

# GRAIN

Sharon Lee

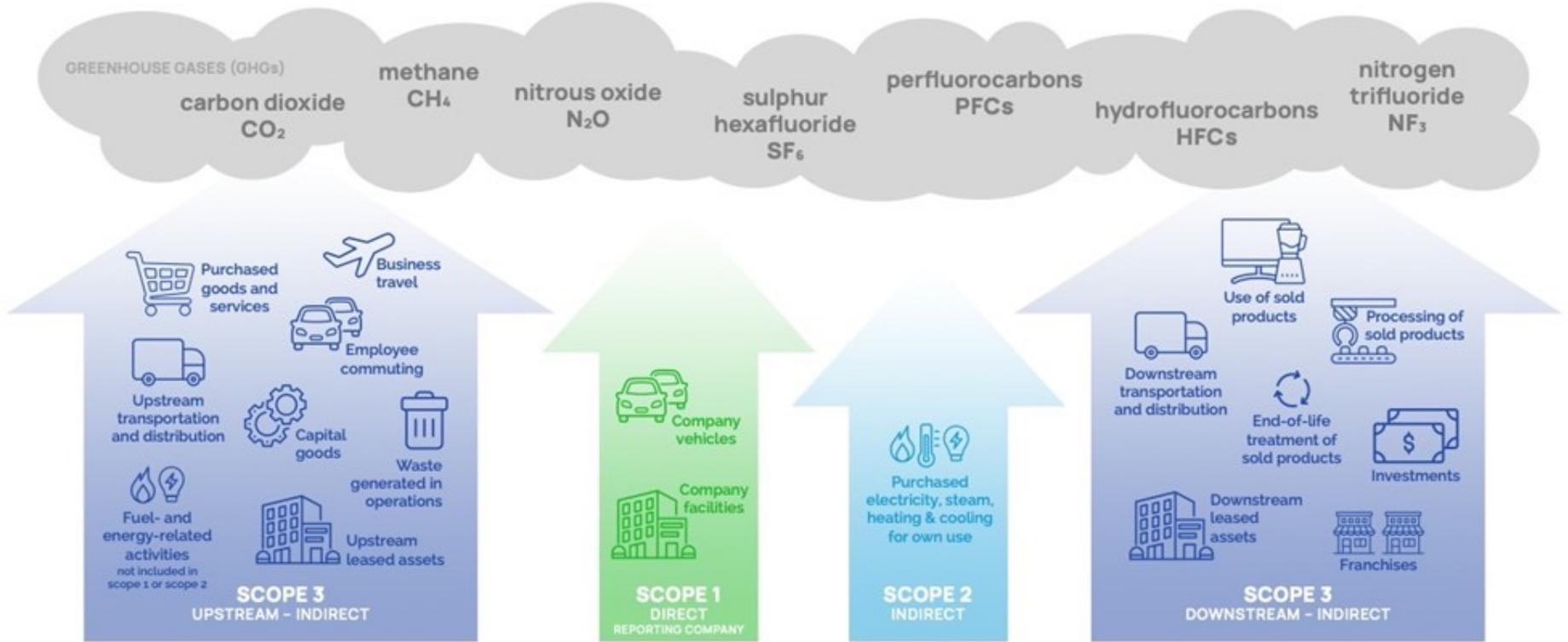
Carbon Footprint Report 2022

28 September 2023

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# GHG Protocol: scopes and emissions



# GHG Protocol: accounting and reporting principles



This report has been prepared using the accounting and reporting principles set out in The Greenhouse Gas Protocol Corporate Accounting and Reporting Standard [revised edition](#).

## Relevance

Ensure the GHG inventory **appropriately reflects the GHG emissions** of the company and **serves the decision-making needs** of users – both internal and external to the company

## Completeness

Account for and **report on all GHG emission sources and activities within the chosen inventory boundary**. Disclose and justify any specific exclusions.

## Transparency

Address all relevant issues in a factual and coherent manner, based on a **clear audit trail**. Disclose any relevant assumptions and make appropriate references to the accounting and calculation methodologies and data sources used.

## Consistency

Use consistent methodologies to **allow for meaningful comparisons of emissions over time**. Transparently document any changes to the data, inventory boundary, methods, or any other relevant factors in the time series.

