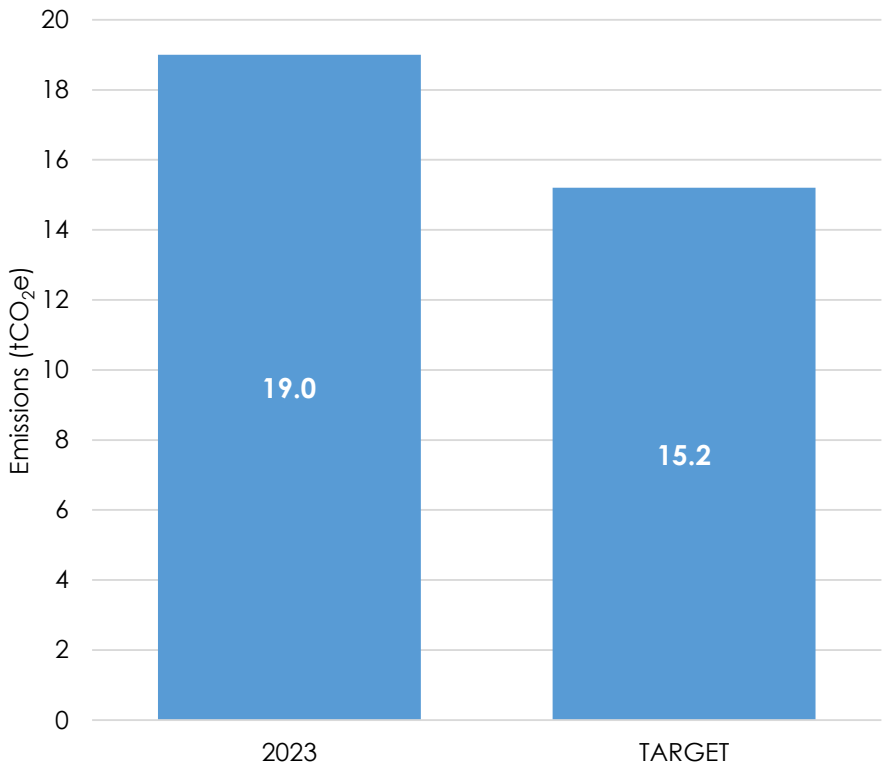
% of Total	22%

Recommended Actions

✓	Action	Estimated Cost	Impact
☐	Create a purchasing policy to identify and prioritize purchasing from suppliers that measure their product carbon footprint and work to reduce product emissions.	$/$	Low
☐	Collect, wash and reuse staff uniforms when possible.	$	Low
	Sustainability Goal:	**Purchase a minimum of 30% low carbon or carbon neutral products**	

Employee Commuting

Annual Commuting Emissions



Analysis

Employee Commuting in 2023 resulted in 19.0 tCO_2e[2], 15% of the total footprint.

Commuting is Ziptrek's 4th highest emission source and should be a focus for emission reduction efforts.

As the majority of staff use a personal vehicle to commute, Ziptrek should focus on working with staff to identify barriers and incentivize low-emission commuting methods to reach their goal of a 20% reduction by 2030.

