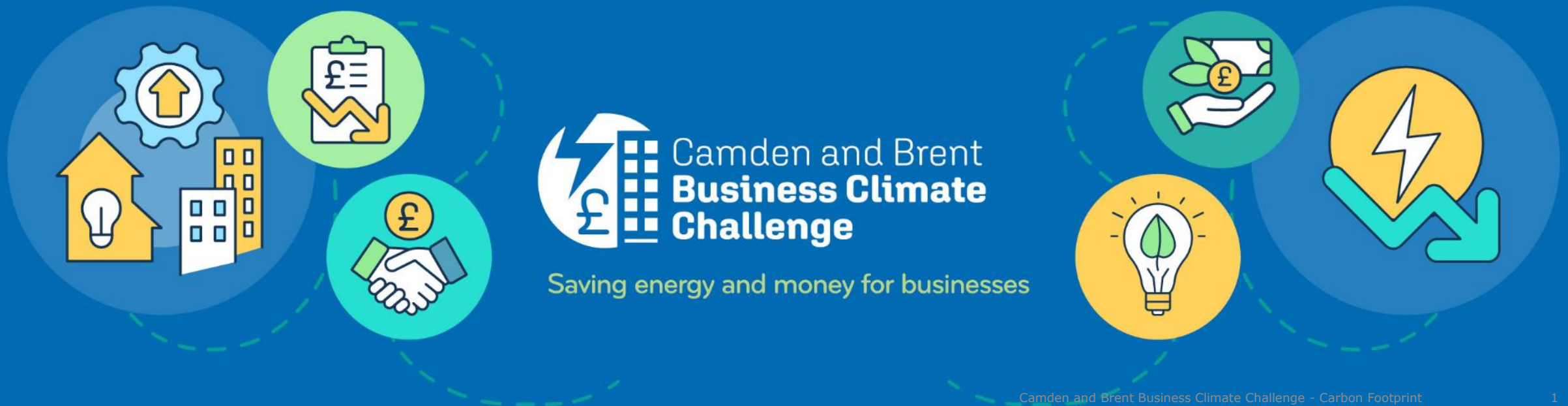


Introduction to Carbon Footprinting

November 12th 2025



Agenda

**11-00 – 11.05 Welcome and Introductions,
Camden Climate Alliance – Maggie Tapa**

Housekeeping & Introductions

**11.05 - 11.15 What is a Carbon Footprint? -
Turner & Townsend**

**11.15 - 11.25 Understanding Scopes 1, 2 and 3 –
Turner & Townsend**

**11.25 - 11.45 Calculating Scope 1 and 2
emissions – Turner & Townsend**

Step-by-step using real-life case study

**11.45 - 11.55 Where can businesses cut their
emissions?**

Quick wins, plus short to long term changes

11.55 - 12.00 Tracking progress & reporting

Where to from here & how to get started

Carbon Certification Scheme

12.00 - 12.30 Q&A

12.30 - Close

Welcome and Introduction



Saving energy and money for businesses

Meet the presenters

**Camden
Climate Alliance**



Turner & Townsend



Maggie Tapa
Climate Partnerships Lead



Sara Ferretti
Associate Director



Shraddha Nair
Senior Consultant



Pranam Bhavani
Junior Consultant

Camden Climate Alliance

Who we are & how we help:

A Camden-based sustainability network helping local businesses lead on climate action – we support businesses, organisations and schools to reduce environmental impact and improve their climate resilience

What we do:

Camden and Brent Business Climate Challenge

Our flagship programme small-medium businesses cut emissions through an energy efficiency programme in collaboration with **Brent Council** and **The Fitzrovia Partnership**

- **86 businesses** supported with bespoke energy audits
- Energy dashboard access for ongoing monitoring
- **6 training sessions + bonus carbon footprinting** session!

Other support

Access to online resources and guidance

In-person and virtual events, plus networking opportunities

Opportunities to deliver projects beyond your organisation

Annual reporting and Carbon Certification scheme to showcase member achievements

Camden
Climate Alliance



The
Fitzrovia
Partnership
Business Improvement District

Brent
for business

Camden and Brent
**Business Climate
Challenge**

What is a carbon footprint?



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What is a carbon footprint?

Overview

A carbon footprint measures the **total greenhouse gas emissions** caused by an individual, event, organisation, service, place or product

It is normally expressed in carbon dioxide equivalents (**CO₂e**)

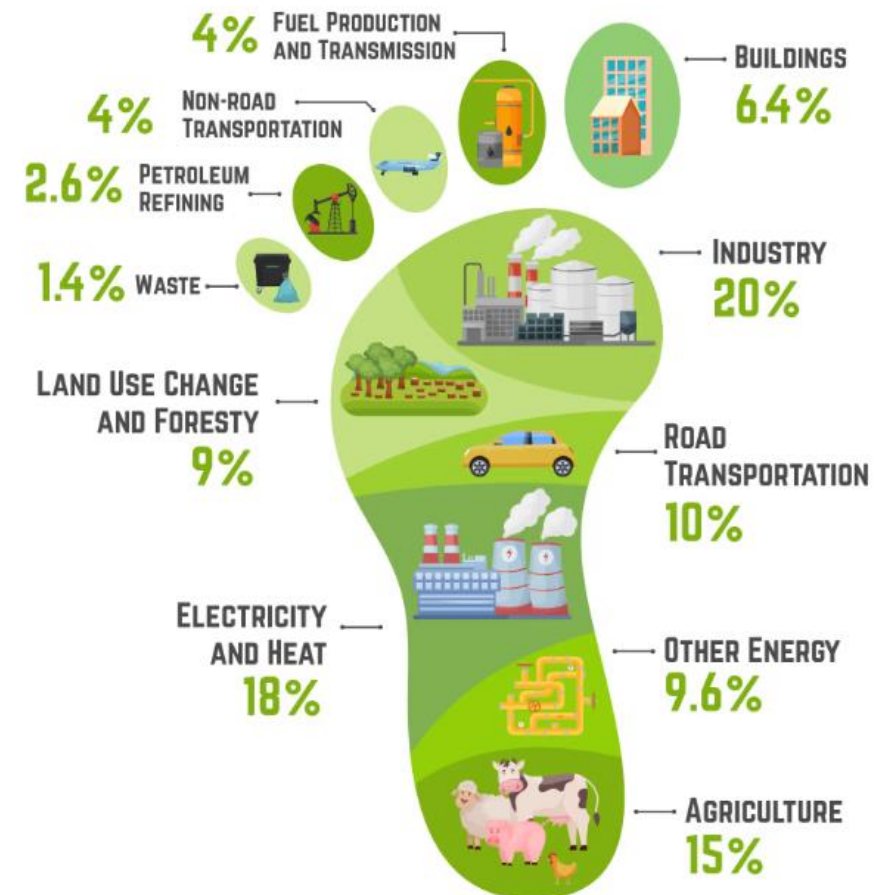
A carbon footprint **helps you understand** how your small business contributes to climate change.