## Accuracy

Ensure that the quantification of GHG emissions is systematically neither over nor under actual emissions, as far as can be judged, and that **uncertainties are reduced as far as practicable**. Achieve sufficient accuracy to enable users to make decisions with reasonable assurance as to the integrity of the reported information.

# Approach to data collection and calculation

## Organisational boundaries

A control approach has been used to define the organisational boundary of this report. GHG emissions source data has been collected from facilities and activities which are under Sharon Lee's ownership and financial control.

## Operational boundaries

The data collection process aimed to identify and measure all scope 1 and 2 emissions sources and scope 3 categories relevant to the organisation's business context and goals.

## Data collection

Data was collected by Sharon Lee with guidance and templates provided by Grain Sustainability.

Scope 3 data collection recommendations were made in line with GHG Protocol standards and industry norms.

## Base year selection

2022 was the most recent complete financial year for which data was available.

As per [SBTi recommendations](#), the selection was guided by consideration of the impacts of the Covid-19 pandemic and selecting a year representative of Sharon Lee's future business activities and operations.

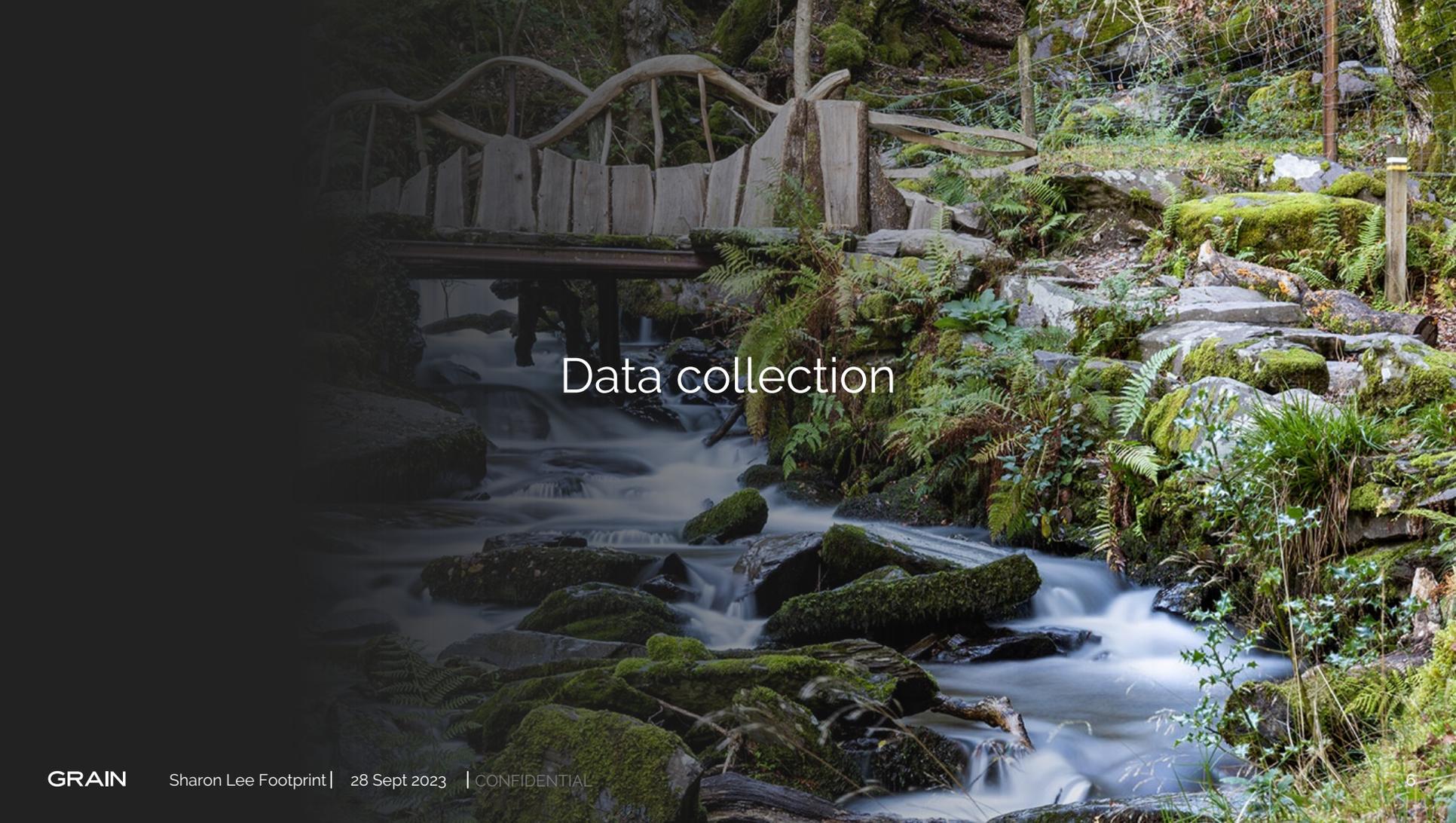
## Calculation tool

The [Compare Your Footprint](#) platform was used to produce calculations and generate reports with the following assurances.

*The calculation methodology applies average data international carbon factors publicly available from governments and environmental bodies.*

*UK government conversion factors are used in compliance with the Open Government Licence for public sector information.*

*This methodology is compliant with the Greenhouse Gas (GHG) Protocol Corporate Accounting and Reporting Standard ensuring all emissions inventories can be confidently used within communications to employees, customers and shareholders.*

A scenic view of a forest stream with a wooden bridge and moss-covered rocks. The stream flows over large, moss-covered rocks, creating a small waterfall. The surrounding forest is lush with green ferns and moss. A wooden bridge with a curved railing spans the stream in the background.

