Carbon Footprint Analysis

prepared for

Packaging Products

Reporting Year End
31 December 2024

positive planet

Report Contents

positive planet

Calculating your carbon footprint

positive planet

In this carbon footprint analysis, Packaging Products's annual carbon footprint is calculated in tonnes of carbon dioxide equivalent (tCO_2e).

This measurement accounts for the emission of all 7 greenhouse gases noted in the UNFCC Kyoto Protocol along with their relative global warming potential values (GWP), as recommended by The Greenhouse Gas Protocol and the UK Government Public Procurement Notice 006.

To calculate your carbon footprint, Positive Planet measures emissions of the following gases:

Carbon Dioxide	Methane	Nitrous Oxide	F-Gases
CO_2	CH_4	N_2O	HFCs PFCs SF_6 NF_3

The GWP accounts for the variable potency and atmospheric lifetime of each GHG emitted, and converts this to the equivalent amount of carbon dioxide over a 100-year period.

Methodology

Positive Planet's GHG emissions reports are carried out in accordance with the GHG Emissions Protocol Accounting and Reporting Standard. Using the most widely recognised and used emission standard in the world ensures all measurements, calculations, and estimations are completed to the most regulated and accurate standards possible.

Positive Planet was supplied information by the client covering each of the emission sources included in the inventory for all sites (where usage occurred), and the greenhouse gas (CO_2e) emissions were calculated based on relevant emission factors. The provided data has been subject to high level review, but not verification to source.

The comprehensive Carbon Footprint Analysis we have provided will enable Packaging Products to confidently report and publish its carbon emissions. Figures and tables are included throughout this document, which provides opportunity to share your carbon reduction progress with interested parties.

Carbon Accounting Methodology and Emission Factors Disclaimer:

Carbon accounting guidance and emission factors provided by external bodies such as DEFRA and the GHG Protocol may be subject to change periodically due to improvements in data quality, calculation methods, and industry best practices. As these updates are outside our control, we may need to remeasure and restate emissions occasionally for previous years to ensure comparability and alignment with current standards, maintaining the accuracy of emissions data and the integrity of Net Zero targets. When changes occur, our approach would be to remeasure the previous year's measurement year and base year, alongside the most recent measurement. Alternatively, a statement explaining changes and lack of comparability will be added to reports.

Methodology - Emissions Factors

Emission Factors and Methodology

- Consumption-based Factors: UK Government (BEIS / DEFRA) GHG Conversion Factors for Company Reporting
- Spend-based Factors: UK Government Conversion factors by SIC code 2024 (3-year data delay, with inflation adjustment to the reporting year)
- Electricity (market-based): Emissions have been calculated as zero (scope 2) where renewable electricity has been purchased. Scope 3 transmission and distribution of electricity will still be included.
- Well-to-tank and transmission and distribution loss emissions are included for direct and upstream indirect energy consumption.
- Radiative forcing (RF) has been included in air travel calculations.

Assumptions and Exclusions

- Purchased goods and services and capital goods emissions have been estimated using spend-based factors. The results are based on industry averages per £ spent and not specific supplier/product/mode data.
- Where spend has been used to calculate emissions related to purchased goods and services, the emissions from the transportation of goods from the supplier to the reporting organisation have not been reported separately.

Data Quality

Positive Planet uses a data quality rating based on the accuracy of the data supplied by the client. The rating system works on a three-tiered traffic light system with green representing good quality data, yellow representing average quality data and orange representing poor quality data. The quality of your data is very important, as you cannot understand and manage what you cannot properly measure. Higher quality data provides a more accurate carbon footprint and so we encourage all our clients to improve their data quality year-on-year.

The below table shows the data quality rating. Ideas for improving data quality for each category will be discussed during your carbon management meeting.

High data quality

Primary data sources have been used. Data completeness and accuracy is high. Most often consumption-based data, for example kWh electricity used.

Medium data quality

Mixed primary and secondary data sources. Limited extrapolation with average completeness and accuracy.

Low data quality

High levels of estimation and benchmarking. Poor completeness and accuracy. Often means that the client has provided spend data instead of consumption data, for example £s spent on electricity instead of kWh used.

Emissions Scopes: Explained

positive planet

Using the information you provided in line with our outlined Methodology, we have calculated the annual carbon emissions of Packaging Products.
Your business emissions are described and measured in three different Scopes: 1, 2, & 3. We have broken down the differences between each Scope for you below:

Scope 1

Direct Emissions

Your direct emissions come from things such as your company vehicles, buildings, and facilities.

Scope 2

Indirect Emissions

Your indirect emissions consist of your purchased electricity (and steam, heating, and cooling) for business use.

Scope 3

Upstream & Downstream Emissions

Upstream activities include commuting, business travel, transportation from suppliers, and purchased goods & services. Downstream activities include deliveries to customers, plus the use and disposal of your products.

It is important to know, and report on, your emissions using the above Scopes. However, sharing the data with your team is often more effective when it is linked with activities they can relate to, such as commuting or energy consumption.

Your Carbon Footprint

The top-level analysis below demonstrates which activities contribute to your Scope 1, 2, & 3 business emissions. Also included is an overview of your emissions by Scope, along with your calculated annual carbon footprint.