It highlights areas where you can **reduce emissions** and **track progress** over time. Regular updates ensure you're measuring improvements and staying on course with your own and wider sustainability goals.

Why is this important for business owners?

- Building **credibility** as a business where consumers sustainability awareness has increased
- **Standing out** in a competitive market
- Cost savings which come from identifying **quick wins** in your carbon calculations
- Increase your likelihood of qualifying for **grant funding** to help implement energy efficiency measures
- Understanding your business' impact helps you make **informed decisions** around what changes you can implement.

CARBON FOOTPRINT



Carbon footprint

What may be contributing to a SME's carbon footprint?

Some **contributing factors** to a business' carbon footprint are detailed below. Each factor can be reflected upon by business owners as to whether these are currently carried out through **sustainable practices** therefore are contributing to a reduction in a business' carbon footprint or whether they **may require action** from the business owner.



Energy consumption

- Heating
- Lighting
- Powering equipment



Transportation

- Business travel
- Delivery of goods
- Commuting employees



Supply chain activities

- Sourcing and distributing materials and products
 - Packaging materials
- Supplier's sustainable practices



Waste management

- General waste to landfill or to a recycling process
 - Food waste
- Hazardous waste e.g electronics

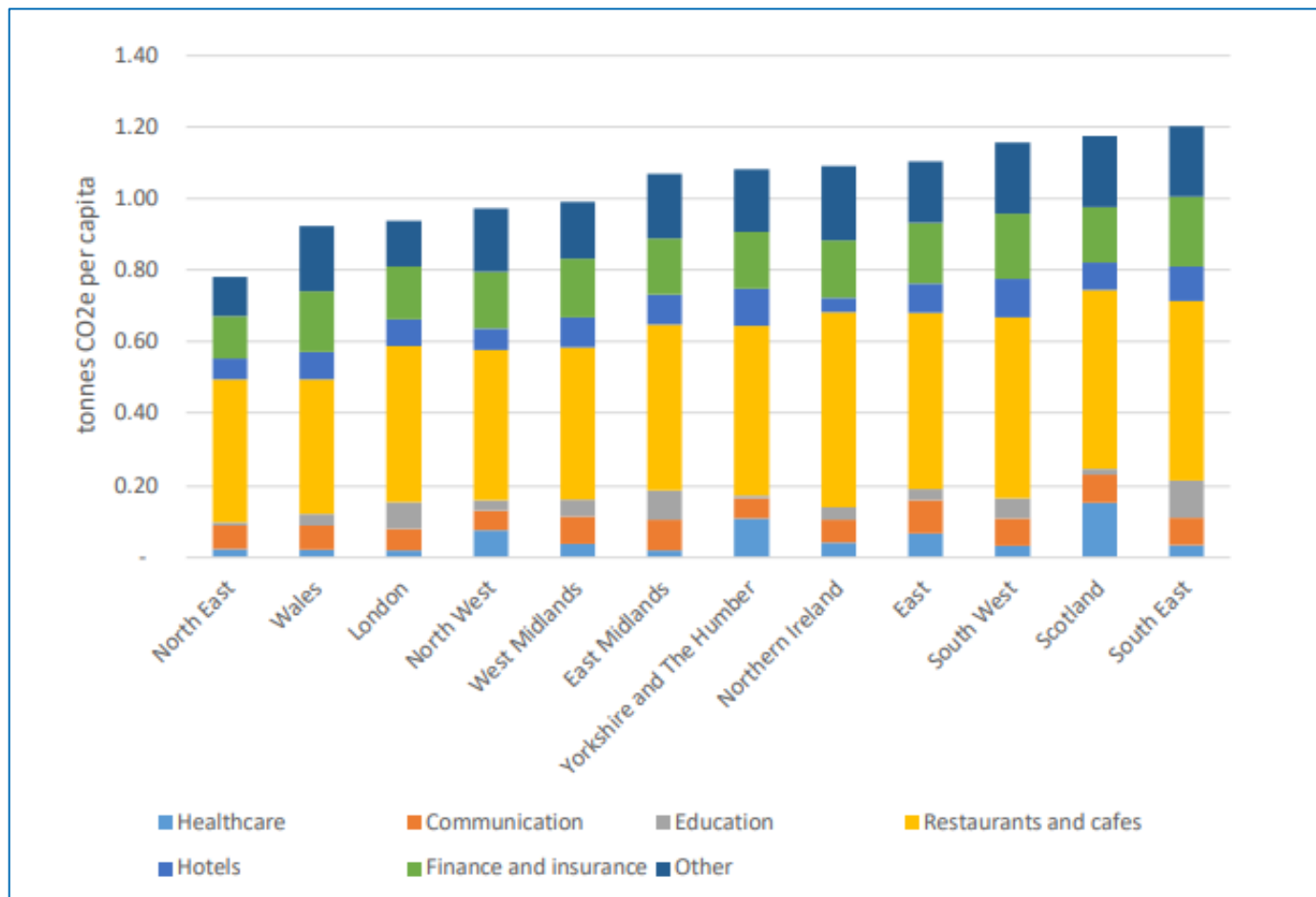


Water use

- Heating of water
- Water used in manufacturing process

Examples of carbon footprints across sectors

This may give SMEs an indication of where they are contributing to larger carbon footprints