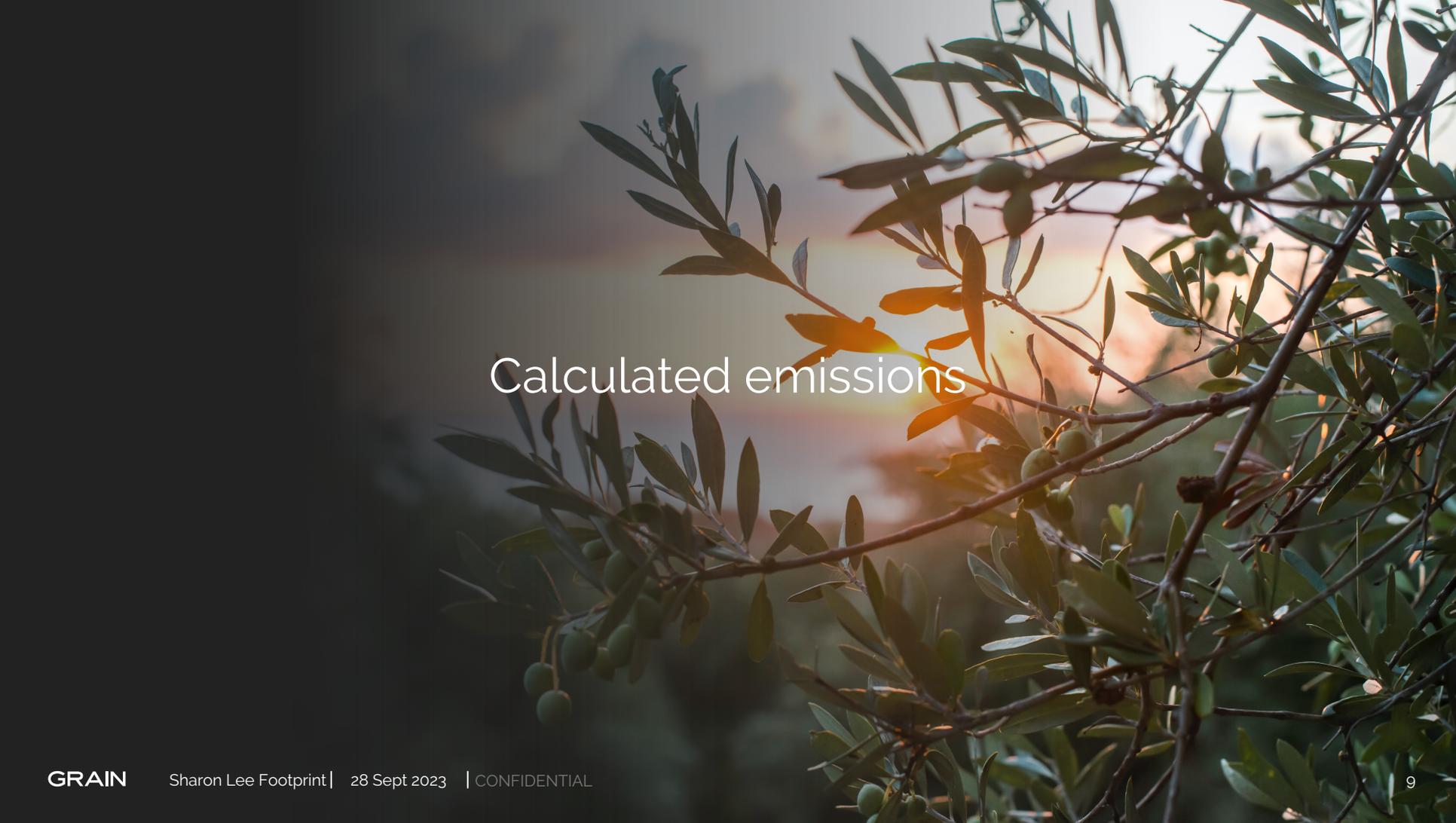
# Data collection

# Data collected

Scope	GHG Protocol category	Emissions sources included
Scope 1	-	
Scope 2	-	Electricity
Scope 3	1. Purchased goods and services	Paper
	2. Capital goods	
	3. Fuel-and energy-related activities (not included in scope 1 or 2)	Electricity WTT and T&D
	4. Upstream transportation and distribution	Freight: air, sea, road
	5. Waste generated in operations	Waste
	6. Business travel	Business travel: road
	7. Employee commuting	Employee commuting: road
	8. Upstream leased assets	
	9. Downstream transportation and distribution	
	10. Processing of sold products	
	11. Use of sold products	
	12. End-of-life treatment of sold products	
	13. Downstream leased assets	
	14. Franchises	
	15. Investments	

# Data entered

Entity	Subentity	Consumption	Unit	Remarks
Revenue	-	2,184,209.68	£	
FTE	-	22	FTE	
Business Travel: Road	Mini Petrol	624	km	Car not owned by organisation: Aimee
	Average Petrol	859	km	Car not owned by organisation: Toby
	Average Diesel	2,937	km	Car not owned by organisation: Danny and Vicky
