

Report



Broadway Colours

Carbon Footprint Analysis

2024

Date: January 2025

1.0 Executive Summary

A full scope 1-3 carbon footprint¹ calculation has been made for Broadway Colours. The mapping exercise has followed the principles contained in the Greenhouse Gas (GHG) Protocol² which permits four types of data ranging from measured real data through industry benchmark data and hybrids of these, but also allowing use of models which predict carbon emissions from spend.

Real measured data is incorporated where it is available. Where data was not available from suppliers for incoming goods and services a UK government approved model is applied which predicts average carbon emissions from spend in 110 Standard Industry Codes (SIC). This is the second carbon footprint report. Having identified in 2023 that transportation was such a major contributor, the data sets this year reflect a much more rigorous and comprehensive analysis across UK and foreign shipments with a consequent uplift in emissions captured this year that could not be determined last year.

The idea that spend can be matched to emissions is often met with some scepticism, yet it is often found that spend based estimation is within 20% of real data when it becomes available and spend based usually estimates higher than real data once it becomes available so errs on the safe side. The usual business expectation is for the 80:20 rule to apply i.e. data with 80% certainty is often sufficient for business decisions to be made. There should be no difference when developing carbon intensity maps and reduction plans.

The numbers in this report provide an effective way to enable you to track your own operational emissions and place requirements on the supply chain to work with you to reduce emissions and minimise your supply chain environmental impact. The carbon discussions should always link with other important issues such as water use and the wider Environmental Social Governance themes such as those outlined in the United Nations Sustainable Development Goals.

The topline figure for Broadway Colours is that the scope 3 represents 97% of the total carbon footprint. Operational emissions (scope 1 and 2) are low and when considering that you already have a carbon neutral electricity supply your operational emissions are very low.

Although it is not possible for you to directly control a reduction in your suppliers emissions. Nonetheless the data analysis identifies the key sectors for you to work with.

There is much in the ESG media about use of AI to generate better supply chain data. This can be useful if good data sources exist for AI models to work with. At the moment it is not likely that sufficient good quality data is published but may well be held by your suppliers who should be encouraged to provide you more accurate data to trend progress and benchmark across supply chain partners.

This carbon map gives you a baseline from which to track improvement. Upstream (incoming goods and services) still relies on spend based prediction of emissions which will likely overestimate that impact. The intensity will thus not change until the spend based model is updated. The focus should now be to engage with key suppliers to establish their carbon footprint and substitute their real data for spend based. They may well struggle if they believe you need the impact of the raw materials in their reporting to you so you could start with asking them to at least report scope 1 and 2 data which they will have via invoices and it is then only a mathematical exercise to convert to GHG emissions.

Emissions reduction focus that will be most beneficial:

- **Downstream transport providers: enquire what their plan is to decarbonise their fleets in the short to medium term**
- **Incoming goods and services: ask your key suppliers to supply at least scope 1 and 2 carbon data for the products they supply you.**

¹ See Appendix 2 for a description of carbon accounting and an explanation of scopes 1, 2 and 3

² See section 2.0 and Appendices 1, 2, 3

2.0 Methodology

The GreenHouse Gas Protocol guidelines were used in compiling this report³

Scope 1 and 2 Operational Carbon Footprint

The carbon footprint calculations made as part of this work have relied on:

Electricity: invoiced consumption (scope 2) . There is no gas use. Other fuels (Propane) were mapped using litres purchased

Electricity is mapped into two scopes. The consumption is scope 2 whereas the transmission and distribution (T&D) losses along the network and Well to Tank emissions (those associated with fuel used to generate the fuel at the production site) are mapped into scope 3.

Business travel and employee commuting impact was calculated from data estimated with Broadway Colours survey data.

Other scope 1 emissions were calculated from real data for waste disposal by product stream type, water use, sewerage

Scope 3 (Supply chain)

Upstream: Incoming Goods and Services

Downstream: Sold Goods and Services, primarily focussed on transportation

Where data was available directly for business and other transportation it was used and carbon conversion factors drawn from the UK government annually updated data sources in which they stipulate the conversion factors that should be used for company reporting (hyperlink below).

[Greenhouse gas reporting: conversion factors 2024 - GOV.UK](#)

For scope 3 contributions where no specific data was available a spend-based estimation was made using the UK Government factors based on average carbon footprint per SIC business codes. There are 110 categories and the model was last up dated in Q4 2022⁴

A full list of the data sources used is provided in Appendix 5

³ [ghg-protocol-revised.pdf \(ghgprotocol.org\)](#) (Overarching document);

[Scope 2 Guidance | GHG Protocol](#) ;

[ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporting-Standard_041613_2.pdf](#) (Scope 3)

⁴ [UK and England's carbon footprint to 2020 - GOV.UK \(www.gov.uk\)](#) data is in fact modelled up to 2022

3.0 Reporting boundaries

Carbon footprint has been mapped from the supply of goods and services to delivery to customer.

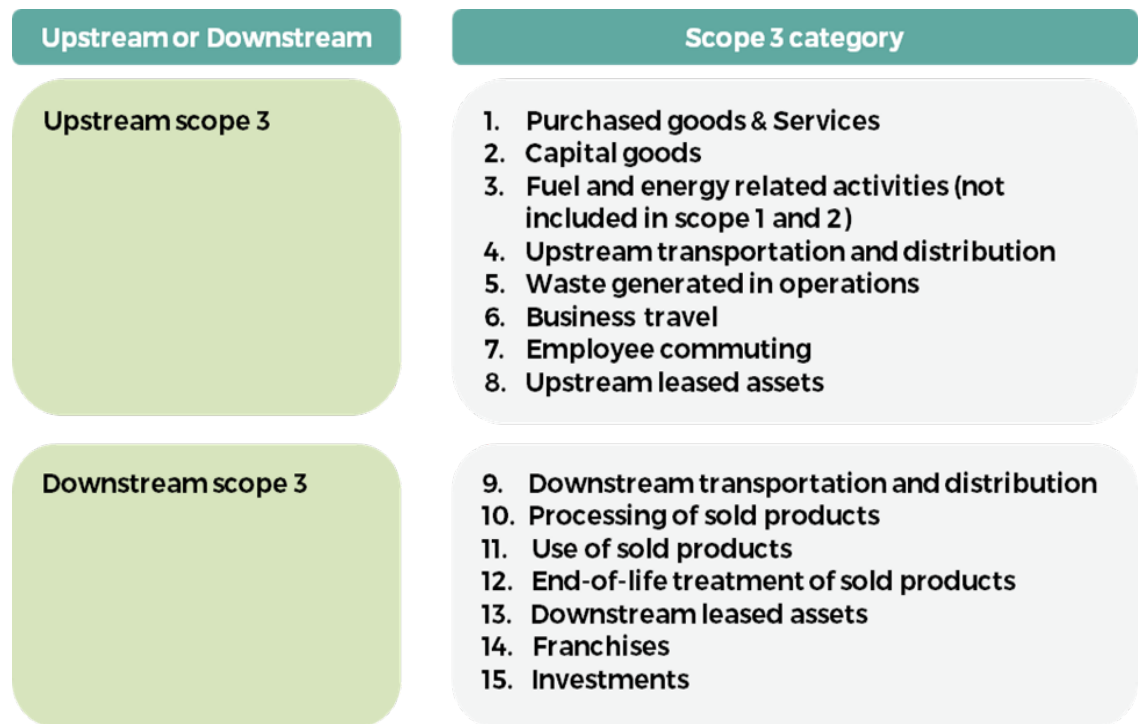
The GHG Protocol states that you should take into account the carbon emissions of your product when it goes into your customers end products. However, many auditors of carbon emissions have recognised that this blurs the lines about what you are truly responsible for and what you can influence. As an example Deloitte have said “According to the Corporate Standard's glossary, double counting occurs when “[t]wo or more reporting companies take ownership of the same emissions or reductions.”⁵

The GHG Protocol sub-divides scope 3 into 15 categories (see graphic, below, right)

This could apply to scope 3 category 9 downstream (3.9) transportation which is included in this report. Your customers might include this in their scope 3 category 4 upstream transport and distribution (3.4) but this would be double counting. If they were an intermediate processor and passed your products to another company again there could be additional double counting.

The concept of e-liability has been introduced as a potential way of overcoming this, but still GHG protocol is followed by 92% of major global businesses hence a definition of scope boundaries is essential. For a review of e-liability there is a good report by Janet Ranganathan of the World Resources Institute⁶

The likelihood of a manufacturer being able to really influence scope 3 downstream emissions impact (use of sold products, product end of life) is quite different depending on the nature of the product being sold. So, for example, a car manufacturer is largely responsible for the cars emissions and performance and recyclability so would include much more detail for scope 3.10-3.12. Where a product is just a small proportion such as an ingredient in a product that is manufactured it is unlikely to have an identifiable impact that can be attributed beyond scope 3.9.



⁵ [6.6 Addressing Double Counting of Scope 3 Emissions | DART – Deloitte Accounting Research Tool](#)

⁶ [What's the Difference Between E-Liabilities and GHG Protocol? | World Resources Institute](#)

This report focusses on scope 3 emissions in categories 3.1-3.9. The greatest proportion of scope 3 is in 3.1 and 3.9.

Downstream, detailed mapping has been done using real data and category 3.9 data is therefore likely to be highly accurate.