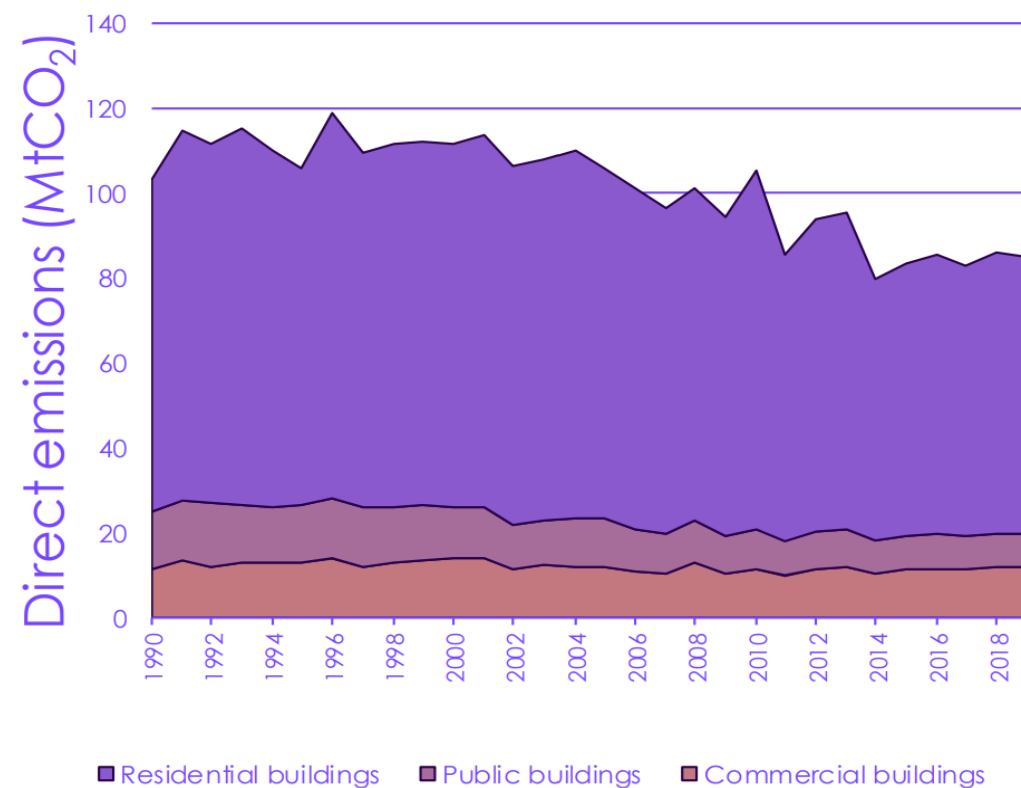
Source: [Owens, 2024](#)

- The chart shows **average emissions per person across UK regions**, broken down by sectors like **restaurants, hotels, education, finance, and healthcare**.
- Hospitality, finance, and hotels have the most significant footprint in most regions—highlighting the impact of **energy-intensive services** and digital infrastructure.
- Smaller sectors—like healthcare and education—still contribute to per capita emissions. This means every business, regardless of size or industry, has an **important role** to play in reducing its footprint.

SMEs' carbon footprint

Buildings and product uses account for 20% of the UK's carbon footprint

Figure M3.2 Direct CO₂ emissions from the buildings sector since 1990



Source: National Atmospheric Emissions Inventory (2020) Breakdown of UK GHG emissions by source and greenhouse gas.

- Direct emissions from buildings fell by 19% from 1990 to 2015 and have remained at a similar level since then.
- These falls in emissions largely **reflect energy efficiency** improvements in buildings.
- The UK's buildings are influencing positive changes as reflected above, however there are many sustainable practices and efficiencies that SMEs can implement to **further to this**.
- Increasing business owners' awareness of their impact results in more energy efficiency measures being implemented, further reducing building's contribution to the UK carbon footprint.

Scope 1, 2 and 3 emissions



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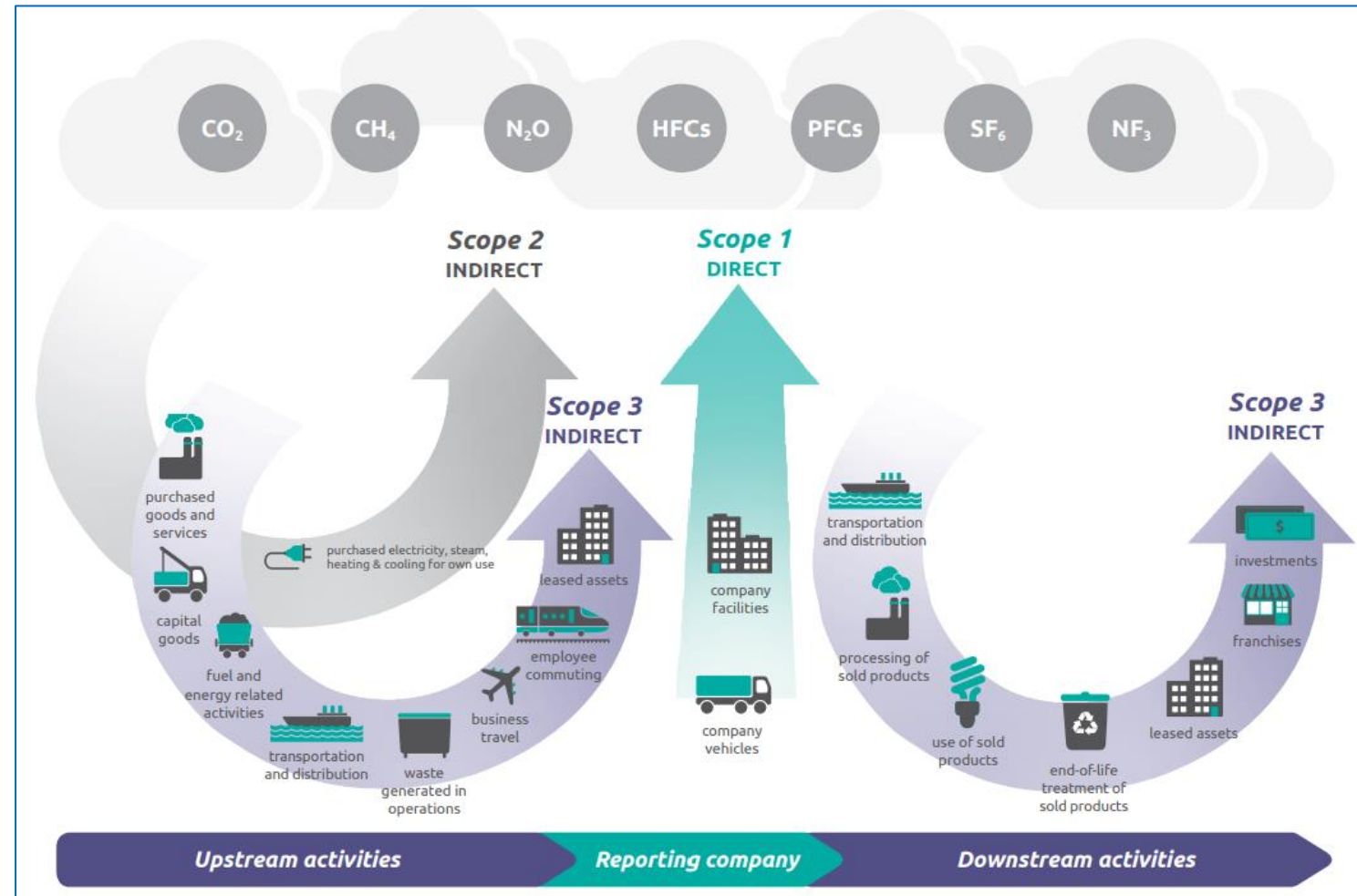
What are scoped emissions?