tCO_2e	19.0

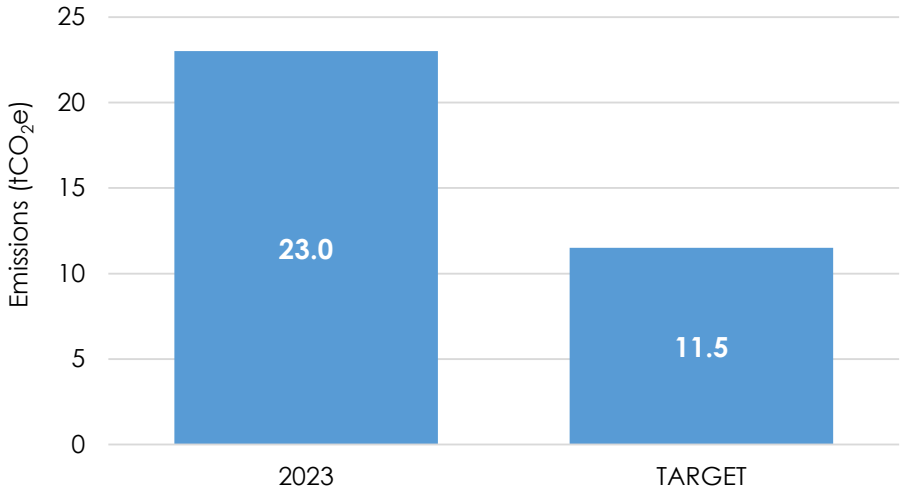
% of Total	15%

Recommended Actions

✓	Action	Estimated Cost	Impact
☐	Implement a program to help staff coordinate carpooling to work.	$	Low-Medium
☐	Provide subsidized transit passes for staff and leverage Ziptrek's position to advocate for improved transit service.	$	Low-Medium
☐	Hold a meeting with staff to discuss barriers to low-emission commuting and how Ziptrek can support staff in reducing commuting emissions.	$	Low-Medium
☐	Create low emissions commuting challenges for staff, rewarding the team or individual with the lowest emissions commuting rate.	$	Low
	Sustainability Goal:	**Reduce staff commuting emissions 20% by 2030**	

Business Travel

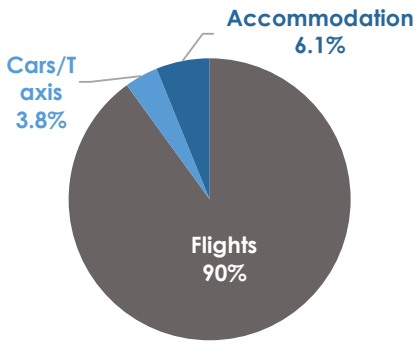
Annual Travel Emissions



2023 Travel

Average $kgCO_2e/km$	0.201
Low-Emissions Travel %	10%

Emissions by Travel Type (%)



Analysis

Ziptrek staff travel to promote tours and attend organization wide meetings.

Business travel emissions came to 23.0 tCO_2e, 18% of the 2023 footprint.

90% of 2023 travel was by flight, with an average flight distance of 4,399 km, due to multiple long haul flights to Australia.

Ziptrek has set a target to reduce business travel emissions 50% by 2030. Requesting to attend international meetings virtually will have the highest impact in reducing travel emissions.

tCO_2e	23.0

% of Total	18%

Recommended Actions

✓	Action	Estimated Cost	Impact
☐	Request to attend international meetings virtually.	$	High
☐	Implement a "carbon budget" that sets a cap on the maximum allowable carbon emissions from travel for each staff member.	$	Low-Medium
☐	Prioritize the use of cars, trains, ferries and busses, reserving air travel for long distances.	$	Low-Medium
☐	Establish an organizational low-emission travel policy.	$	Low-Medium
	Sustainability Goal:	**Reduce travel emissions 50% by 2030**	

Conclusion

2023 marks the first year Ziptrek has measured and reported their carbon footprint.

2023 business operations resulted in 138 tCO_2e, with gasoline use producing the most emissions (34% of the footprint) followed by purchased goods (22%) and business travel (18%).

Ziptrek has set an emissions reduction target of 39% by 2030 based on 2023 levels. To achieve this goal, Ziptrek should prioritize implementing reductions to their 4 highest emission sources, with attending international meetings virtually and securing alternative-fuel vehicles as top priorities.