Upstream for category 3.1, Purchased Goods and Services the spend-based approach has been used. This will not be highly accurate but in the authors experience it is usually within a reasonable margin of reality. Some GHG accounting practitioners have found that spend based analysis overestimates by up to 20%. In the categories we have assessed here it is more likely to be within 10-12%. Many organistaions use spend based accounting as a first pass to define the most influential contributing areas and then swork with that part of the supply chain to get real data.

The Environment Agency (EA) is currently tasked with helping industry to capture scope 3 data and report across multiple platforms. The project is called SEEBEYOND⁷ and is in the early stages of development initially for the food industry but with expectations of applplication to other supply chains. The need for better scope 3 accounting is great as identified by the challenges deternined by the EA supply chain survey (right)

The principle they are working on is that if you can capture at least the scope 1 and 2 emissions of your purchased goods and service suppliers this should be better than spend based analysis. It will not of course capture embedded carbon emissions in the products that they buy in. This detail is what a Life Cycle Analysis (LCA) aims to assess. LCA is usually very expensive and time-consuming and ultimately may deliver you a report from which you struggle to identify actions that make a material impact. Such an impact could be to change the raw material, change the source of that material or avoid using the material. Such considerations are beyond the scope of this report.

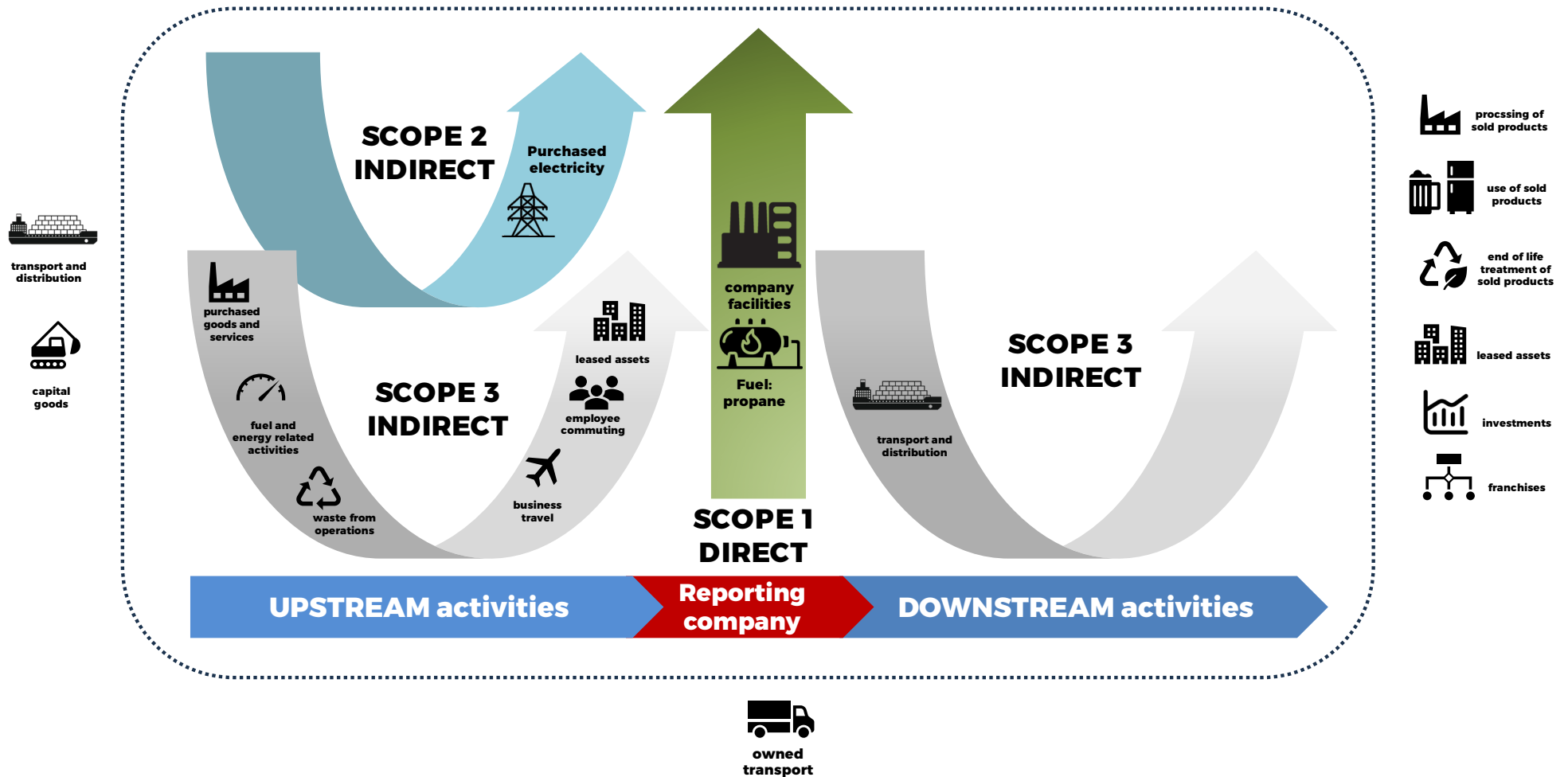


⁷ [SEEBEYOND - Environment Agency - Citizen Space](#)

The scope for this calculation lies within the dotted line in the graphic below.

DOWNSTREAM the impact of transport and distribution will be included within the spend based analysis of the products purchased but that element of cost cannot be identified from most invoices. Where carriage or delivery charges were shown these were excluded from the spend based analysis for specific product categories. No capital goods data was identified in the accounts files.

UPSTREAM as explained earlier is considered to be outside the scope of influence of Broadway Colours and was also not identifiable in data available.



There is no owned transport hence this was not mapped

4.0 Carbon Footprint Data: Scopes 1-3

	tonnes CO ₂ e p.a. Location based (numbers in brackets are 2023 data)	tonnes CO ₂ e p.a. Market based (numbers in brackets are 2023 Data)
Total carbon footprint (scopes 1-3)	9492 (5439)	9262 (5214)
Scope 1	8 (25)	8 (25)
Scope 2	230 (337)	0 (112)
Operational (scope 1+2) carbon footprint	238 (362)	8 (137)
Scope 3 Upstream	4091 (4827)	4091 (4827)
Scope 3 Downstream	5163 (250)	5263 (250)
Supply chain (scope 3) total carbon footprint	9254 (5077)	9254 (5077)

The difference in these year on year comparisons is due to a number of important factors

- **Scope 1:** No burning oil used in 2024; 1 less Fork Lift Truck in operation; much less propane use
- **Scope 2:** The market based supply is now fully green (100% renewable backed. Not guaranteed 100% green supply but emissions from grid sourced component is offset by the electricity company.
- **Scope 3:** We did not have access to all the transportation data in 2023 and it is a significant improvement to be able to map it this year. The primary haulier produces a very detailed load by load report with apportionment of emissions based on load proportion for Broadway products, the route taken and the vehicle used.
- The electricity grid was on a continuing curve of 9-10% decarbonisation a year until 2023 when it went up 7%. It is just a blip in the trajectory and it will continue to fall to net zero by 2040. At this point scope 2 emissions will be zero. At that time the solar installations become a way of reducing risk of reliance on grid supply rather than a way to reduce emissions.

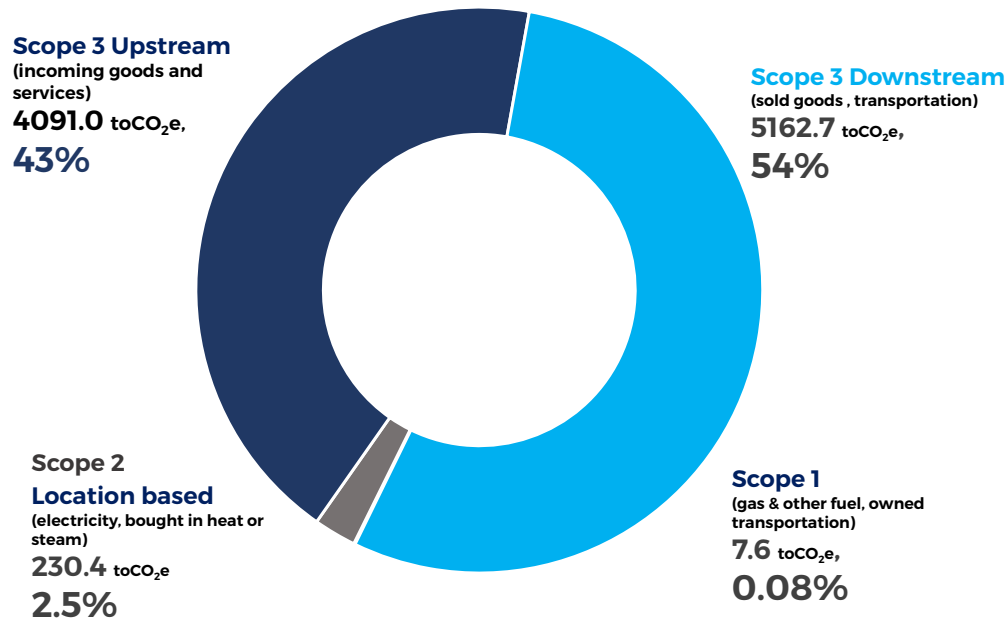
We have this year included full emissions for the generation and transportation of our fuel sources (explanation in next section)

See Appendices for full explanation of location and market based electricity factors: essentially location based is the average electricity factor for the grid; market based reflects the exact fuel mix you have procured for your electricity contract.