Throughout this analysis, all measurements are given in tonnes of carbon dioxide equivalent (tCO_2e).

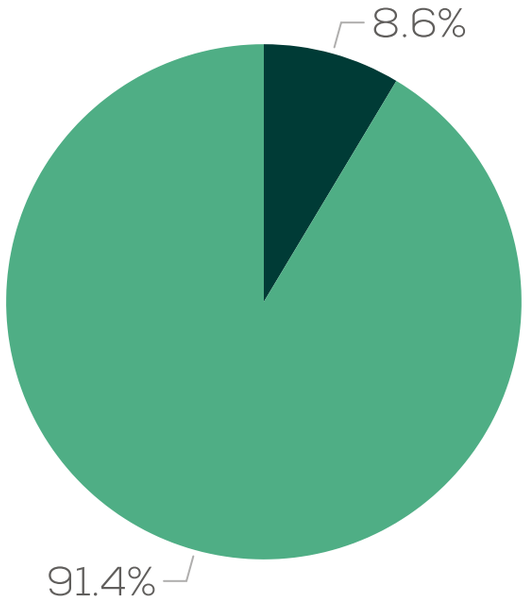
Scope 1	Scope 2	Scope 3
259.6	0.0	2758.1

Total Emissions

3017.7

Your Carbon Footprint

Included below is a pie chart which demonstrates the relative contribution (%) of each Scope towards your total carbon footprint.



Scope 1: 8.6%

Scope 2: 0.0%

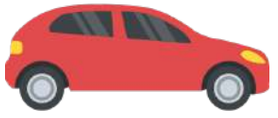
Scope 3: 91.4%

Throughout this analysis, each Scope of Packaging Products's carbon footprint will be further broken down into its contributing aspects. This will enable you to understand your carbon footprint and effectively target your emission reductions.

Your Carbon Footprint in Context

The concept of a carbon footprint and its contributing emissions can feel abstract, and is often difficult to visualise. To better contextualise Packaging Products's annual footprint, there are some real-world reference points below:

Packaging Products emitting
3,017.7 tCO_2e
is the equivalent of:



Driving 1638 diesel cars
20 miles per day
for 1 year.

OR

filling the volume of
770 hot air balloons
with carbon dioxide.

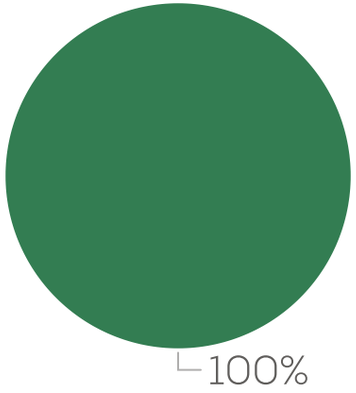
When Packaging Products reaches net zero emissions, it will have as high an impact as permanently removing 1638 diesel cars from UK roads - preventing 1678443 m^3 of carbon dioxide from being released every year.

Scope One Emissions

Scope 1 includes emissions that occur as a direct result of your operations. At Packaging Products, the only relevant Scope 1 activity is gas combustion at the site.

Scope 1 total emissions: 259.6 tCO_2e

Contribution to overall footprint: 8.6%



Scope 1 activities breakdown

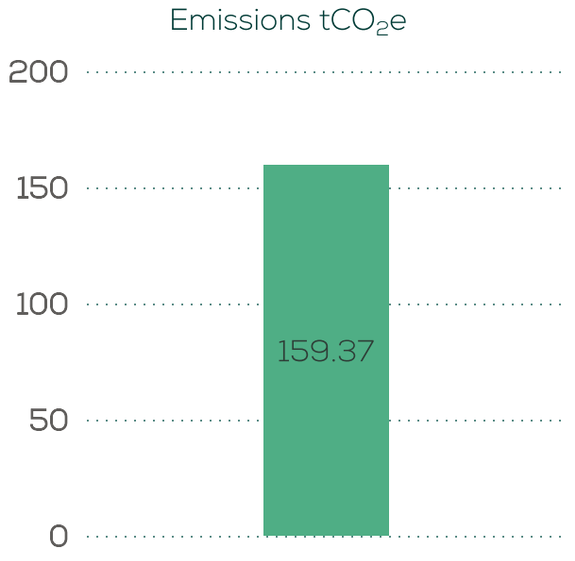
- On-Site Fuel Combustion: 259.6 tCO_2e
- Leaked Emissions: 0.0 tCO_2e
- Industrial Process Emissions: 0.0 tCO_2e
- Company Vehicles: 0.0 tCO_2e

Scope Two Emissions

Scope 2 emissions occur offsite during the generation of energy used by your organisation. At Packaging Products, this includes electricity purchased to power the property, The electricity is procured on a 100% renewable tariff, allowing for zero reportable emissions (market-based).