Electricity	Electricity: UK grid	79,364	kWh	Sum of monthly consumption 1 Nov 2021 to 31 Oct 2022
Employee Commuting: Road	Average Diesel	14,693	km	Data from survey
	Average	53,867	km	Data from survey
Freight: Upstream	Air: Average DHL	24,853.68	tonne.km	Inbound shipments from China suppliers, air segment
	Road: HGV	5,862	tonne.km	Inbound shipments port (LHR or Felixstowe) to SL via HGV
	Road: LDV Ave DHL	612	tonne.km	Inbound shipments port (LHR or Felixstowe) to SL via LDV
	Road: Average DPD	22,265.62	tonne.km	Goods out excluding internal movement and customer collection
	Sea: Average DHL	1,531,160	tonne.km	Inbound shipments from China suppliers, sea segment
Paper	Primary material	0.137	tonne	Reams converted to tonnes at 1 ream = 0.002495 tonnes
Waste paper	Closed loop	68.64	tonne	Volume to tonnage converted at 0.6 tonnes per cubic metre
Waste plastic	Open loop	140.14	tonne	Volume to tonnage converted at 1.225 tonnes per cubic metre
Waste: Refuse	Combustion	109.2	Bin: 1100 litre	General waste from premises
	Closed loop	1.949	tonne	Avena recycled waste
	Combustion	0.535	tonne	Avena EfW