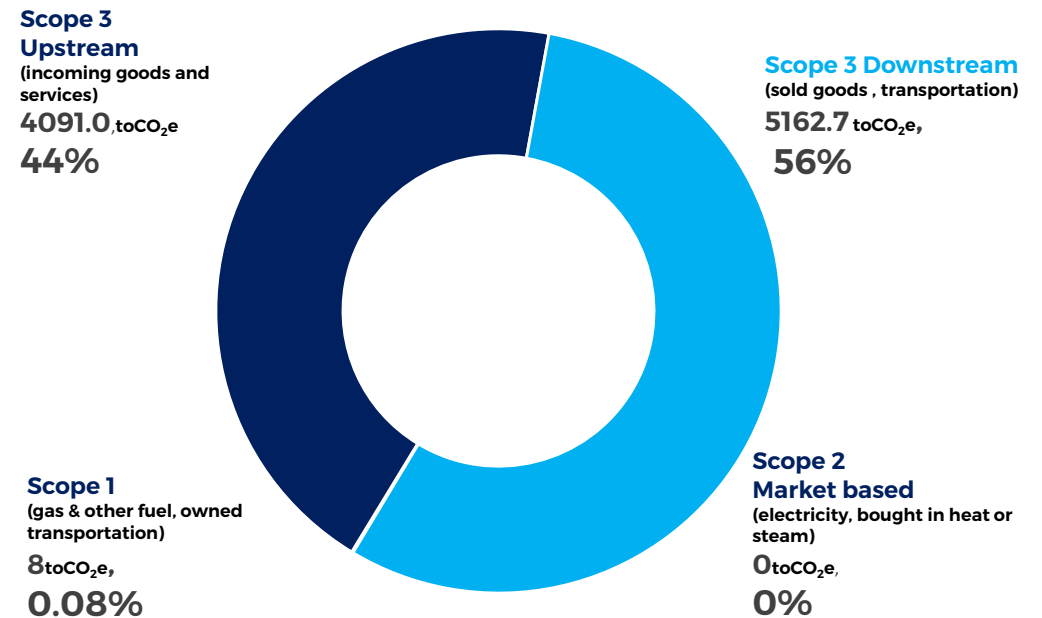
5.0 Carbon Footprint Data: Scopes 1-3 location and market based contributions compared

Broadway Colours have a contract for electricity (Market based) that is now lower than the grid average (Location based). The only improvement that could be made to this carbon neutral zero emissions electricity contract would be to select a contract with a greater proportion of original green generation. It is likely, however, that this would be very expensive and not attractive for the business. Bearing in mind that the grid is decarbonising to be net zero by 2035, the strategy for scope 2 reduction is sound in selecting a cost effective carbon neutral supply now and by default becoming net zero for scope 2 when the grid reaches that target.

Carbon footprint analysis for the supply chain
Location based

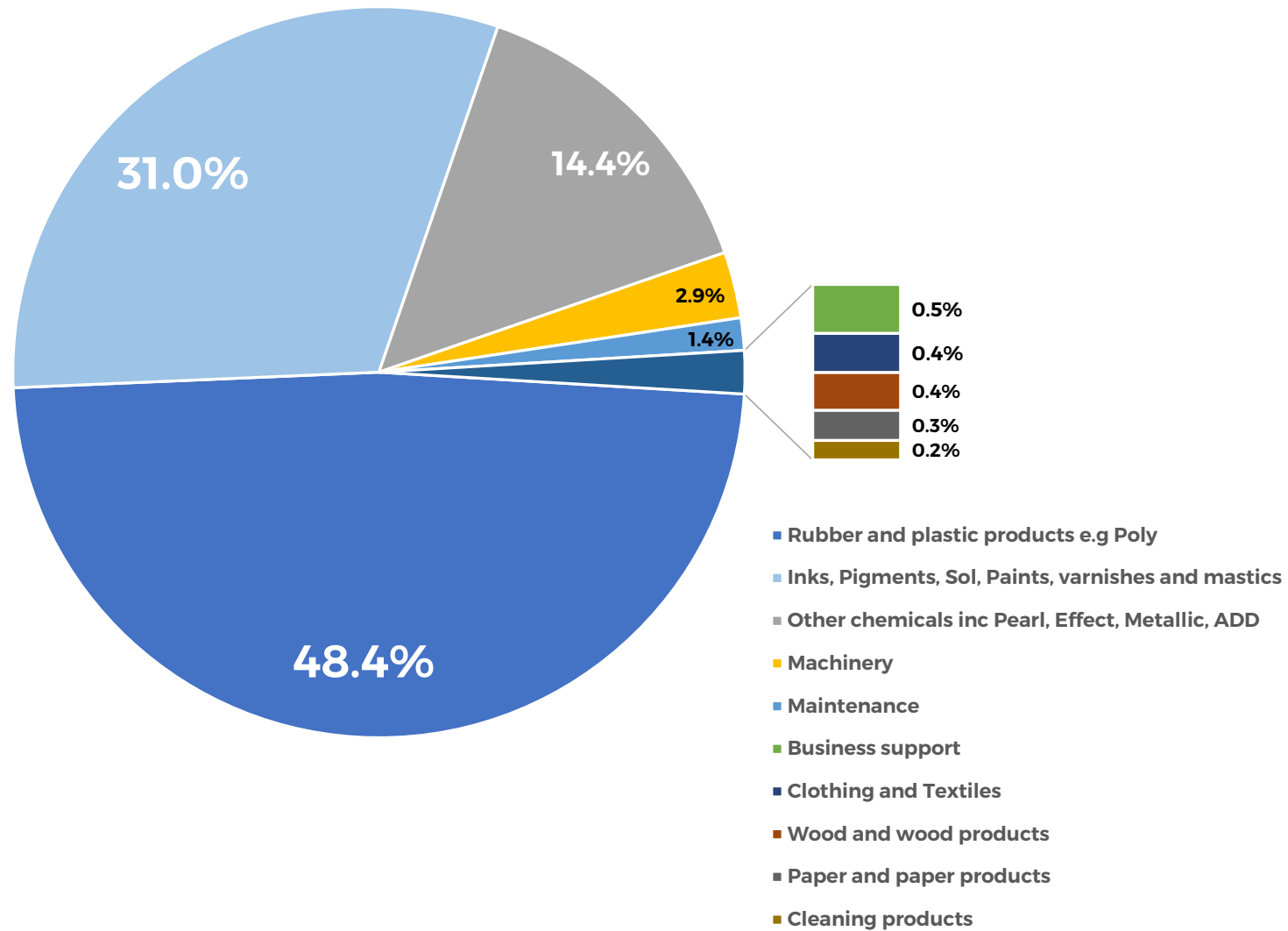


Carbon footprint analysis for the supply chain
Market based



See Appendix 1 for further explanation of Location and Market based factors

6.0 Carbon Footprint Data: Scope 3 Upstream only

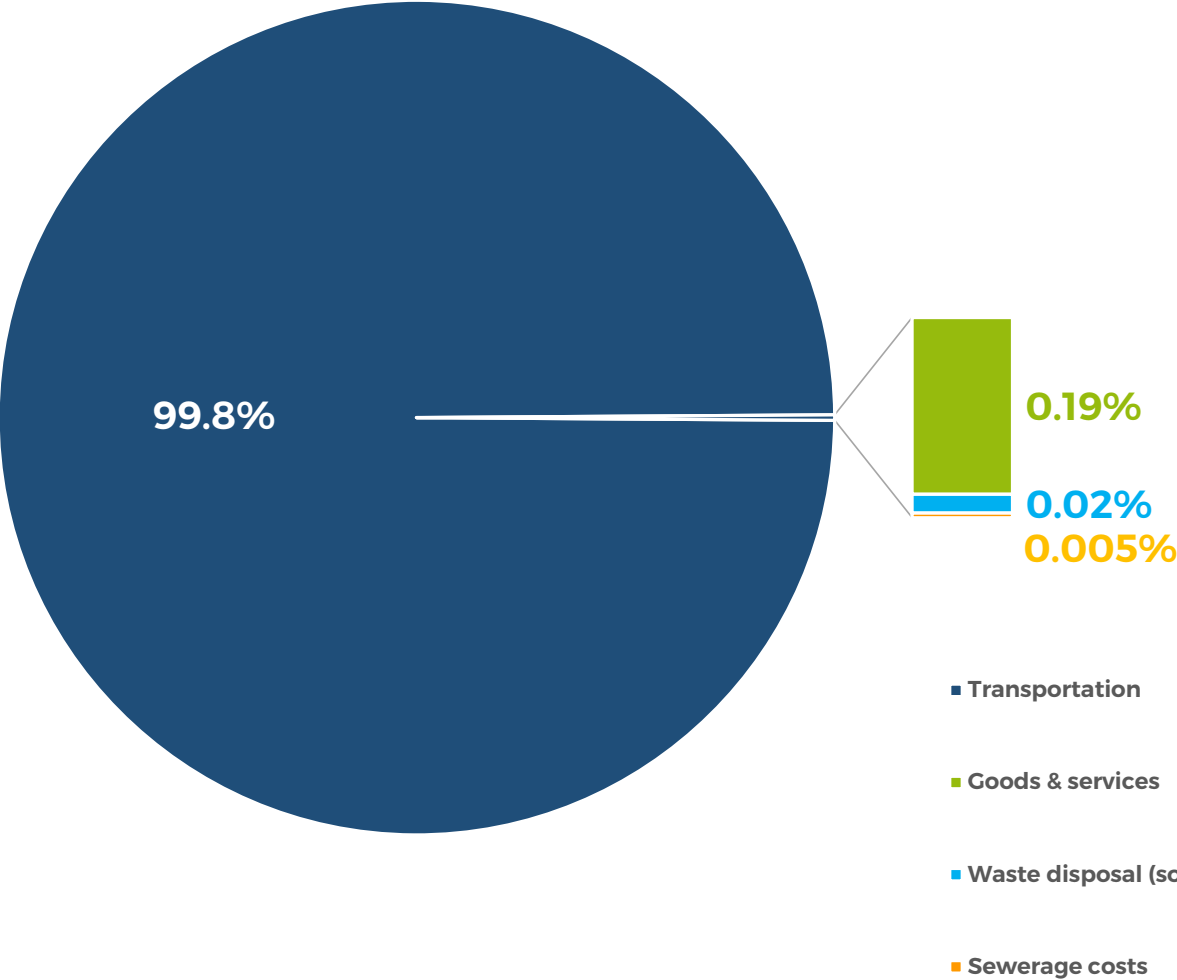


What are Fuel and energy generation and transmission emissions?