Purchased electricity: 0.00 tCO_2e
Steam, Heat, and Cooling: 0.0 tCO_2e

Scope 2 total emissions: 0.00 tCO_2e
Contribution to overall footprint: 0.0%



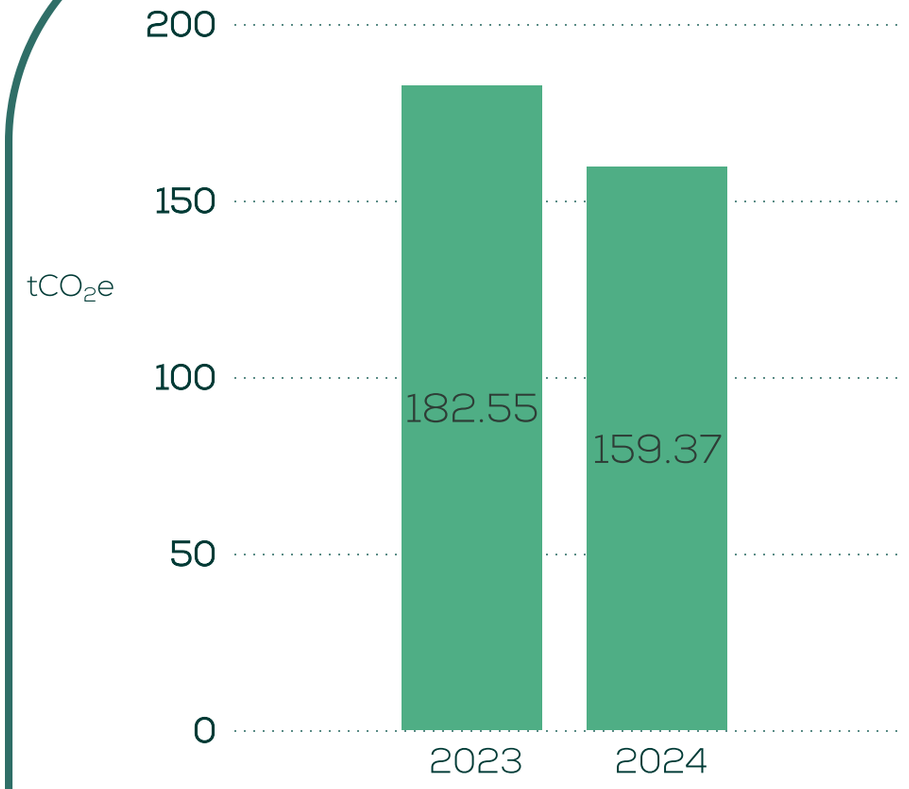
Purchased Electricity footprint breakdown

Your total carbon footprint from purchased electricity was 0.00 tCO_2e.

Renewable energy accounted for 100% of your electricity consumption.

Scope Two Emissions

Here, Packaging Products's Scope 2 emissions from purchased electricity are compared with the previous year's results. 100% renewable electricity was procured at the site both years.



Purchased Electricity Emissions Annual Change

The stacked column reflects the total annual electricity demand of Packaging Products.

renewable energy consumption

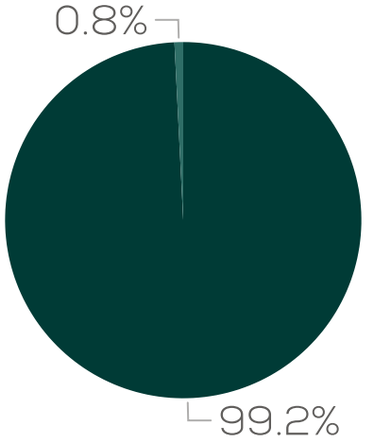
total electricity emissions

Scope Three Emissions

A range of activities are reported within every company's Scope 3 footprint. Each of these activities are noted below, separated into Upstream and Downstream emissions. Often, Scope 3 emissions comprise the largest part of an organisation's carbon footprint. It is therefore imperative that these activities are measured, and their negative impact reduced.

Scope 3 total emissions: 2758.1 tCO_2e

Contribution to overall footprint: 91.4%



Contribution to Scope 3 Total

Upstream Emissions: 99%

Downstream Emissions: 1%

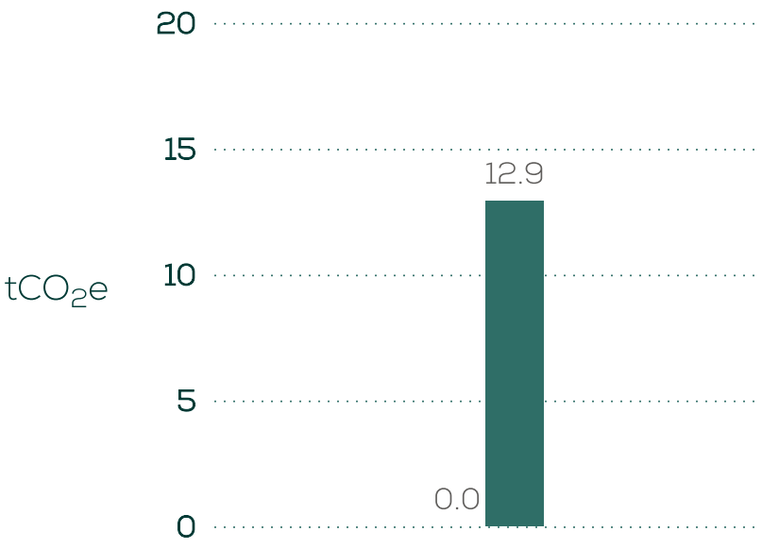
Scope Three Emissions: Upstream

Upstream emissions are a consequence of your supply chain. This includes all purchased, goods & services, along with travelling to meetings, employee commuting, and other activites.