Achievements

- First year measuring and reporting carbon footprint

Moving Forward

- Request to attend international meetings virtually

- Purchase electric or hybrid vehicles to replace gas vehicles

Data Collection & Methodologies

Emission Source	Data Type	Data Quality	Notes
Gasoline	Summary report	Good	This table details data received from Ziptrek to generate this report. Data quality is assessed on five categories: technology, time, geography, reliability and completeness. This table provides further information on the values in this report and what sources were used to calculate them. If a material emissions source has low quality data, it will affect the accuracy of the final inventory.
Propane	Invoices	Very Good	
Natural Gas	Estimate	Fair	
Electricity	Estimate	Fair	
Purchased Goods	Purchasing summary	Very Good	
Waste	Waste Tracking Worksheet	Good	
Travel	Travel Tracking Worksheet	Good	
Commuting	Staff Survey	Fair	

Information on Inventory Uncertainty

1 Natural gas consumption was estimated based on sq. ft. and office consumption averages.

2 Commuting data provided required multiple estimates and assumptions to calculate emissions, which may decrease the accuracy of emissions total.

Emissions References

1. 2022 B.C. Best Practices Methodology for Quantifying Greenhouse Gas Emissions
https://www2.gov.bc.ca/assets/gov/environment/climate-change/cng/methodology/2021-best-practices-methodology_for_archive.pdf

2. Environment Canada's National Inventory Report (1990-2021); Part 2 & 3.
https://publications.gc.ca/collections/collection_2023/eccc/En81-4-2021-2-eng.pdf
https://publications.gc.ca/collections/collection_2023/eccc/En81-4-2021-3-eng.pdf

3. Department for Environment, Food & Rural Affairs (UK) Carbon Factors 2023
https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2023

4. Intergovernmental Panel on Climate Change (Global Warming Potentials)
https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Chapter07.pdf

All emissions factors are reviewed and approved by Ostrom Climate Solutions (https://ostromclimate.com/) on an annual basis.

Policy for Base Year Recalculation:
Base year emissions, and other previous emissions, shall be retroactively recalculated if a change in organizational structure or data quality is expected to exceed a significance threshold of 10% of base year emissions. These changes may arise from structural changes such as mergers, acquisitions, divestments, outsourcing or insourcing, changes in calculation methodology and improvements in accuracy, or discovery of significant errors.

Glossary of Terms

Term	Description
Biogenic	Carbon emissions generated from sources naturally occurring in the carbon cycle (i.e. organic matter), rather than the result of fossil fuel combustion.
Emissions Factor	The volume of emissions created by an emissions producing activity (i.e. fuel combustion), calculated based on the amount of the activity (volume, distance, etc.).
GHG	**Greenhouse Gas (emissions):** Atmospheric gasses contributing to the greenhouse effect, including Carbon Dioxide (CO_2), Methane (CH_4), Nitrous Oxide (N_2O), etc.
GJ	**Gigajoule**: Unit of natural gas equal to 26.137 m^3 or 0.947 MMBtu
kWh	**Kilowatt-Hour**: Common unit for measuring electrical consumption
m^3	**Cubic Meter**: Unit of measurement equal to 1,000 Litres
Net-Zero	Companies with a zero-emission carbon footprint, usually achieved by minimizing outputs and negating the remaining emissions through carbon removal activities.
LED	**Light Emitting Diode:** A form of highly efficient lighting technology
psg-km	**Passenger-Kilometer**: Unit separating total emissions between passengers per km
tCO_2e	**Tonnes of Carbon Dioxide Equivalent**: a combined term capturing the emissions from various GHGs.

Full List of Recommended Actions

✓	**Highest Impact Initiatives**
	Request to attend international meetings virtually
	Establish an organizational low-emission travel policy
	Purchase electric or hybrid vehicles to replace gas vehicles
	Purchase low emission vehicle alternatives such as E-bikes or electric ATVs to use in place of gas vehicles when applicable
	Create a purchasing policy to identify and prioritize purchasing from suppliers that measure their product carbon footprint and work to reduce product emissions.
	Provide subsidized transit passes for staff and leverage Ziptrek's position to advocate for improved transit service