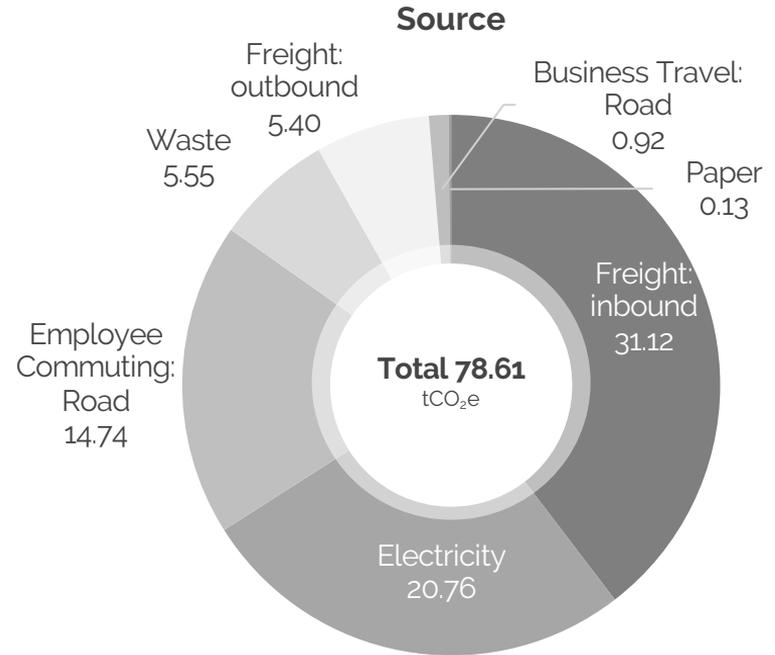
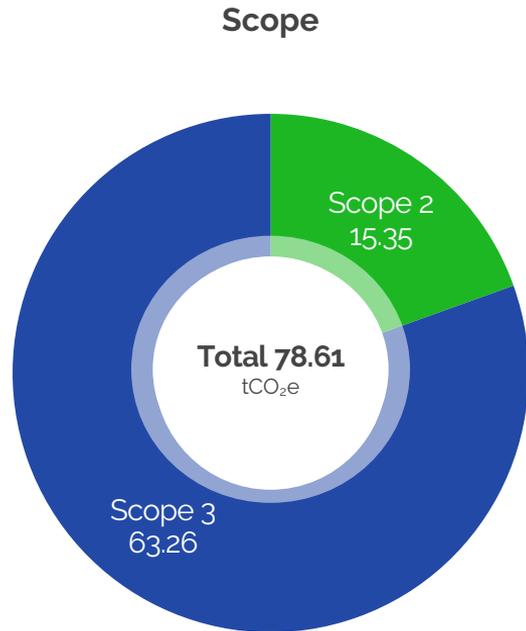
A close-up photograph of an olive branch with several green olives. The branch is in the foreground, and the background is a soft, out-of-focus sunset or sunrise with warm orange and yellow light. The text "Calculated emissions" is overlaid in white in the center of the image.