Scope 3 Upstream Emissions contributing activities

Purchased Goods & Services	2,632.3
Capital Goods	0.0
Fuel & Energy Related Activities	70.4
Transportation & Distribution	15.4
Operational Waste	4.3
Business Travel	1.1
Employee Commuting & Home Working	12.9
Leased Assets	0.0

Scope 3 total upstream emissions:
2736.4 tCO_2e



Employee Homeworking: 0.0 tCO_2e

Commuting: 12.9 tCO_2e

Scope Three Emissions: Upstream

positive planet

Packaging Products's upstream emissions for the reporting year are compared below with previous measurements.

Scope 3 Upstream Emissions Annual Report

	2023	2024
Purchased Goods & Services	2,734.2	2,632.3
Capital Goods	28.2	0.0
Fuel & Energy Related Activities	84.3	70.4
Transportation & Distribution	16.8	15.4
Operational Waste	0.7	4.3
Business Travel	2.0	1.1
Employee Commuting & Home Working	12.5	12.9
Leased Assets	0.0	0.0

Scope Three Emissions: Downstream

Downstream emissions come from your customers' use of your product or service.
This includes the distribution, use, and disposal of your product.
Blank categories were not measured in the described Reporting Year.

Scope 3 Downstream Emissions contributing activities

Transportation & Distribution	21.7
Processing of Sold Products	
Use of Sold Products	
End-Of-Life Treatment of Sold Products	
Leased Assets	0.0
Franchises	0.0
Investments	0.0

Scope 3 total downstream emissions: 21.7 tCO_2e

Scope Three Emissions: Downstream

Comparison of downstream emissions.
There was a reduction in downstream distribution activity between the baseline and current reporting periods.

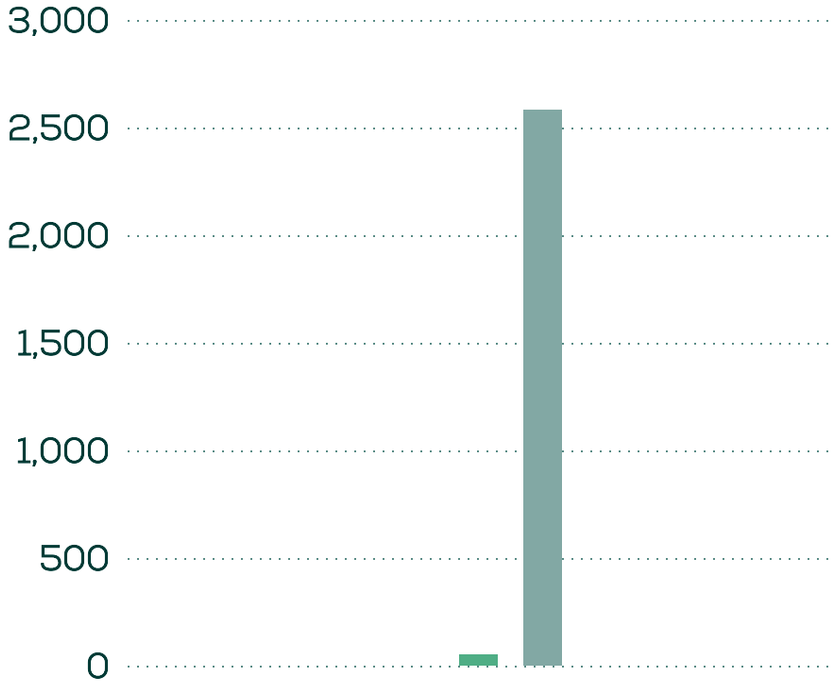
Scope 3 Downstream Emissions
Annual Change

	2023	2024
Transportation & Distribution	36.4	21.7
Processing of Sold Products		
Use of Sold Products		
End-Of-Life Treatment of Sold Products		
Leased Assets	0.0	0.0
Franchises	0.0	0.0
Investments	0.0	0.0

Footprint Analysis: Procurement

Procurement emissions contribute to the upstream Scope 3 carbon footprint of Packaging Products. Production Goods are the products purchased for sale by Packaging Products, while Business-as-Usual (BAU) Procurement is all other non-capital procurement. Scope 3 category *Purchased Goods & Services* is the total of both values.