Scope 1 & 2 emissions

- Scope 1 are **direct** GHG emissions that occur from sources that are **owned or controlled** by the company.
- Scope 2 accounts for indirect GHG emissions from the generation of **purchased** electricity consumed by the company.

Scope 3 emissions

- Scope 3 emissions are **indirect** GHG emissions that are a consequence of the activities of the company but occur from **sources not owned** or controlled by the company.
- The GHG Protocol has broken down scope 3 emission to 15 categories and have provided guidance on some of the calculation methods for these businesses to report emissions from each category. This includes your waste, water use, commuting and investments.
- Measuring your business' scope 3 emissions is a big step in advancing your climate strategy and positively engaging with stakeholders to reduce your emissions.



Scopes 1, 2 and 3

What daily activities are grouped into each scope?

Scope 1

Gas for heating in office/ sites

Company-owned vehicles

Industrial processes

Scope 2

Lighting

Charging of EVs

Purchased steam or chilled water

Purchased heat from district networks

Scope 3

Staff homeworking equipment (paid by staff/ company)

Staff work phone service

Staff homeworking electricity use

Mileage for business travel

Mileage for staff commuting

Office furniture

Waste disposal

Distribution of products and services you buy/sell

Scope emissions for SMEs

Contributing factors to a SME's carbon footprint can be grouped into scoped emissions

Scope 1: Direct Emissions

These are emissions from sources **owned or controlled** by business owners.

- **Fuel used on-site** (e.g. gas boilers, ovens, generators)
- **Company vehicles** (petrol/diesel vans or cars)
- **Refrigerants** used in air conditioning or refrigeration units

Scope 2: Indirect Emissions from Energy

These are emissions from the **generation of purchased electricity, heat, or steam** used by businesses.

- **Electricity** used for lighting, equipment, IT systems, heating (if electric)
- **Purchased** heat or steam
- These emissions are attributed in the report to:
- Note: While the emissions occur at the power station, they are counted as Scope 2 for SMEs using the electricity.

Scope 3: Other Indirect Emissions

These are emissions that occur in the **supply chain** of the business, both upstream and downstream.

- **Business travel** (e.g. flights, trains not owned by the company)
- **Employee commuting**
- **Waste disposal**
- **Purchased goods and services** (e.g. raw materials, packaging)
- **Use of sold products** (if applicable)
- **Transport and distribution**

Scope 3 categories

The GHG Protocol has broken down scope 3 emission to 15 categories and have provided guidance on some of the calculation methods for businesses to report emissions from each category. This includes your waste, water use, commuting and investments.

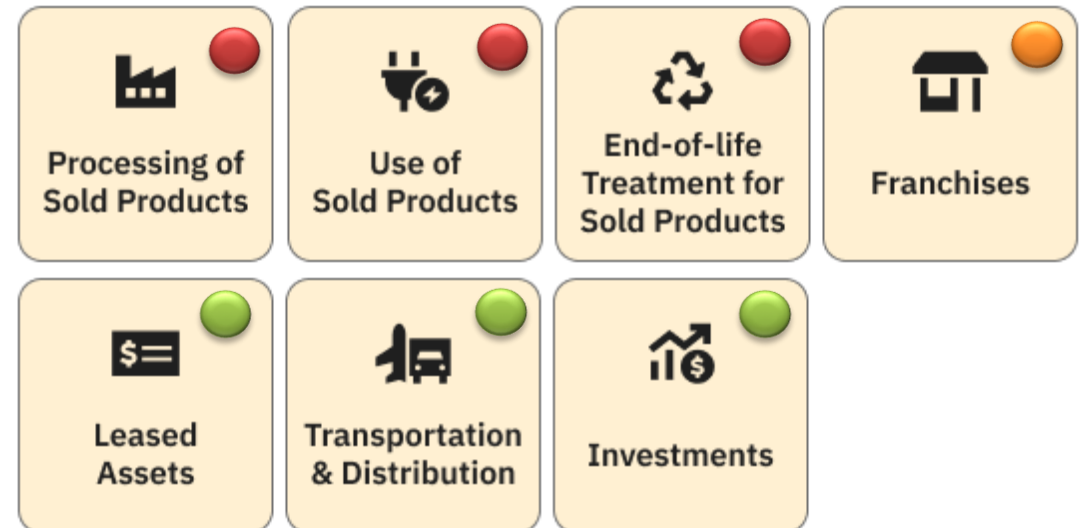
Activities grouped under **'Upstream'** consist of indirect emissions related to a business' suppliers.

Activities grouped under **'Downstream'** consists of emissions related to the sale of products, typically via consumers.