# Calculated emissions

# Calculated emissions by scope and by source

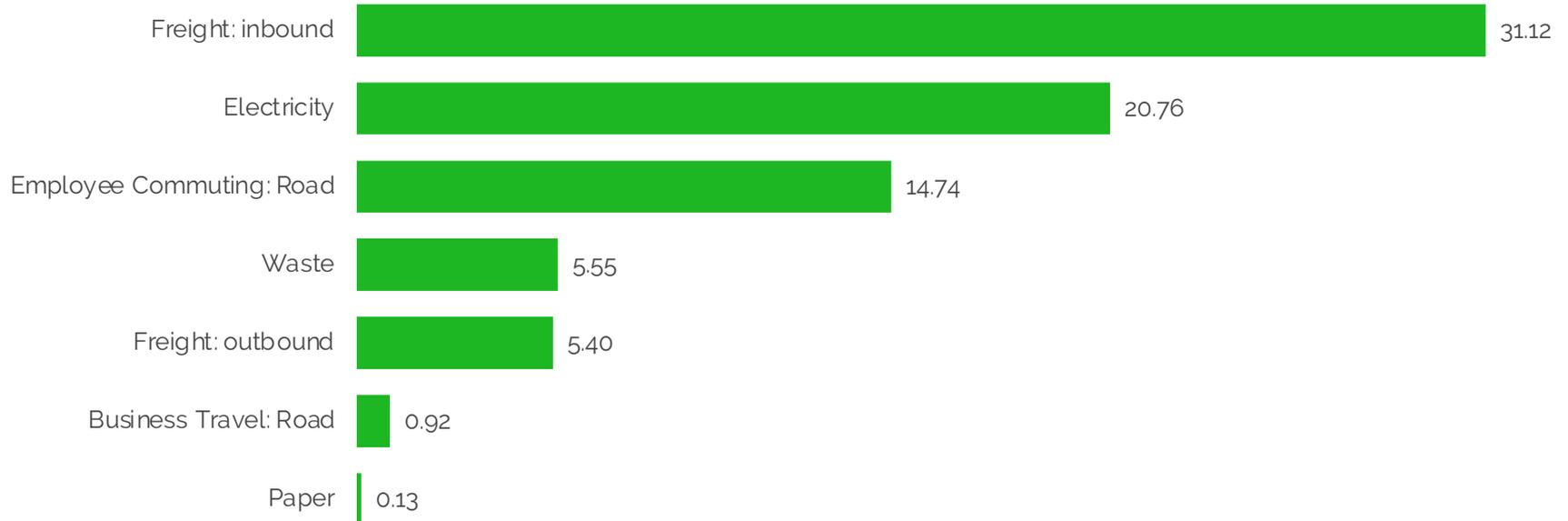
Scope 1		Scope 3		All scopes	
<b>Total</b>	<b>0.00</b>	Business Travel: Road	0.92	Scope 1	0.00
	<b>tCO<sub>2</sub>e</b>	Electricity (WTT & T&D)	5.41	Scope 2	15.35
<b>Scope 2</b>		Employee Commuting: Road	14.74	Scope 3	63.26
Electricity: UK grid	15.35	Freight: Air (inbound)	14.76	<b>Total</b>	<b>78.61</b>
<b>Total</b>	<b>15.35</b>	Freight: Road (inbound)	0.88		<b>tCO<sub>2</sub>e</b>
	<b>tCO<sub>2</sub>e</b>	Freight: Road (outbound)	5.40		
		Freight: Sea (inbound)	15.48		
		Other waste	1.05		
		Paper	0.13		
		Waste paper	1.46		
		Waste plastic	2.98		
		Waste: Avena Efw	0.01		
		Waste: Avena recycled	0.04		
		<b>Total</b>	<b>63.26</b>		
			<b>tCO<sub>2</sub>e</b>		