WTT = Well to tank emissions - those associated with generating gas and electricity at the generation site

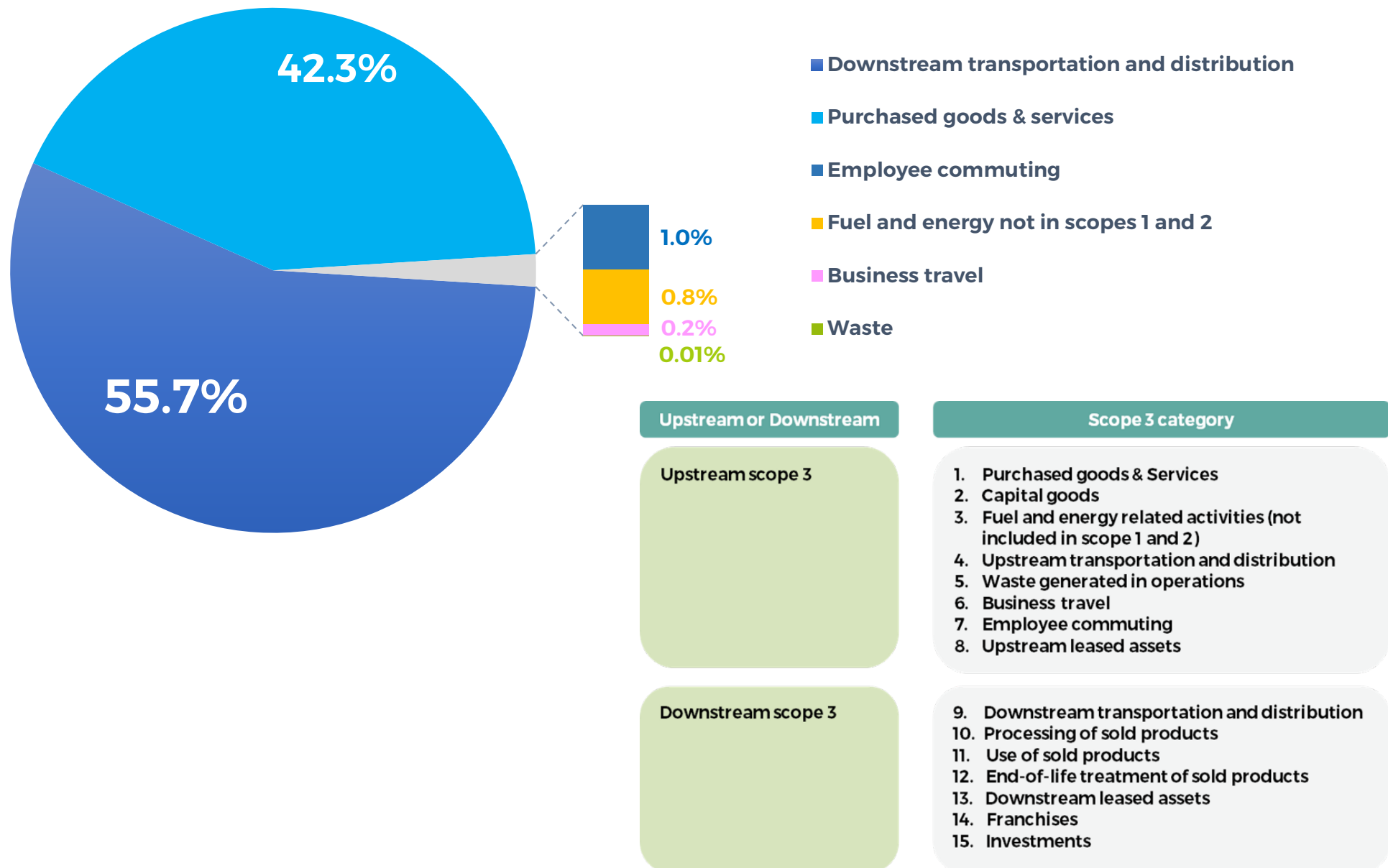
T&D = Transmission and distribution losses through the distribution network

7.0 Carbon Footprint Data: Scope 3 Downstream only



Clearly dominated by the impact of transportation – it is evident that discussion with the transport provider about fleet fuel reductions programmes will have a major impact on this aspect of scope 3.

8.0 Carbon Footprint Data: GHG Protocol allocation for scope 3



Notes:

Excluded from the financial spend based data for mapping are:

- **Accruals**
- **HMRC charges**
- **Staff costs: bonus, overtime, pension, salary**
- **Contract work**
- **Electricity and other fuels (already mapped through direct invoices)**
- **Transportation: mapped directly from point to point journeys and tonnes transported**
- **Waste: mapped directly from tonnes disposed**
- **Water: mapped from the invoiced volume consumption**

It is possible to use the spreadsheet analysis that has been used to add the scope 3 category or if preferred the SIC code for all of the 110 codes that apply to your business. Also note which is assigned an upstream and downstream designation

The spreadsheet combines a number of SIC codes which vary little in impact of emissions intensity. You can assign all SIC codes individually if you wish to. The SIC codes are shown in Appendix 4.

9.0 Product Carbon Footprint

There are a number of ways of calculating this intensity metric:

- Total scope 1-3 emissions divided by total production tonnes
- Total scope 1-2 emissions specific to the product plus a pro rata contribution of total scope 3 according to production tonnes
- Total scope 1-2 emissions specific to the product plus specific spend based scope 3 emissions associated with specific input raw materials (e.g. pigments, chemicals, plastic) plus a pro rata allocation of the remaining scope 3 emissions on a production tonnage basis

You can choose to report the emissions as location based or market based. For commercial purposes it is likely better to report market based because your electricity contract has been procured as renewable-backed.

As an initial assessment pending further development the first of those metrics is reported.

	Emissions (tonnes CO₂e)	Annual production (kg)	Total scope 1-3 Carbon intensity for Broadway products kgCO₂e/kg product
Total scope 1-3 carbon emissions Location-based	9492	2,765,733	3.43
Total scope 1-3 carbon emissions Market-based	9261	2,765,733	3.35

If you are asked to provide intensity for operations only the values are 8.6gCO₂e/kg product (location based) and 2.89gCO₂e/kg. Note that the operational value unit is gram, the total figure is in kilogram.

10.0 Net Zero or Carbon Neutral? Net zero is the gold standard

Carbon Neutral: a company purchases carbon credits from activities in which external operators have removed CO₂ from the atmosphere and have had these verified as credits usually offered in tonnes CO₂e for others to buy. This does not in fact reduce carbon emissions and is simply a mathematical way to balance out emissions and removals.

Net Zero: this is a status where CO₂ emissions have definitely been reduced and not just balanced out. A net zero strategy can involve becoming lean in terms of efficiency, green in terms of selection of low or zero emission fuels and mean if any activities can be stopped. The latter 'mean' category is exceptionally difficult to find for most businesses. It is also likely that technology does not yet exist for companies to become entirely net zero.

There are many business leaders who have announced net zero targets believing that they can buy carbon credits to get to that position. That would be a carbon neutral target not a net zero target and frankly not relevant in the context of the entire global population and businesses needing to make real reductions in carbon at source not rely on the mitigating actions of others.

There is an international benchmark adopted by around 9000 businesses globally called a science based target. This is a voluntary scheme whereby businesses commit to becoming low or zero emitting within a 15 year window starting with a baseline no more than 5 years previous. The guidelines here on carbon removals have become accepted by the world's leading companies and establish a standard for net zero that requires at least 90% abatement (reduction in emissions) and only up to 10% carbon credits. The gold standard is still to only buy carbon credits once companies have reached net zero through their own endeavours such that purchase of carbon credits then becomes climate positive or carbon negative.

It is essential to set a carbon net zero target for 2040 (latest 2050), making real emissions reduction and not relying on offsetting credits to make the business carbon neutral. This means that a business can do nothing and pretend it is having a lower impact on the climate by relying on the good work of others.