Upstream activities



Downstream activities



Calculating your emissions



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Calculating your carbon footprint

Process for getting started

Using the information you have learned on your business' scope emissions, you can now develop your carbon footprint



Step 1

Make a decision on what scope emissions you would like to include.

It is recommended to include **scope 1 and 2 at a minimum**, Scope 3 emissions can be more difficult to monitor.

All you need are your energy invoices and fuel receipts from any business vehicles.



Step 2

Decide your baseline year (what year you would like to make comparisons to).

Ensure you can have an entire year of data and that it is a **typical year** of business, it may be best to have a baseline year from after the COVID-19 pandemic.

Now you can gather the data for your **baseline year**.



Step 3

Now the activity data needs to be converted to emissions. The UK Government updates conversion factors for different activities annually.

Activity data x Conversion factor = GHG emissions

You can now add your results together to generate your business' carbon footprint!



Meter readings and bills - Electricity

What to look for in your electricity bills

Your Energy Charges In Detail

Electricity	Supply number	S	3	801	204
Postcode area alpha identifier: TBC					
[Redacted] (31st January 2023 - 27th February 2023)					
Energy Charges for Meter	F88A 16735				
31st Jan 2023	156035.0 Customer reading				
28th Feb 2023	158285.0 Customer reading				
Energy Used	2250.0 kWh @ 14.83p/kWh	£333.68			
Standing Charge	28 days @ 25.64p/day	£7.18			
Energy charges before VAT and CCL		£340.86			
Climate Change Levy (CCL) @ 0.00775 £/kWh on 2250.0 units		£17.44			
Subtotal of charges before VAT		£358.30			
VAT @ 20% on £358.30		£71.66			
Total Electricity Charges		£429.96			

Energy used - consumption in kWh

Standing charge - fixed daily charge covering supply of electricity to your property

MPAN number - Electricity supply number

Meter number

Electricity meter reading (kWh)

Climate Change Levy - this is an environmental levy charged on energy businesses use

About Your Tariff

Electricity	
Tariff Name	Green Octopus 24M Fixed
Payment Method	Direct Debit Monthly
Agreement End Date	2nd May 2023
Estimated Annual Usage	26269.1 kWh

Tariff type

Electricity mix

We believe that **renewable energy is no longer an opportunity - it's a responsibility**. Because of that, every single one of our business tariffs are powered by REGO-backed **100% renewable** electricity. As a group we also invest heavily in renewable generation; in fact, we're proud to say that the solar farms we've funded generate over 40% of all the UK's large scale solar.



Meter readings and bills – Gas

What to look for in your gas bills

Gas	Meter Point Reference: [REDACTED]	Meter Point Reference - Gas supply number
	Supply Address: [REDACTED]	Business address
Flexible Octopus (1st January 2024 - 11th March 2024)		
Energy Charges for Meter	E6S00212751456	Gas meter number
1st Jan. 2024	8083.0 Estimated reading	Gas meter readings (m³)
12th March 2024	8247.0 Customer reading	
Consumption	164.0 Units (m ³)	Energy used - consumption converted to kWh
Energy Used*	1816.4 kWh @ 6.96p/kWh	
Standing Charge	71 days @ 26.16p/day	£18.57
Subtotal of charges before VAT		£145.01
VAT @ 5.00%		£7.25
Total Gas Charges		£152.26

About Your Tariff

Prices do not include VAT unless otherwise noted.

Gas

Tariff Name	Flexible Octopus	Tariff type
Product Type	Variable	Unit rate - cost of gas per kWh used
Payment Method	Direct Debit	
Unit Rate	6.96p/kWh	Standing charge rate - charge per day
Standing Charge	26.16p/day (£95.48/year)	
Price Guaranteed Until	Not applicable	
Early Exit Fee	None	
Estimated Annual Usage*	5177 kWh	

Live walkthrough: Analysing your emissions



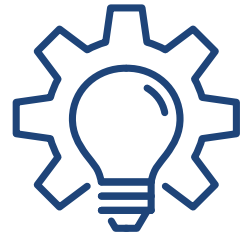
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Live walkthrough

There are four invoices to facilitate our walk through

London Welsh Centre case study

The London Welsh Centre is a cultural and community centre in the heart of central London. The London Welsh centre hosts community activities and events that champion Welsh talent with large spaces available for private hire.



Electricity



Gas



Water

Turner & Townsend Client case study



Vehicle fuel

Walkthrough instructions

1. Gather the relevant invoice for the activity you are calculating whether it be electricity, gas, water or fuel receipt
2. Open a blank excel document
3. Create a table in your document with the following headers

Building	Time period	Activity (electricity/gas/water)	Activity data (kWh or other measurement unit)	Emissions factor	GHG emission (kg CO ₂ e)
----------	-------------	----------------------------------	---	------------------	-------------------------------------

4. Navigate to conversion factors for that year from the UK Government website and download the following file: [Conversion factors 2025: full set \(for advanced users\)](#) The tabs correspond to scope emissions, **Green = Scope 1**, **Blue = Scope 2** and **Orange = Scope 3**
5. Using your invoice information, fill your table with the time period and your activity data (usage), using details from slide 18 and 19 to navigate.
6. Using the labelled tabs in the conversion factor document navigate to your activity that would you like to calculate
7. Using the same formula covered previously, multiply your activity data by your emissions factor and this will produce your GHG emissions from this activity in kg CO₂e.
8. You can convert final results into tonnes of CO₂e to follow best practice.
9. Now you can work through all of your activities and build your emissions profile and your total carbon footprint.
10. Download the GHG Protocol standard to align to their report format, or create your own and use for your annual disclosures



Example of calculation

Water bill

Water invoice

Navigate to your usage, for water bills there are two calculations to make for water and waste

Volumetric charges			
	Consumption or RV	Unit rates (£/m ³)	Charges for this bill
Water	71m ³	£2.4743	£175.68
Waste	67.45m ³	£1.6295	£109.91

Conversion factor

Choose 'water supply' tab for water reading and 'water treatment' tab for waste reading and extract your conversion factors

Activity	Type	Unit	kg CO ₂ e
Water supply	Water supply	cubic metres	0.19130
		million litres	191.30156

Activity	Type	Unit	kg CO ₂ e
Water treatment	Water treatment	cubic metres	0.17088
		million litres	170.87549

Result

You can carry this out across multiple activities to build your entire business' GHG emissions profile

Building	Time period	Activity (water)	Activity data (m ³)	Emissions factor	GHG emission (kg CO ₂ e)
Building A	October 2025	Water supply	71m ³	0.19130	13.5823
Building A	October 2025	Water treatment	67.45m ³	0.17088	11.5259
				Total	0.0251 tonnes CO₂e

Example of calculation

Vehicle fuel bill

Fuel invoice

Navigate to your volume of fuel, this invoice shows the diesel fuel in litres

Product	Volume
Diesel	48,44

Conversion factor

Choose 'fuels' tab and navigate to the fuel your invoice details, in this instance it is diesel fuel.