# Chart of emissions by scope and by source

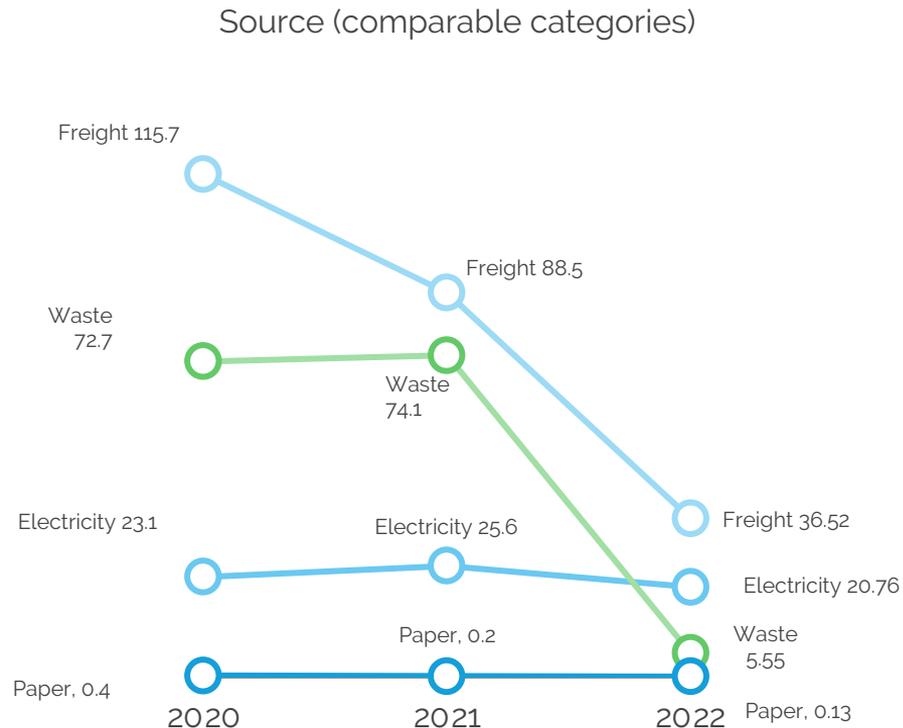
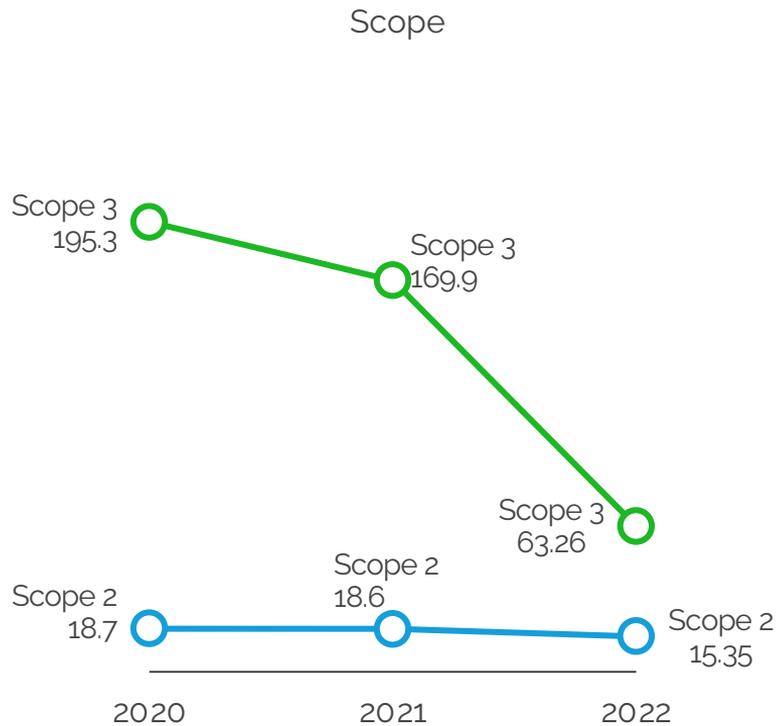


# Chart of emissions by source

Tonnes of carbon dioxide equivalent emissions (tCO<sub>2</sub>e)



# Year-on-year comparison of emissions by scope and by source



# Calculated emissions intensity

**2022**

Scope	Total (tCO <sub>2</sub> e)	tCO <sub>2</sub> e/ GBP million revenue	tCO <sub>2</sub> e/ FTE
<b>Scope 2</b>	15.35	7.03	0.70
<b>Scope 3</b>	63.26	28.96	2.88
<b>All scopes</b>	78.61	35.99	3.57

**2021**

Scope	tCO <sub>2</sub> e/ GBP million revenue	tCO <sub>2</sub> e/ GBP million revenue
<b>Scope 2</b>	8.87	8.89
<b>Scope 3</b>	80.92	93.01
<b>All scopes</b>	89.79	101.90

**2020**

# Calculated emissions by greenhouse gas

Scope	tCO <sub>2</sub>	tCH <sub>4</sub>	tN <sub>2</sub> O	Total
Scope 2	15.175	0.063	0.109	15.347
Scope 3	14.334	0.015	0.112	63.258
All	29.509	0.078	0.221	78.605

tCO<sub>2</sub> = tonnes of carbon dioxide

tCH<sub>4</sub> = tonnes of methane

tN<sub>2</sub>O = tonnes of nitrous oxide

Note: Different greenhouse gases have different warming potentials and potencies, meaning that the sum of the tonnes of these gases will not equal the tonnes of CO<sub>2</sub>e. For example, one tonne of N<sub>2</sub>O does not equal one tonne of CO<sub>2</sub>e

# Greenhouse gases



## Carbon dioxide (CO<sub>2</sub>)

Result of burning fossil fuels, solid waste, trees and other biological materials and certain chemical reactions. Keeps the Earth from freezing solid, but if its concentration is too high, it causes global warming.

x 1      400 years



## Methane (CH<sub>4</sub>)

Sources include landfills, oil and natural gas systems, agricultural activities, coal mining, stationary and mobile combustion, wastewater treatment etc.

x 80      12 years



## Hydrofluorocarbons (HFCs)

Mostly used for cooling & refrigeration and were developed to replace ozone depleting substances.