Three parts to Carbon Emissions Reduction

OPERATIONAL EFFICIENCY

LEAN

- Reduce energy use
- Improve productivity



EMISSIONS EFFICIENCY

GREEN

- Change fuel source
- Switch to biofuel
- Electricity decarbonisation



ABSOLUTE REDUCTION

MEAN

- Remove fossil fuel
- Cease an operation
- Eliminate emissions
- Sequester



11.0 Cost of carbon emissions and route to Net Zero

There are carbon markets where carbon credits can be bought. They fall into two categories: legal and voluntary. The voluntary carbon markets are not always that well-regulated and currently would not be accepted as mitigation for emissions within a legal taxation framework in the UK or Europe. Voluntary credits could come from tree planting or agricultural regenerative farming practices.

The carbon price chosen in this report is based on the UK Emissions Trading Scheme (UKETS).

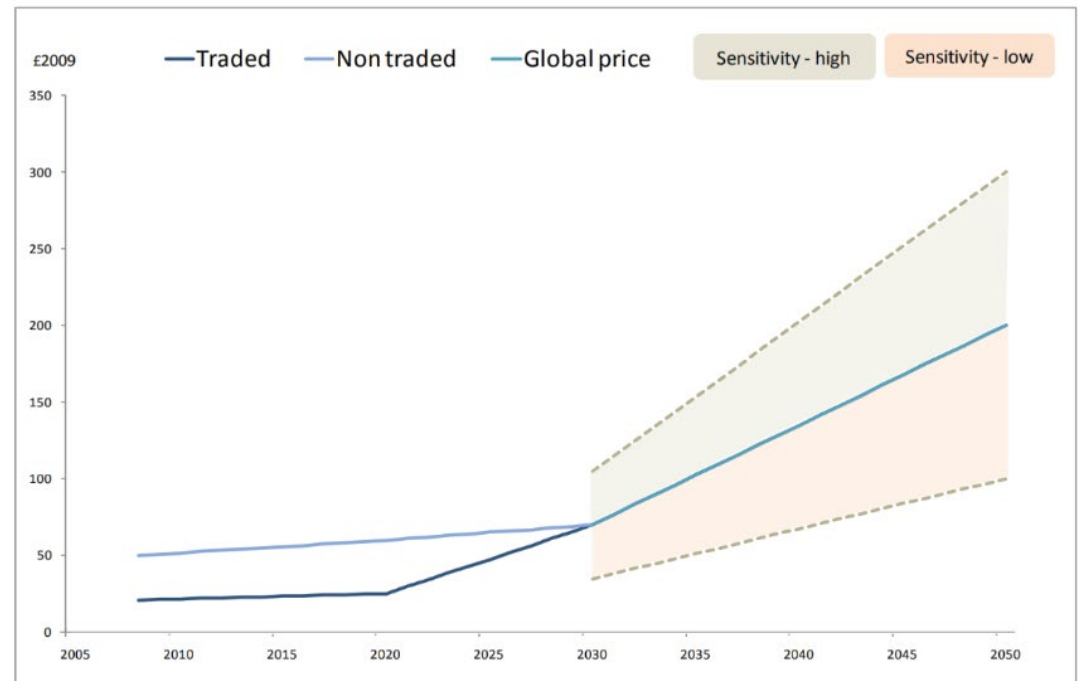
The UK government predicts a significant rise in the price of carbon offsets in the UKETS market if they choose to enact a carbon neutrality tax as they indicated at the time of COP26 would happen soon after 2023. It is still not known if this will become a real tax, but the legal target of reduction of 78% in 2035 based on 1990 emissions levels and carbon net zero by 2050 are enshrined in law, so it is more likely than not that the impact of this offset price will be felt by UK businesses.

This cost is referred to then as an **Internal Price of Carbon (IPC)** which is used in assessing capital and operational savings as an additional financial metric.

The latest carbon prices can be found here and used to calculate the IPC at any point.

[World Bank : Carbon Pricing Dashboard](#)

[Live Carbon Prices Today, Carbon Price Charts · Carbon Credits](#)



Carbon price prediction for the UK emissions trading scheme
CARBON VALUES BEYOND 2050
(publishing.service.gov.uk)

Spend based data emissions factors are updated annually and can be accessed here:
[UK_full_dataset_1990_to_2021_including_conversion_factors_by_SIC_code.ods](#)

Annual conversion factors can be accessed here:

[Government conversion factors for company reporting of greenhouse gas emissions - GOV.UK](#)

The UK government has indicated that it will require more than carbon reporting in the medium term. Already for the past 3 years the largest listed companies have had to report the financial impact of climate related issues, both in terms of risk and opportunity. This has been done through the Taskforce on Climate Related Financial Disclosure (TCFD). That international standard has been replaced by the IFRS standards S1 and S2. These are in essence much the same but now require a clear distinction between a list of material impacts that can be identified and then separately the financial impact, so called double materiality analysis.

There is a defined structure for determining what is material in a supply chain and it will be essential in the future to develop this double materiality analysis alongside a climate and water risk report and to incorporate all of this into a publicly reported Environmental Social Governance (ESG) report. It is expected that this will be rolled out to smaller UK businesses by 2027. However, there is already a similar requirement for reporting under the Corporate Social Responsibility Directive (CSRD) for companies trading in Europe. Currently the introduction date has been moved back 2 years but the ESG reporting will be required if Broadway Colours wish to trade in Europe.

Broadway colours already publish a very good ESG report. It would be useful to align it now with the European and upcoming UK double materiality reporting. Effectively this is a sustainability risk assessment and incorporates a list of potential areas of impact (materiality) and assigns the financial impact of risks and opportunities created (double materiality)

Examples of a report that satisfies the current UK requirement as written by the author of this report can be found here:
[Loungers TCFD report 2023](#)

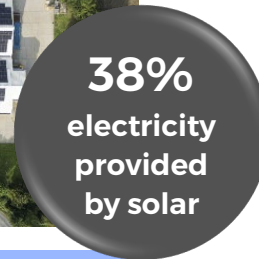
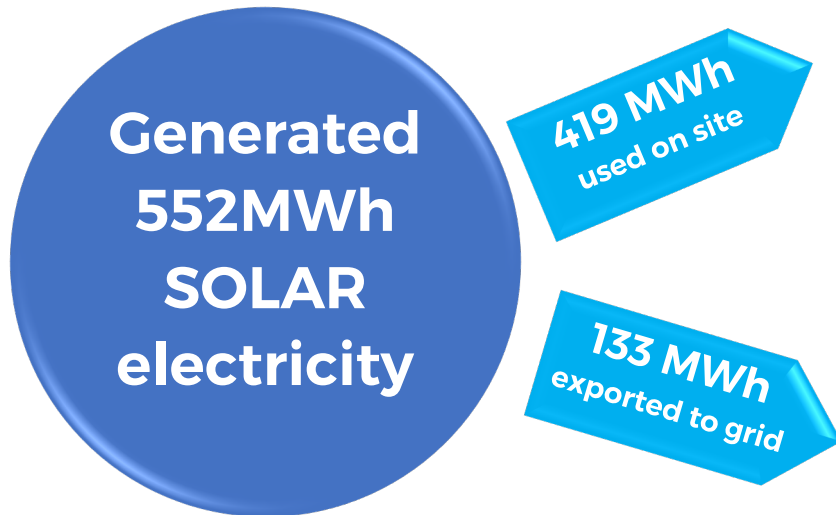
12.0 Exported solar power

The solar power generated is deducted from emissions when it is used but not when it is exported. Total output is still reportable under the GHG Protocol as a benefit. In effect Broadway is assisting the grid to lower its carbon footprint and substituting zero carbon energy for other sources.



During 2024 Broadway generated 551818 kWh of solar electricity

Had this been supplied at the grid average conversion emissions factor it would have amounted to 114 tonnes CO₂e or the equivalent of 28.5 average family cars driving for 1 year



| Section 2

Appendices

APPENDIX 1: Location and Market based carbon conversion factors

Some background detail

There are two options that can be reported for electricity carbon data. The electricity that we all get through the power network is of course the same fuel mix of renewable and fossil fuels and thus has one carbon conversion factor called **LOCATION BASED**.

However if a company makes a specific contract with an electricity company for a renewable contract that contract may have a lower carbon footprint. That factor is called **MARKET BASED**

Electricity companies do not necessarily have to allocate you 100% renewable to report a 0kgCO₂e/kWh factor. Why?

If a company produces green electricity from solar or wind it will have to buy electricity from the grid if it is dark or not windy. To neutralise the carbon of that purchased electricity it can buy carbon neutralising credits or REGO's (Renewable Energy Guarantee of Origin). There are also European versions of these called EU Guarantees of Origin (EUGOOS).

Post-Brexit the UK doesn't accept EUGOOS and EU does not accept UK REGOs.

So, green electricity has a number of formats that are used to generate Fuel Mix factor. This will sometime be shown on an invoice or if not can be found on the supplier website

1. 100% production of green energy 24/7 e.g. from solar, wind, hydro. Not that easy to find such a supplier
2. Some production of renewable energy with the remainder being neutralised by purchase of REGOs
3. Use of nuclear and renewable energy and potentially REGOs to provide a 'zero carbon' supply. Of course any nuclear based contracts are good for emissions but create waste and this is shown in the fuel mix
4. Electricity can still be generated from fossil fuels. Beware because this can also still be called a green contract if they buy REGOs to neutralise the emissions.