Diesel (average biofuel blend)	tonnes	3087.94462
	litres	2.57082
	kWh (Net CV)	0.25953
	kWh (Gross CV)	0.24411
	tonnes	3203.91143
	litres	2.66155

Fuels Bioenergy Refrigerant & other Passenger vehicles Delivery

Result

You can carry this out across multiple activities to build your entire business' GHG emissions profile

Building	Time period	Activity (fuel)	Activity data (litres)	Emissions factor	GHG emission (kg CO ₂ e)
Car A	October 2025	Diesel	48.44 litres	2.57082	124.530521
				Total	0.12453 tonnes CO₂e

Where can businesses reduce emissions?



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Measures to reduce your business emissions

Quick wins

LED lighting

- Installation of high efficiency LED lighting



Behaviour change

- Turn off lights and equipment
- Promote public transport commuting or set up a 'car-pool' initiative
- Highlight sustainability wins in team meetings to increase employee's awareness



Equipment

- High efficiency ICT and small power equipment
- Equipment set to enter 'sleep'/'standby' modes during periods of inactivity
- Equipment deactivated automatically out of hours



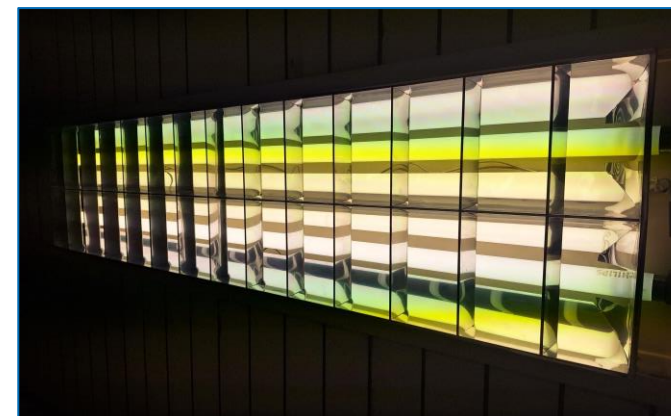
Building insulation & heat loss reductions

- Roof insulation
- Solar blinds
- Solar film



Small ancillary equipment

- Small ancillary equipment (such as instant hot water taps) deactivated automatically out of hours (e.g. 7-day plug switch timer).



Quick wins

Short term

Long term

Measures to reduce your business emissions

Short term goals

Water heaters

- Electric instant point of use water heaters



Lighting sensors

- Presence/absence detectors
- Daylight sensors
- Lights connected to doors/windows sensors to control lighting requirements (wired in-parallel)



Server room cooling

- Utilise free cooling opportunities
- Cooling system temperature setpoints at a suitable temperature for the installed equipment



HVAC Settings

- On/off switches to ensure control
- Deadband settings providing a range where heating/cooling is not required



Temperature set points & sensors

- Set points on controllers fixed at sensible temperatures so no excess heating and colling required
- Sensors placed in suitable locations to monitor building temperature



Quick wins

Short term

Long term

Measures to reduce your business emissions

Long term goals

Low carbon heating source

- Air source heat pumps
- Heat networks
- Ground source heat pumps



Building insulation

- Cavity wall insulation
- External wall insulation



Energy creation & storage

- Solar PV
- Battery storage



Window glazing

- Double/triple glazing
- Secondary glazing
- Vacuum glazed



HVAC Systems

- Installing high efficiency HVAC systems
- Regularly maintaining HVAC systems
- Self-regulating fans based on demand