x 3,790      20 years



## Nitrogen trifluoride (NF<sub>3</sub>)

Recently added to the list as its potency was not previously known. Mostly used in manufacture of LCD, some types of solar panels and chemical lasers.

x 17,000      550 years



## Nitrous oxide (N<sub>2</sub>O)

Also known as the "laughing gas". Released from burning fuel, including coal-powered plants as well as from soil where N fertiliser has been used.

x 300      114 years



## Sulfur hexafluoride (SF<sub>6</sub>)

Used in electricity distribution systems and is the most potent greenhouse gas. This gas cannot be removed from the atmosphere.

x 23,500      1000s years



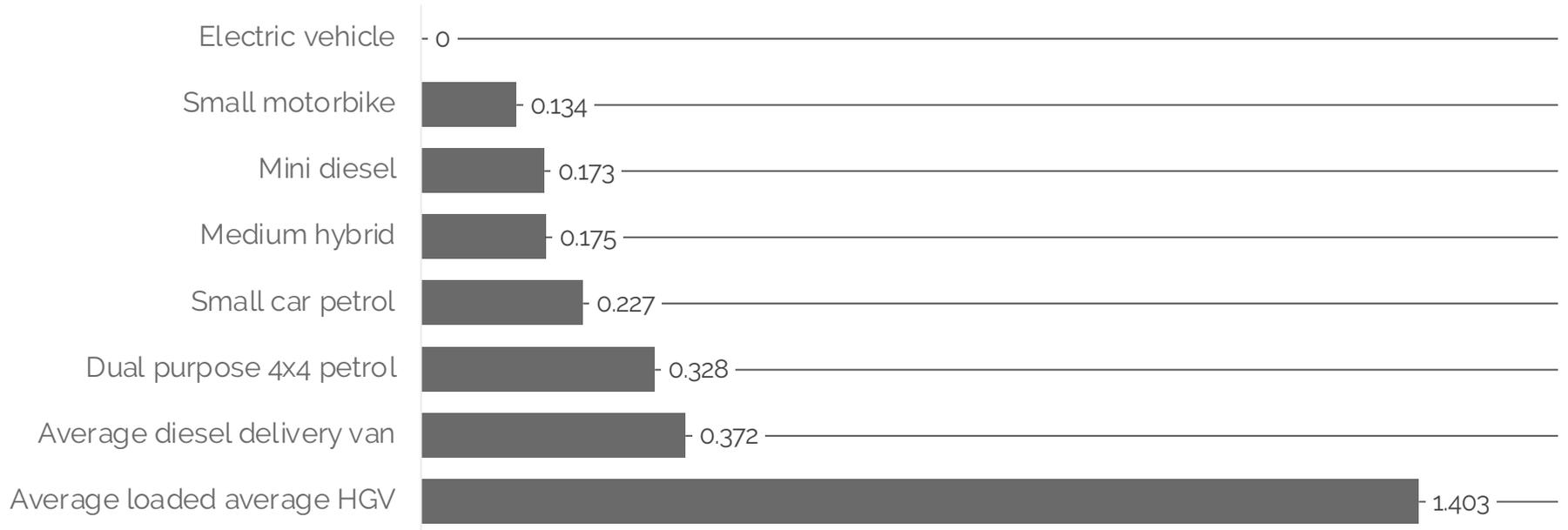
## Perfluorocarbons (PFCs)

Primary aluminium and semiconductor chip production are major sources of global PFC emissions. Total emissions are small, but growing.

x 1,000s      50,000s years

# Transport emissions compared

Kilograms of carbon dioxide equivalent emissions (kgCO<sub>2</sub>e) per mile travelled



UK Government GHG Conversion factors 2023

## Observations and recommendations

Freight emissions are significantly lower than the previous two years

- This is most likely due to freight consolidation efforts by the organisation

Waste emissions are also significantly lower than the previous two years

- Previous waste calculations assumed a proportion of waste to landfill
- Current year calculations assume waste is either combusted or recycled in line with national averages
- There has also been a conscious effort on the part of the organisation to recycle more

Scope 1 and 2 are consistent and low

- There is potential for zero or near zero operations following switch to 100% renewable electricity in 2023