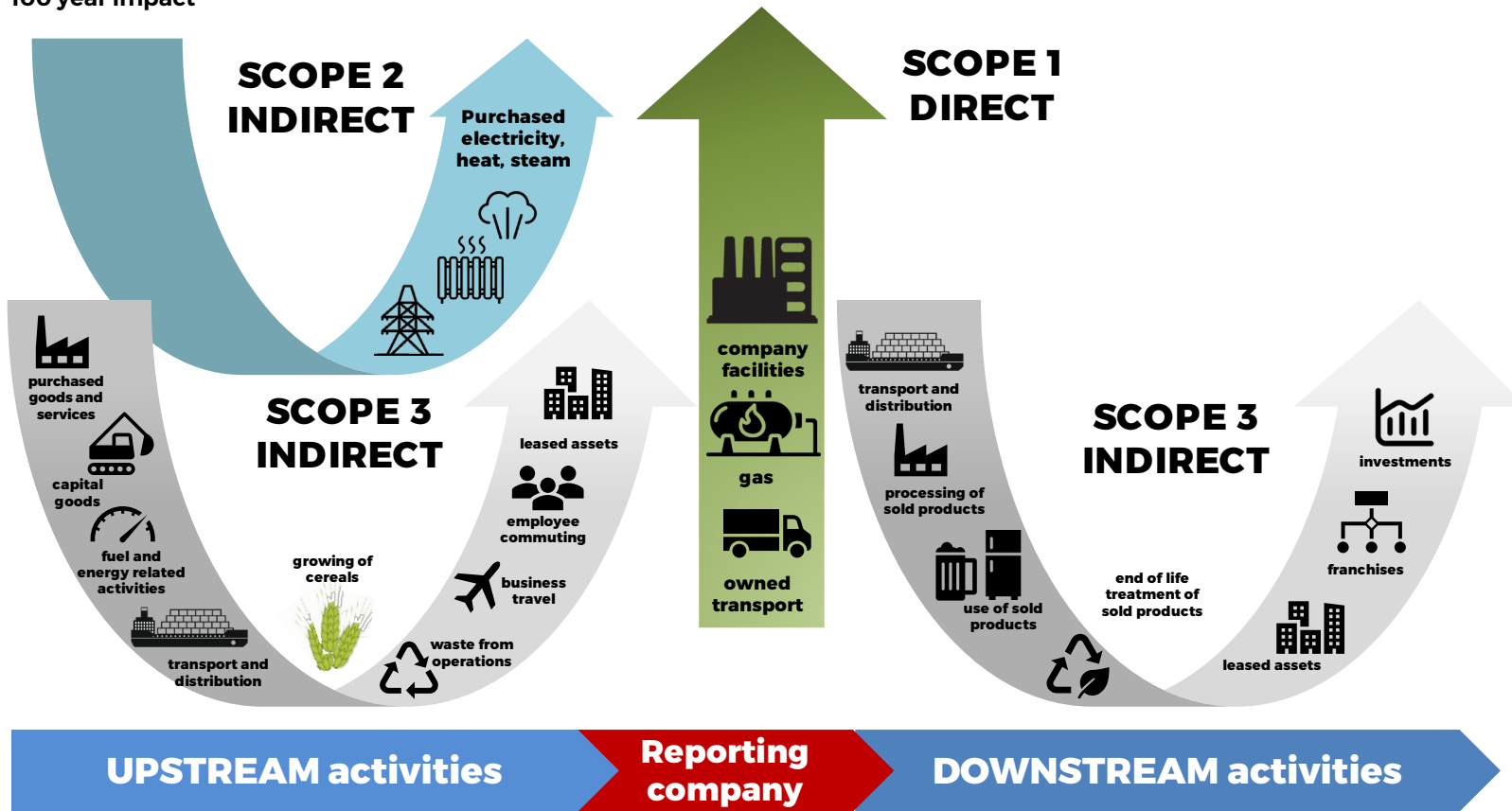
There is a mechanism of allocating a certain fuel mix to you from what is fed into the grid. It then cannot be allocated to anyone else so that is how your electricity fuel factor can be less than the grid average. In some cases because the price is very cheap some people will accept a higher fossil fuel contract with a fuel factor higher than the grid average. Clearly this is not a good environmental choice but would again be shown as a market based carbon footprint.

APPENDIX 2: Carbon Footprint Scopes Explained

Carbon Footprint is a generalised term that converts all seven greenhouse gasses into an equivalent based on global warming potential.

Greenhouse Gasses	CO ₂	CH ₄	N ₂ O	HFCs	PFCs	SF ₆	NF ₃
Global Warming Potential 5 th assessment AR5 100 year impact	1	28	256	4-17400	6630-17400	23500	16100

Picture redrawn by Maltdoctor Ltd based on GHG Protocol Guidelines










There are seven gasses that need to be considered in calculating a carbon footprint. Each has a global warming potential (GWP) factor which differs slightly depending on the report you consult, but overall, the relative warming potential is the same.

Refer to the Glossary in Appendix 2 for an explanation of scopes in more detail.

APPENDIX 3: Glossary of Terms relating to Sustainability

Term	Explanation
Anthropogenic emissions	These are emissions of greenhouse gasses into the atmosphere as a result of people living on the planet
Biodiversity	The range (diversity) of plants and animals in the natural (bio) environment
Biogenic emissions	These are emissions that result from biological activity and are naturally occurring. They do not have to be included in a carbon footprint calculation but the Greenhouse Gas Protocol requires companies to report biogenic emissions separately.
Carbon Capture (Sequestration)	Where an activity is able to take carbon (CO ₂ ; GHG) out of the atmosphere and lock it away permanently (sequester) such that it is never emitted into the atmosphere again. There are different degrees of permanency for sequestration and sometimes sequestered carbon can be re-released e.g. carbon captured in forests is released if there are widespread forest fires. Sequestered carbon can be sold as an offset but equally if it re-released into the atmosphere the value of that offset is no longer valid
Carbon Credits	If an activity takes more greenhouse gas (carbon) out of the atmosphere than it generates it is carbon negative and has carbon credits available to sell to organisations that need to balance their emissions output. There are numerous companies brokering carbon credits from many different global projects. It is essential that carbon credits are verified as being valid and permanent
Carbon equivalent (CO ₂ e)	Each Greenhouse gas is converted using its Global Warming Potential (GWP) to an equivalent CO ₂ value hence the carbon footprint is written as CO ₂ equivalence: CO ₂ e (sometimes written CO ₂ eq)
Carbon Footprint	A measure of the carbon equivalent emissions associated with the production and use of a product or process. It is a simple way of expressing all the environmental impact of greenhouse gas emissions by converting it all back to a carbon equivalent. Caution: Reports can use the terms <i>carbon</i> and <i>carbon dioxide</i> . This is important because the value expressed as carbon is 3.7 times less than a carbon dioxide equivalent figure. Most people will use the word carbon to mean carbon dioxide equivalent emissions
Carbon negative Climate positive	If an activity takes more GHG (carbon or CO ₂) out of the atmosphere than it emits it is a carbon negative activity which is positive for the climate

<p>Carbon Neutral Net Zero Carbon Zero</p>	<p>These terms are used interchangeably by the many commentators on carbon emissions reduction. Some people will try to tell you that their explanation is definitive but this is not the case and it is best to understand these terms as being essentially the same</p> <p>The essence is that by whatever means you choose to reduce carbon emissions you will arrive at a balance point where your emissions are effectively balanced (neutralised) by choosing carbon reduction options which reduce atmospheric carbon emissions to the same extent that you are emitting them.</p> <p>The activities that result in you balancing your emissions are a combination of emissions reduction in your processes where these are possible coupled with buying into activities that are already carbon negative (offsets).</p> <p>Net-zero carbon dioxide emissions are achieved by balancing emissions against carbon emission reduction</p> <p>Some people include carbon offsetting strategies in net-zero, some define use of offsetting to get to net-zero as carbon neutrality</p> <p>Being carbon neutral involves calculating your total climate-damaging carbon emissions, reducing them where possible, and then balancing your remaining emissions, for example by purchasing a carbon offset such as paying to plant new trees or investing in “green” technologies such as solar and wind power</p> <p>Science Based Targets Initiative defines NET ZERO this way:</p> <ul style="list-style-type: none"> • Reduce scopes 1,2,3 to zero or to a residual level that is consistent with reaching net-zero emissions at the global or sector level in eligible 1.5C aligned pathways • Neutralise any residual emissions at the target year and all years thereafter <p>Net Zero can be achieved in the following 4 ways</p> <ol style="list-style-type: none"> 1. Set a near term (5-10 years) target to reduce GHG emissions in line with 1,5C pathway 2. Set a long-term target to become net zero by 2050 on a 1.5C aligned pathway. Note if you set a 10 year long term target there is no requirement to set a near term target 3. Outside your value chain: Purchase credits (offsets or insets) that capture additional carbon from the atmosphere. This is also called societal net zero in other words reducing GHG emissions for the good of mankind even where this is not in your direct value chain of operations 4. Neutralise any remaining emissions from your operations through permanent removal and carbon storage options
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<p>Carbon Zero</p>	<p>There is no possibility of anything ever being carbon zero. This would mean that no carbon was emitted during the production or use.</p> <p>It is often used specifically to describe non-polluting operation. For example, a solar panel may emit almost nothing during its operating life but would have created emissions during its manufacture.</p> <p>A fully electric car emits no polluting chemicals into the atmosphere but would have involved emissions generation during its manufacture.</p> <p>The whole life cycle of a product or process is never going to be entirely carbon zero, but aspects of the life cycle can be</p>
<p>Climate Change</p>	<p>Climate change is the continuous change in our atmosphere that traps heat around the earth causing its average temperature to rise. It is also seen through a dramatic increase in the frequency of events such as extreme weather conditions (drought, heat waves, heavy rain, floods, landslides). Other consequences are rising sea levels, ocean acidification and a loss of biodiversity</p>
<p>Corporate Sustainability Reporting Directive (CSRD)</p>	<div style="display: flex; align-items: flex-start;"> <div style="flex: 1;">  <p>Climate change mitigation</p>  <p>Climate change adaptation</p>  <p>Sustainable protection of water and marine resources</p>  <p>Transition to a circular economy</p>  <p>Pollution prevention and control</p>  <p>Protection and restoration of biodiversity and ecosystems</p> </div> <div style="flex: 2; padding-left: 20px;"> <p>A European Directive that may also be adopted by the UK. It aims to establish a structure and approved scope and words used to describe sustainability (called the EU green taxonomy). It will capture 75% of EU businesses by 2027 latest. Who must report? Companies listed on regulated markets in the EU (apart from listed micro-enterprises), and large companies (> 250 employees, turnover >€40m, >€20m total assets) Listed SMEs (transitional period until 2028) Non-EU companies net turnover >€150 mil for Broadway Colours in the EU and at least one subsidiary or branch in EU</p> <p>There are 6 themes that are approved for reporting and at least one must be selected for significant progress whilst making a commitment to do no significant harm in all the other categories. A social sustainability measure must be included.</p> </div> <div style="flex: 0.2; text-align: center;">  </div> </div> <p>Scan the QR code to read more</p>