Quick wins

Short term

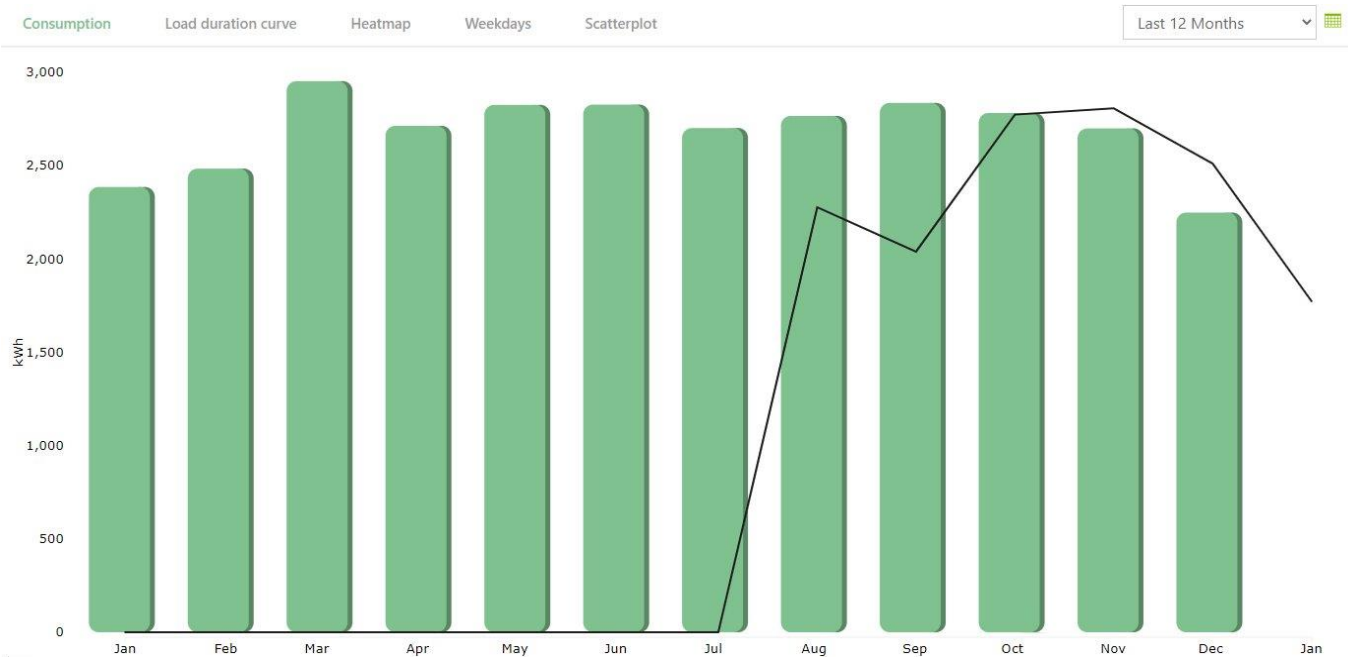
Long term

Practical advice and tips for tracking progress and reporting



Saving energy and money for businesses

Visualising your energy data



What is a baseline year?

- This shows the **energy data** from the previous year, which will be the **reference point to compare** after you have implemented or installed any changes.
- The energy baseline should reflect your **usual business operations** and should be used to set energy reduction targets.

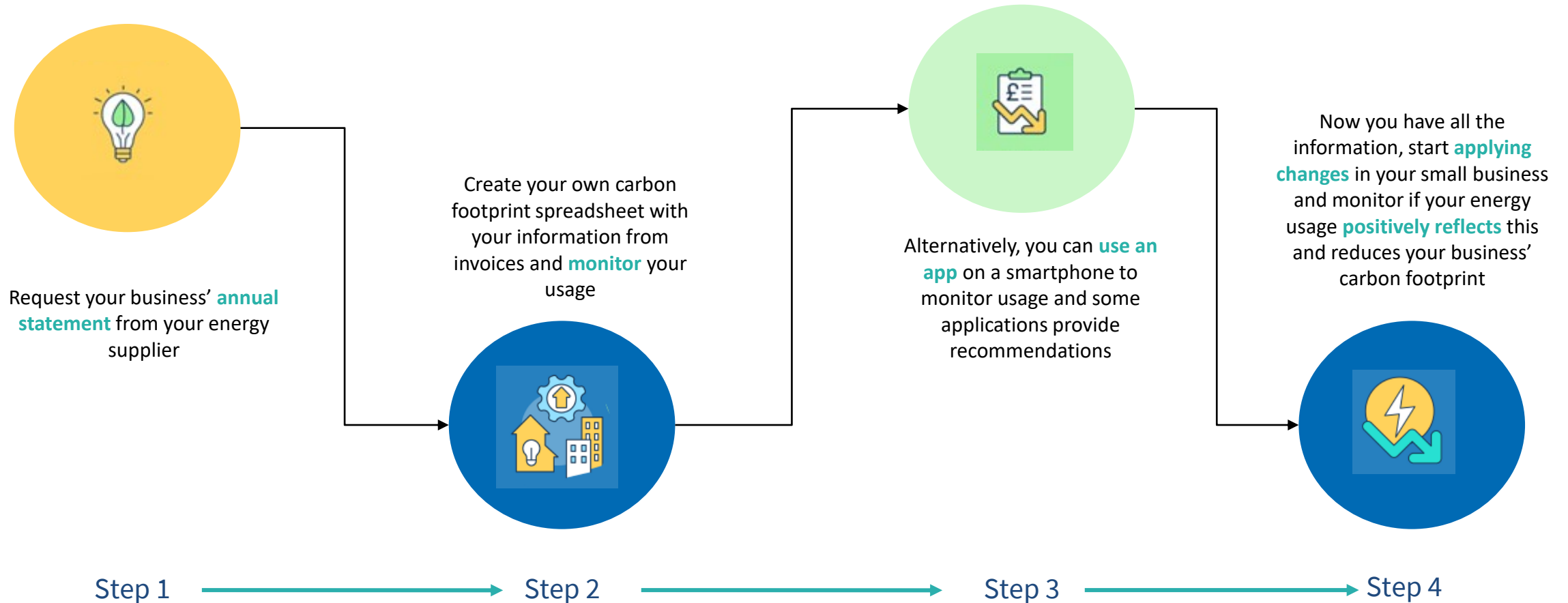
What to do with your annual energy consumption?

12 months of energy data can allow you to identify:

- **Trends** across the year
- Understand the **peaks**
- What energy is **necessary** and out of hours

Tracking progress and reporting

What can you do as a business owner?



GHG report template

An example of what a business' GHG accounting records could look like

Emissions Assessment		2024	2023	2022
Scope 1: Combustion of fuel and operation of facilities.	Natural Gas (tCO ₂ e)	223.8	426.6	512.4
	Direct Transport (tCO ₂ e)	73.3	88.0	92.0
	Gas Oil (tCO ₂ e)	0.0	0.0	0.0
	Green Diesel HVO (tCO ₂ e)	0.0	0.0	0.0
	White Diesel (tCO ₂ e)	6.8	1.6	3.0
	Refrigerants (tCO ₂ e)	34.1	16.8	31.1
	Total Scope 1 - tCO₂e	338	533	638
Scope 2: Electricity purchased and heat and steam generated.	Location Based (LB) (tCO ₂ e)	842.2	1,010.0	1,247.6
	Market Based (MB) (tCO ₂ e)	0.0	0.0	0.0
	Total Scope 1 & 2 (location based emissions) - tCO₂e	1,180.1	1,543.0	1,886.1
Scope 3 : Indirect Emissions (Category as per GHG Protocol)	Category 1- Purchased goods and services	17,408.2	18,069.2	14,569.7
	Category 2- Capital goods	578.0	1,686.6	3,471.4
	Category 3- Fuel and energy related activities	337.0	425.1	551.9
	Category 4- Upstream transportation and distribution	753.5	1,404.1	0.0
	Category 5- Waste generated in operations	3.8	7.3	12.9
	Category 6- Business travel	124.6	143.1	88.6
	Category 7- Employee commuting and working from home	3,424.9	3,445.5	3,273.8
	Category 8- Upstream leased assets	0.0	0.0	0.0
	Category 9- Downstream transportation and distribution	0.0	0.0	0.0
	Category 10- Processing of sold products	0.0	0.0	0.0
	Category 11- Use of sold products	0.0	0.0	0.0
	Category 12 End-of-life treatment of sold products	0.0	0.0	0.0
	Category 13- Downstream leased assets	0.0	0.0	0.0
	Category 14- Franchises	0.0	0.0	0.0
	Category 15- Investments	677,301.9	683,256.2	680,000.0
	Total Scope 3 Emissions (tCO₂e)	699,931.9	708,437.0	701,968.1
Location Based	Total Scope 1, 2 and 3 location based Emissions (tCO₂e)	701,112.0	709,980.0	703,854.3
Market Based	Total Scope 1, 2 and 3 market based Emissions (tCO₂e)	700,269.8	708,970.0	702,606.6