Procurement Emissions



Capital Goods: 0.0 tCO_2e

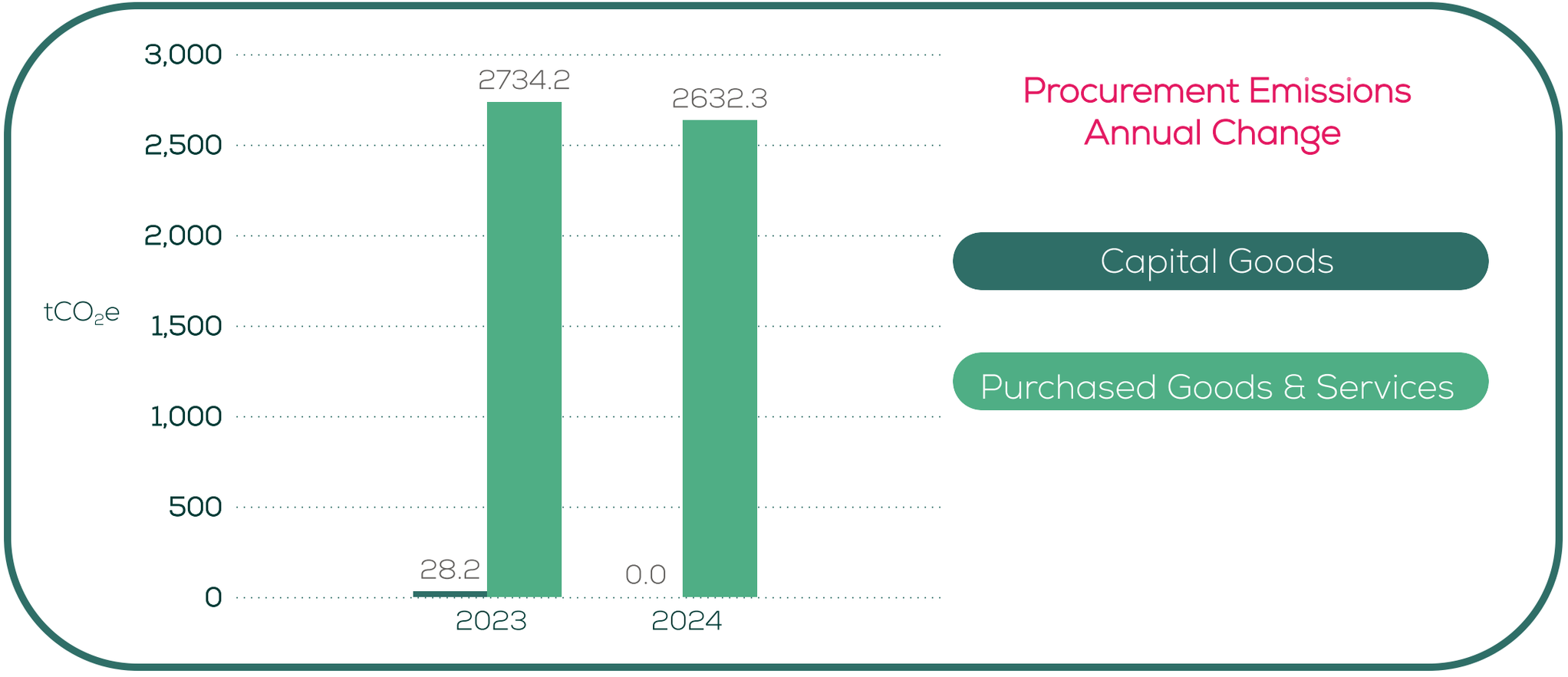
BAU Procurement: 49.9 tCO_2e

Production Goods: 2,582.5 tCO_2e

Total Procurement Emissions: 2632.3 tCO_2e

Footprint Analysis: Procurement

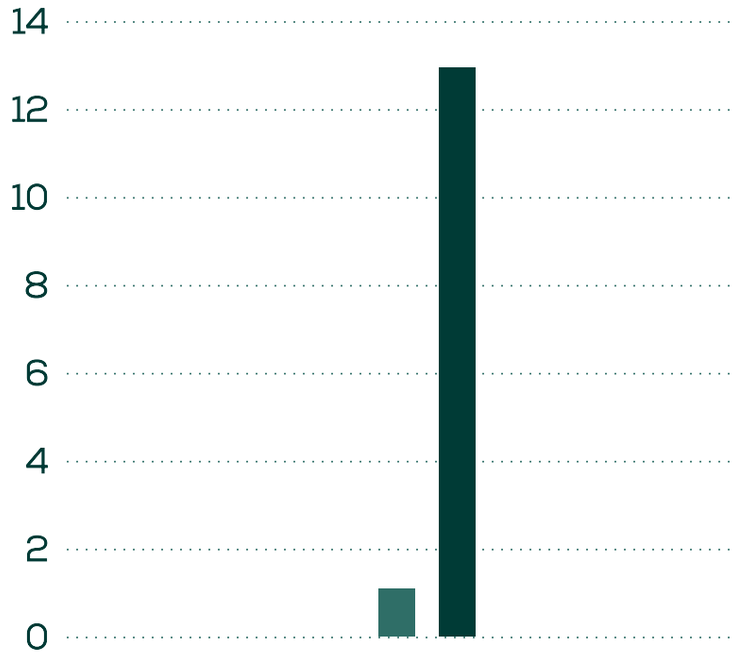
The figure below visualises Packaging Products's total Procurement-based carbon footprint, and compares this with baseline emissions.



Footprint Analysis: Travel

The emissions analysed below are emitted from personnel travel associated with Packaging Products.
The activities included here contribute to your Scope 1 & Scope 3 carbon footprint.