Cradle to cradle	This is the perfect life cycle scenario where an analysis has determined the emissions from original generation of the product back to it being reused again to create the same type of product																
Direct emissions	Direct emissions are emissions from sources that are owned or controlled by the reporting company																
Downstream	Indirect GHG emissions related to sold goods and services e.g. transport of beer to managed houses																
Fugitive emissions	Fugitive emissions occur where there is intentional or unintentional release of material that is a GHG e.g., equipment leaks from joints, seals, packing, and gaskets; hydrofluorocarbon (HFC) emissions during the use of refrigeration and air conditioning equipment; and methane leakages from gas transport.																
Global warming	The rise in average temperature of the planet since pre-industrial times. It has been calculated that if our planet warms up on average by more than 1.5C it will have dramatic effects on our planet Our planet has throughout its long history experienced many changes in average temperature. Global warming now refers to the rise in temperature generally attributed to the greenhouse effect caused by increased levels of carbon dioxide, CFCs, and other pollutants.																
Global Warming Potential (GWP)	<p>There are seven gasses that need to be considered in calculating a carbon footprint. Each has a global warming potential (GWP) factor which differs slightly depending on the report you consult, but overall, the relative warming potential is the same.</p> <p>The global warming potential is the ability of each gas to hold heat and thus create a higher temperature on the planet.</p> <table border="1"> <thead> <tr> <th><i>Greenhouse Gas (GHG)</i></th> <th><i>Global warming potential (GWP)</i></th> </tr> </thead> <tbody> <tr> <td>Carbon dioxide (CO₂)</td> <td>1</td> </tr> <tr> <td>Methane (CH₄)</td> <td>28</td> </tr> <tr> <td>Nitrous Oxide (N₂O)</td> <td>256</td> </tr> <tr> <td>Sulphur hexafluoride (SF₆)</td> <td>23,500</td> </tr> <tr> <td>Hydrofluorocarbon (HFC)</td> <td>4 – 17,400*</td> </tr> <tr> <td>Perfluorocarbon (PFC)</td> <td>6,630– 17,400*</td> </tr> <tr> <td>Nitrogen Trifluoride (NF₃)</td> <td>16100</td> </tr> </tbody> </table> <p><i>*Refer to the GHG Protocol for details on individual compounds - Data from the IPCC Fifth Assessment Report, 2014</i></p> <p>There is some debate about the factor for methane because whilst it has a GWP of 28 it persists in the atmosphere for relatively short periods (9 years) so does not have such a long-lasting impact as the other GHG's (e.g. N₂O: 114 years, SF₆: 50-200 years, HFC's: 264 years).</p> <p>Each Greenhouse gas is converted using its Global Warming Potential (GWP) to an equivalent CO₂ value hence the carbon footprint is written as CO₂ equivalence: CO₂e (sometimes written CO₂eq). e.g. 1 tonne Nitrous oxide is equivalent to 265 tonnes CO₂e</p>	<i>Greenhouse Gas (GHG)</i>	<i>Global warming potential (GWP)</i>	Carbon dioxide (CO ₂)	1	Methane (CH ₄)	28	Nitrous Oxide (N ₂ O)	256	Sulphur hexafluoride (SF ₆)	23,500	Hydrofluorocarbon (HFC)	4 – 17,400*	Perfluorocarbon (PFC)	6,630– 17,400*	Nitrogen Trifluoride (NF ₃)	16100
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Global Weirding	Global warming or climate change predicts the average temperature will continue to rise. Many people do not perceive that slow average rise in temperature and may experience colder temperatures and extreme weather events which are 'weird' when they expect us it be getting hotter. Global weirding refers to the disruptive and often confusing impact of climate change
Green	A generic term which means activities are less harmful to the environment, the planet and its climate
Greenhouse Gas (GHG)	A greenhouse gas is one that absorbs and emits heat energy* but restricts it to the atmosphere around the earth, causing the planet to warm up as it if were inside a greenhouse. *radiant energy within the thermal infrared range
Greenhouse Gas Protocol	A structured document that guides the user through calculation methodology for carbon footprinting, how to report, what to include, how to describe uncertainty. It is a corporate standard guide for reporting greenhouse gas emissions. https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf https://ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporting-Standard_041613_2.pdf
Indirect emissions	Indirect emissions are emissions that are a consequence of the activities of the reporting company, but occur at sources owned or controlled by another company.
Inset	Where an organization invests in sustainable practices within its own supply chain. e.g. malting barley is grown in a way that takes more CO ₂ out of the atmosphere than the crop emits whilst growing and is effectively carbon negative and can be used to offset carbon emissions for another organisation
Intergovernmental Panel for Climate Change (IPCC)	The Intergovernmental Panel on Climate Change (IPCC) is the United Nations body for assessing the science related to climate change
Life Cycle or Life Cycle Analysis	Life cycle is the whole process from creation of the product through to its final disposal if that is the end of its useful life, but also includes its recycling and reuse where this is possible. Life cycle analysis monitors all environmental aspects during the life cycle not just carbon emissions

Net Zero	A balance of carbon emissions and reductions or offsets that result in an organisation having a balance of zero i.e. net zero not absolute zero. It is a term applied to project, organisations, countries and the planet Science Based Targets Organisation now allows 90% abatement (emissions reduction) and up to 10% purchase of offsets to qualify as net zero but still holds the no-use of credits as the gold standard for becoming net zero. It is simply an acknowledgement that the technology may not exist in time for a 2030-2050 target of abatement but may come later,
Offset (Carbon offset)	An organization pays for projects to capture atmospheric carbon dioxide somewhere else e.g. a forest is planted by somebody else and captures atmospheric Carbon dioxide (CO ₂) and those captured tonnes of CO ₂ are sold as negative carbon (carbon credits) to companies who are making carbon emissions so they can report lower net emissions
Oxford Principles for emissions reduction	<p>A set of principles that explain the importance of setting a hierarchy for carbon removal which focusses on reduction or removal of carbon emissions rather than relying on carbon offsets purchased elsewhere or even insets created within a supply chain.</p> <p>The principles are:</p> <ol style="list-style-type: none"> 1. Cut emissions, use high quality offsets, regularly revise offsetting strategy as best practice evolves 2. Shift to carbon removal offsetting <p>Most offsets available today are emission reductions, which are necessary but not sufficient to achieve net zero in the long run. Carbon removals scrub carbon directly from the atmosphere.</p> <ol style="list-style-type: none"> 3. Shift to long-lived storage <p>Short-lived storage involves methods that have a higher risk of being reversed over decades. Long-lived storage refers to methods of storing carbon that have a low risk of reversal over centuries to millennia, such as storing CO₂ in geological reservoirs or mineralising carbon into stable forms.</p> <ol style="list-style-type: none"> 4. Support the development of net zero aligned offsetting <p>e.g. <i>Form sector-specific alliances</i> - work collaboratively with peers to develop the market for net zero aligned offsets.</p> <ul style="list-style-type: none"> · <i>Supporting the restoration and protection of a wide range of natural and semi-natural ecosystems in their own right</i> · <i>Adopting and publicising these Principles, and incorporate them into regulation and standard setting for approaches to offsetting and net zero.</i> <p>https://www.smithschool.ox.ac.uk/publications/reports/Oxford-Offsetting-Principles-2020.pdf</p>
Paris Agreement	<p>The Paris Agreement sets out a global framework to avoid dangerous climate change by limiting global warming to well below 2°C and pursuing efforts to limit it to 1.5°C. It also aims to strengthen countries' ability to deal with the impacts of climate change and support them in their efforts.</p> <p>It is the first-ever universal, legally binding global climate change agreement, adopted at the Paris climate conference (COP21) in December 2015</p>