Further resources

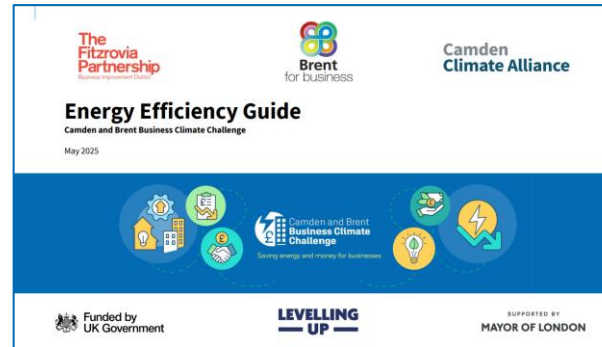
Use the linked resources below to begin building your carbon footprint



Online carbon calculator

The Carbon Trust provides a tool to calculate energy related emissions for SMEs ACROSS Scope 1 and Scope 2 emissions, following GHG Protocol Guidance.

[Link: Steps to energy saving: tools for SMEs | The Carbon Trust](#)



Energy Efficiency Guide

The Technical Delivery Unit who delivered Camden and Brent BCC created an energy efficiency guide providing a toolkit, equipping SMEs with in-depth resources around improving energy efficiency and case studies across business sectors

[Link: Energy Efficiency Guide](#)



UK Emissions factors

These conversion factors allow organisations and individuals to calculate GHG emissions from a range of activities, including energy use, water consumption, waste disposal and recycling, and transport activities.

[Link: 2025 Government greenhouse gas conversion factors for company reporting: Methodology paper](#)

Carbon Certification Scheme

Get recognised for tracking and reporting your energy data

The Camden Climate Alliance's Carbon Certification Scheme recognises and awards businesses who are taking steps to reduce their energy use, and who are demonstrating year on year reductions in emissions

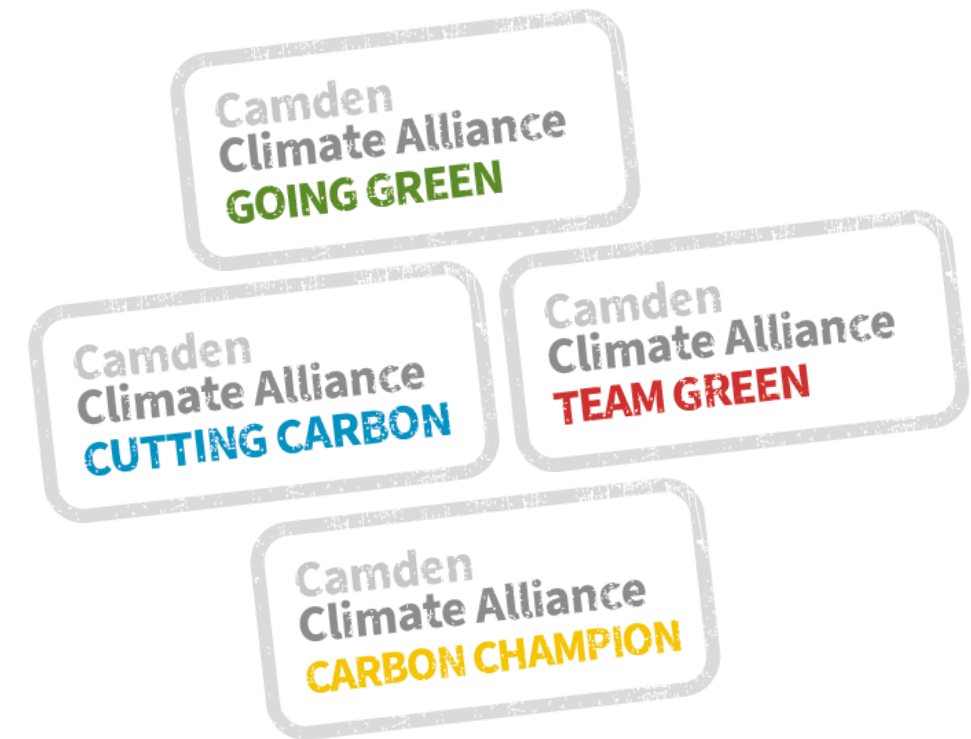
Why take part?

- **Benchmarking** – Understand your environmental performance and how you compare to businesses in Camden
- **Reporting** – Be part of the CCA annual carbon report and contribute to borough-wide climate action
- **Branding and marketing** – Use the certification to demonstrate your environmental credentials to your customers, staff and partners

How can you take part?

- Become a member of the Camden Climate Alliance
- Report your energy consumption and carbon footprint data to the CCA

Further guidance on how to take part and process for reporting data will be released in **January 2026, with certifications awarded in April 2026**



<https://www.camdenclimatealliance.org.uk/get-involved/carbon-certification-scheme/>

Questions?



Saving energy and money for businesses

Thank you

View previous **Business Sustainability Series Trainings** at:

<https://www.camdenclimatealliance.org.uk/resources/events-and-training/>

Further questions? Get in touch with us at climatealliance@camden.gov.uk



Saving energy and money for businesses