✓	**Quick & Easy Implementations**
	Set thermostat to 21C during operating hours, and 15C during vacant hours
	Limit vehicle use to essential travel only
	Create a Zero Emissions Equipment policy that prioritizes the purchase of equipment and vehicles running on alternative fuels or electricity
	Create a purchasing policy that requires all new office equipment to be energy star or high efficiency rated
	Ensure all lights are LEDs
	Hold a meeting with staff to discuss barriers to low-emission commuting and how Ziptrek can support staff in reducing commuting emissions
	Create low emission commuting challenges, rewarding the team or individual with the lowest emissions commuting rate
	Implement a program to help staff coordinate carpooling to work

✓	**Low Emissions, High Sustainability**
	Work with building owners and other organizations sharing the building to implement building wide water reduction initiatives
	Replace all water fixtures with low-flow versions (toilets & aerators) to reduce water use
	Use only refillable soaps and cleaning supplies in the office
	Introduce recycling streams for Soft Plastics, Batteries, Light Bulbs, Styrofoam and Foil Wrapping
	Talk to local climbing and outdoor gear suppliers about recycling and end-of-life options to keep destroyed gear out of the landfill

✓	**Sustainability Policies**
	Talk to conference centre about purchasing renewable natural gas to lower fossil carbon emissions
	Implement a "carbon budget" that sets a cap on the maximum allowable carbon emissions from travel for each staff member
	Create a purchasing policy that prioritizes local and Indigenous goods

✓	**Impacts Surrounding Communities**
	Communicate genuine sustainability goals to guests and create an education program on ways guests can support sustainability in Whistler
	Provide subsidized transit passes for staff and leverage Ziptrek's leadership position to advocate for improved transit service

✓	**Cost Saving Initiatives**
	Conduct an energy audit at the A frame and office space to identify and prevent building heat loss
	Work with building owners to access federal and/or provincial funding opportunities for building retrofits
	Collect, wash and reuse staff uniforms when possible

✓	**Best Practices**
	Change sleep settings for all computers and monitors It is recommended to set monitors to sleep after 5 minutes and laptops after 15 minutes
	Ensure all computers, monitors, and printers and turned off at night
	Switch desktop computers for laptops, as laptops use up to 80% less energy
	Prioritize the use of cars, trains, ferries and busses, reserving air travel for long distances
	Implement an incentive program designed to reduce contamination of recycling and organics streams
	Conduct a waste audit to identify the need for more recycling streams or signage and education
	Switch to reusable items and cleaning supplies to reduce overall waste production

Resources

CleanBC Go Electric Program

1	Fleet Charging Program

The Fleet Charging Program provides training, advisory services, and financial support for fleet and infrastructure assessments, electrical upgrades, and EV chargers for light, medium, and heavy-duty vehicle fleets.

2	Passenger Vehicle Rebates for Fleets

Fleets and car-share organizations can get rebates on passenger EVs. No minimum fleet size required.

3	Go Electric Rebates Program

Get rebates on medium- and heavy-duty on-road trucks; cargo e-bikes; electric motorcyles; low-speed vehicles; airport and port specialty vehicles; utility vehicles.

4	Rebates for Workplace Chargers

Get rebates on the cost of purchasing and installing EV chargers at your workplace. Pre-approval is required.

Transport Canada iMHZEV Program

5	Incentives for Medium- and Heavy-Duty Zero-Emission Vehicles

The Government of Canada knows that the higher upfront purchase cost of medium- and heavy-duty zero-emission vehicles (MHZEVs) can make it difficult to adopt this clean technology. The Incentives for Medium- Heavy-duty Zero-Emission Vehicles (iMHZEV) Program is helping to make it more affordable.

6	Clean Energy Canada Zero-Emission Medium- and Heavy-Duty Vehicle Catalogue

Clean Energy Canada has partnered with zero-emission bus and truck expert CALSTART to develop a Canadian zero-emission medium- and heavy-duty vehicle (ZEMHDV) model availability catalogue.

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