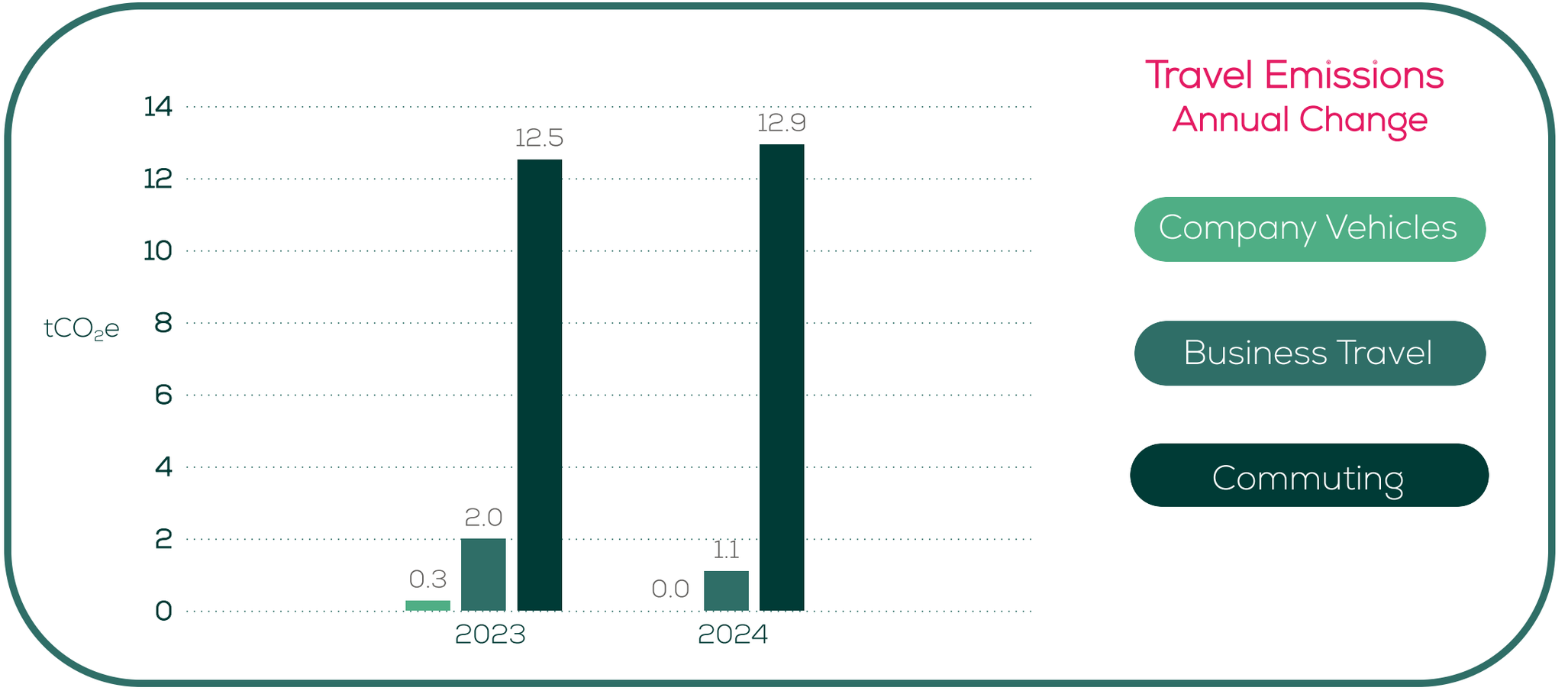
Travel Emissions



- Company Vehicles: 0.0 tCO_2e
- Business Travel: 1.1 tCO_2e
- Commuting: 12.9 tCO_2e
- Total Travel Emissions: 14.0 tCO_2e

Footprint Analysis: Travel

The figure below allows annual comparison of the travel-related emissions of Packaging Products.



Data Quality

It is expected that most companies will not have access to High Quality data during their first few years of reporting carbon emissions. However, it is very important to improve data quality where possible to enable a detailed analysis of emissions may support targeted carbon reduction activities.

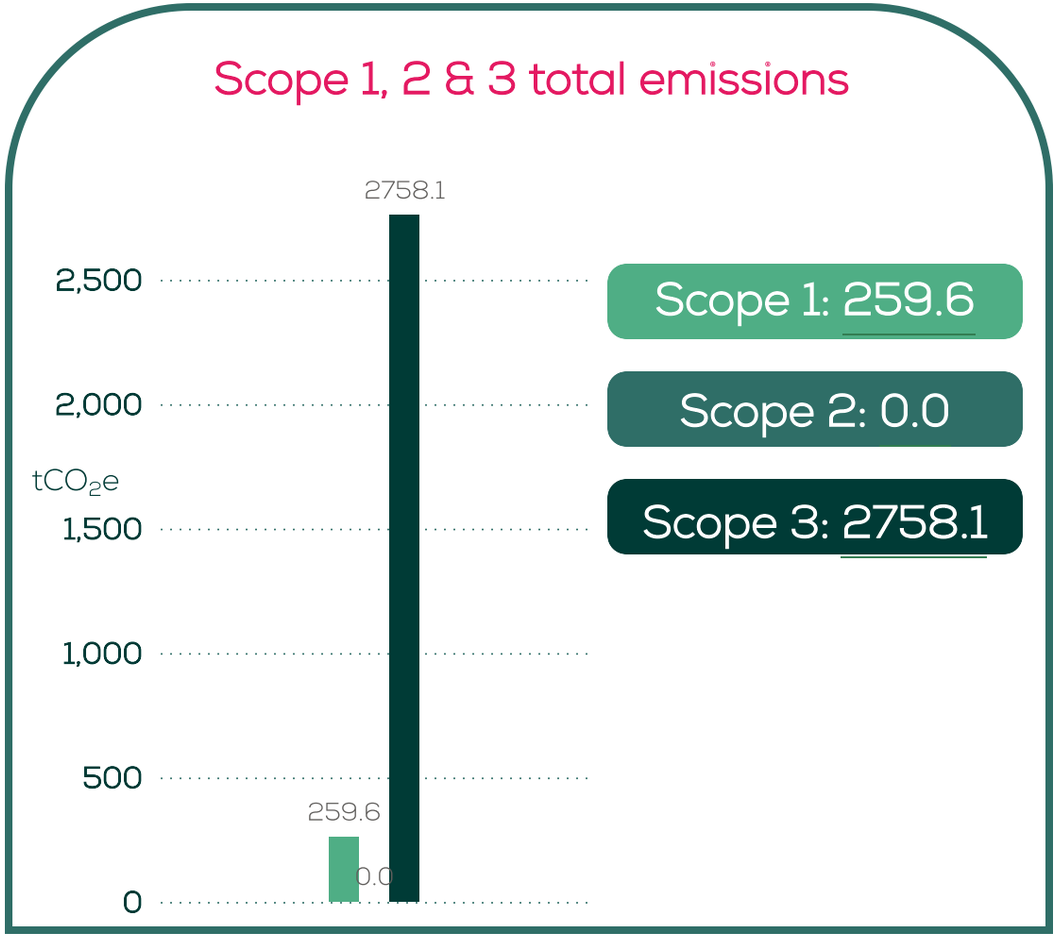
The below table shows the data quality rating for the emissions categories reported in this document. Descriptions for each Quality rating are detailed on page 6.

Utilities	High
Waste	Medium
Travel	High
Distribution	Medium
Procurement	Low
Finance	N/A
Product	N/A

We recommend initially focussing on improving data quality for Packaging Products's highest emitting categories.

All Emissions: Summary

The figures below demonstrate the emissions of each activity (tCO_2e) and how this has impacted your footprint.



On-Site Fuel Combustion	259.6
Company Vehicles	0.0
Leaked Emissions	0.0
Industrial Process Emissions	0.0
Purchased Electricity	0.0
Steam, Heat & Cooling	0.0
Purchased Goods & Services	2,632.3
Capital Goods	0.0
Fuel & Energy Related Activities	70.4
Transportation & Distribution (Upstream)	15.4
Operational Waste	4.3
Employee Commuting & Home Working	12.9
Business Travel	1.1
Leased Assets (Upstream)	0.0
Transportation & Distribution (Downstream)	21.7
Processing of Sold Products	
Use of Sold Products	
End-Of-Life Treatment of Sold Products	
Leased Assets (Downstream)	0.0
Franchises	0.0
Investments	0.0

All Emissions: Summary

The table below breaks down the annual emissions of each activity (tCO_2e) that has contributed to the carbon footprint of Packaging Products. Each annual measurement is compared with values from previous years. Blank categories were not measured in the described Reporting Year.

	2023	2024
On-Site Fuel Combustion	324.0	259.6
Company Vehicles	0.3	0.0
Leaked Emissions	0.0	0.0
Industrial Process Emissions	0.0	0.0
Purchased Electricity	0.0	0.0
Steam, Heat & Cooling	0.0	0.0
Purchased Goods & Services	2,734.2	2,632.3
Capital Goods	28.2	0.0
Fuel & Energy Related Activities	84.3	70.4
Transportation & Distribution (Upstream)	16.8	15.4
Business Travel	2.0	1.1
Employee Commuting & Home Working	12.5	12.9
Operational Waste	0.7	4.3
Leased Assets (Upstream)	0.0	0.0
Transportation & Distribution (Downstream)	36.4	21.7
Processing of Sold Products		
Use of Sold Products		
End-Of-Life Treatment of Sold Products		
Leased Assets (Downstream)	0.0	0.0
Franchises	0.0	0.0
Investments	0.0	0.0

Total Carbon Footprint and Employee Carbon Intensity

The annual carbon footprint of Packaging Products has been analysed throughout this document by assessing the sources of those emissions.

It is also useful to know the annual footprint per employee (Employee Carbon Intensity), as this accounts for any change in Packaging Products's workforce size.

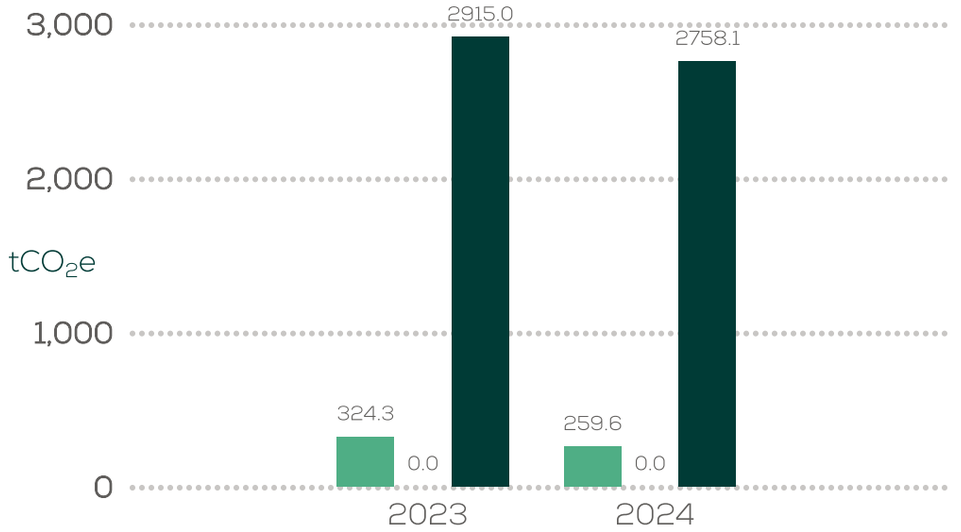
Both values are included below, in tCO_2e.

	2023	2024
Total Annual Footprint	3,239.2	3,017.7
Footprint per Employee	117.8	107.0

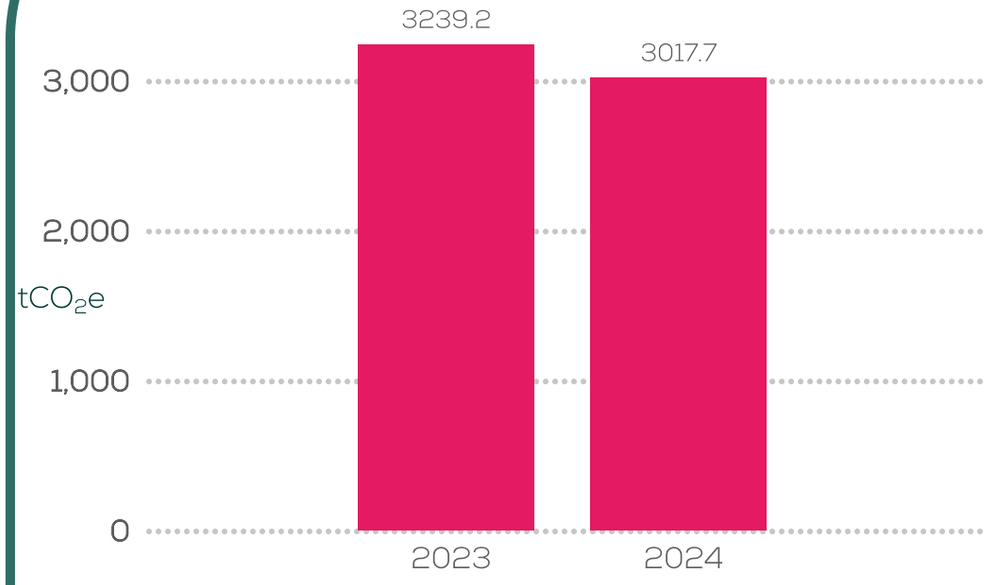
All Emissions: Summary

The figures below demonstrate the annual emissions of each activity (tCO_2e) that has contributed to the carbon footprint of Packaging Products. Each annual measurement is compared with previous values.

Annual Emissions All Scopes



Annual Emissions Total



The above graph visualises Packaging Products's total carbon footprint for each year measured.

Next steps

It has been a pleasure working with you to measure your carbon emissions. Now that you have this measurement and a better understanding of the carbon impact of your organisation, we recommend taking the following steps to keep the momentum going:

1. Develop a carbon reduction plan

Our team has highlighted core carbon hotspots within your carbon footprint. Now you need to consider actions to start to reduce these emissions and work toward Net Zero carbon, which our carbon reduction team can support you to do.

2. Communicate your impact

Measuring your carbon emissions and taking action to reduce them are extremely important first steps. Communicating this out to your stakeholders is a great way to x10 your impact. Share, inspire, and collaborate.

3. Engage your team

Internal awareness and buy-in is essential to a successful carbon reduction initiative. Not only will this help to reduce your organisation's emissions, but it will have a wider impact on everyone your employees engage with including suppliers, customers, friends, and family. Positive Planet offers certified Carbon Literacy Training which decreases individual emissions by 5-15% on average.

4. Improve data quality

Get ready for your next carbon reporting year! It is important to improve the quality of your data over time. In the next few years this will start to become regulated (high quality data will be required) so it is good to get on top of it early.

Thank You

We look forward to supporting you on the rest of your carbon reduction journey.

If you have any questions, please contact your Positive Planet team or hq@positiveplanet.uk

positive planet