	<p>COP: Conference of Parties relates back to the Kyoto Protocol, an international treaty which extended the 1992 United Nations Framework Convention on Climate Change (UNFCCC) that commits state parties to reduce greenhouse gas emissions. It became legally binding in February 2005. There were 192 parties the Protocol in 2020</p>
Race to Zero	<p>Race To Zero is a global campaign to engage businesses and investors across the globe to create with urgency the mechanism required to move towards a net zero carbon world. recovery that prevents future threats, creates decent jobs, and unlocks inclusive, sustainable growth. It is the strapline and focus of the Climate Ambition Alliance, which was launched at the UNSC's Climate Action Summit 2019 and encourages participants to be more ambitious in carbon reduction than the Paris Agreement requires</p>
Recyclable	<p>A material which can be recycled. It is important to recognise that just because a package shows that it can be recycled it may not necessarily be able to be easily recycled. This can be because there are no facilities to easily recycle it without long distance transportation or other processing which negates much if not all the saving in environmental impact that the recycling creates.</p>
Refrigerant gasses	<p>These are gasses used in cooling activities. Many of these chloro or fluoro carbons were found to damage the ozone layer in the atmosphere which led to disturbance in climate such as global warming. New refrigerants have been developed with much lower GWP and regulation has been introduced to make such a change permanent*.</p> <p>*The 2015 F-gas regulation; EU regulation (517/2014) banned new equipment using HFC refrigerants with a GWP of over 2500 by 2020. A new family of refrigerants has been developed (Hydro Fluoro Olefins (HFO))</p>
Renewable energy	<p>Energy obtained from a source that is constantly replenished and not depleted when used, such as wind or solar power. If a fuel source is used which emits no more GHG than it would in the natural environment it is classed as renewable</p> <p>e.g. biomass using waste woodchip which would otherwise rot and emit the same amount of CO₂e as is emitted when its burned. Biomass energy comes from the sun and it can regrow in a relatively short time. Trees take in carbon dioxide from the atmosphere it is released back into the atmosphere for more trees to take back in</p>
Science based target (science based target initiative SBTi)	<p>Science-based targets provide companies with a clearly-defined path to reduce emissions in line with the Paris Agreement goals. It is a collaboration between Carbon Disclosure Project (CDP), World Resources Institute (WRI), the World Wide Fund for Nature (WWF), and the United Nations Global Compact (UNGC). All industries around the world were evaluated and assigned a target for GHG reduction that would prevent the human impact on global climate change exceeding 1.5C. Offsetting does not count as reduction for SBTi.</p> <p>Targets must cover a minimum of 5 years and a maximum of 10 years from the date the target is submitted to the SBTi for an official validation. SBTi criteria are found here: https://sciencebasedtargets.org/resources/legacy/2019/03/SBTi-criteria.pdf</p>

<p>Scope 1</p>	<p>SCOPE 1 (Direct Emissions) Emissions from plant or assets that you own and directly control. This could be fuel used on site for heating and comprises, for example, natural gas and fuel oil. It can be subdivided into generation of electricity, heat, or steam on site through plant such as boilers, furnaces, turbines. If you own your own transportation fleet or own (not lease) company vehicles these emissions are scope 1.</p> <p>These emissions are generally the ones you will have the most accurate data for and will be easily available from invoices such as gas kWh usage or directly calculated carbon footprint data using readily available conversion factors from the UK government which are updated and published annually</p>
<p>Scope 2</p>	<p>SCOPE 2 (Indirect Emissions)</p> <p>Emissions released into the atmosphere associated with your consumption of purchased electricity, heat, steam and cooling. These are indirect emissions that are a consequence of your organisation's activities, but which occur at sources you do not own or control.</p> <p>These emissions are easily available from invoiced kWh usage</p> <p>Remember: do not include the emissions associated with transmission and distribution losses which must be included in scope 3</p>
<p>Scope 3</p>	<p>SCOPE 3 (Other Indirect Emissions)</p> <p>Scope 3 emissions are a consequence of your actions, but which occur at sources which you do not own or control and which are not classed as scope 2 emissions.</p> <p>Examples of scope 3 emissions are business travel by means not owned or controlled by your organisation, waste disposal which is not owned or controlled, or purchased materials or fuels.</p> <p>SCOPE 3 Upstream Includes: Growing of foods; Primary processing of raw materials Transportation into the factory Business travel in transportation that you do not own directly Employee commuting Transportation and distribution losses for the electricity you purchase externally (remember the invoiced usage is already in scope 2)</p> <p>SCOPE 3 Downstream Includes: Transportation to your customer Assets that you lease Impact of financial and other services</p>

	<p>Scope 3 downstream emissions are the most difficult to calculate hence it is pragmatic to use a model developed to estimate carbon emissions relative to financial spend in those areas.</p> <p>The Greenhouse Gas Protocol has established four levels of certainty for scope 3 emissions defined as going from most accurate (1) to least (4):</p> <ol style="list-style-type: none"> 1) Supplier specific method; 2) Hybrid method 3) Average data method 4) Spend-based method <p>However, a spend based model is still a valid way to predict scope 3 emissions where the total contribution to a carbon footprint is relatively small (say <5%)</p>
Streamlined Energy and Carbon Reporting (SECR)	<p>Since 2020 UK companies of a certain size are required by law to report their scope 1 and 2 emissions publicly and to show a year-on-year comparison of energy use and carbon emissions together with any significant improvements that have been made to reduce GHG emissions.</p> <p>Legislation: The Companies (Directors' Report) and Limited Liability Partnerships (Energy and Carbon Report) Regulations 2018 ("the 2018 Regulations"). UK incorporated companies listed on: the main market of the London Stock Exchange OR a European Economic Area market OR</p> <p>Unquoted large companies incorporated in the UK, which are required to prepare a Directors' Report under Part 15 of the Companies Act 2006 OR Large Limited Liability Partnerships (large is defined as per the existing framework for annual accounts and reports, based on sections 465 and 466 of the Companies Act); Turnover £36 mil for Broadway Colours or more; Balance sheet total £18 mil for Broadway Colours or more; Number of employees 250 or more</p>
Sustainability	<p>A much used term which can relate both to environmental protection that addresses global warming reduction and to the whole sphere of activities of a company that reduce its impact on the planet and protect its long term prosperity and longevity</p>
Task Force on Climate Related Disclosure (TCFD)	<p>The TCFD was formed by the Financial Sustainability Board in a bid to encourage the uptake of unified climate risk and opportunity measurement and disclosure across the private sector. It first published its framework in 2017, outlining guidance for disclosures regarding governance, strategy, risk management and climate targets. A key and unique facet of the framework is that it encourages businesses to undertake scenario analysis. This involves mapping likely risks and opportunities to the business's value chain at a range of global warming trajectories, including those detailed in the Paris Agreement (2C and 1.5C).</p> <p>192 countries plus the EU have joined the Paris Agreement. There is a growing recognition that bringing global greenhouse gas emissions to net-zero by 2050 will give the best chance of limiting the global temperature increase to 1.5C – the Agreement's more ambitious pathway, and the pathway needed to avoid the worst</p>

	<p>physical impacts of the climate crisis. 90% of global GDP is now covered by net-zero targets from nations and regions.</p> <p>Which organisations are covered by the mandate?</p> <p>The Government has estimated that around 1,300 organisations will be covered by the mandate in the first instance. It will apply to all companies currently required to produce a non-financial information statement annually – so listed companies, banks or insurers with more than 500 employees; UK-based AIM companies with 500 or more employees; LLPs with 500 or more employees and a turnover of more than £500m; Non-listed companies with 500 employees or more and a turnover of more than £500m.</p> <p>From 2025 it is expected to apply to all large UK companies: Turnover >£36M; Balance sheet >£18M, >250 employees</p> <p>The Government will count employees in the UK and overseas and, if the company is a parent company, the threshold applies to the collective number of companies across the conglomerate.</p> <p>Non-compliance can result of fines of a minimum of £2,500 and a maximum of £50,000.</p> <p>Scan the QR code to read the guidelines</p> 
Transmission and Distribution losses	T&D = Transmission and distribution losses through the distribution network for generation and distribution of fuels
Triple Bottom Line	<p>A model that emphasises the threefold benefit to company prosperity through sustainability initiatives as being People, Profit, Planet or Social, Financial and Environmental</p> <p>If companies don't like appearing to profit from environmental protection it is common to say they align with People, Prosperity, Planet</p>
United Nations Sustainable Development Goals (UN SDG)	<p>The 2030 Agenda for Sustainable Development, adopted by the UN in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. At its heart are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries.</p> <p>At the heart of these goals are 5 principles: People; Planet; Prosperity; Peace; Partnership</p>
Upstream emissions	Indirect GHG emissions related to purchased or acquired goods and services e.g. the impact of malt coming into a brewery
Well to Tank emissions	WTW emissions – those associated with generating gas and electricity at the generation site
Zero to Landfill	All your hazardous and non-hazardous waste streams are diverted away from landfill to be either reused, recycled, or disposed of in a legal manner

Acronyms

4p1000	4 per 1000 initiative		GSP	Global Soil Partnership
AFOLU	Agriculture, Forest and Other Land Use		HUM	humidified organic matter
AGDM	above-ground dry matter		HWSD	Harmonized World Soil Database
BAU	Business as usual		IOM	inert organic matter
BVCM	Beyond value chain mitigation		IFRS	International Financial Reporting Standards
CAGR	carbon in the above-ground residue		IPCC	Intergovernmental Panel on Climate Change
Cbal	carbon balance		LEAP	Livestock Environmental Assessment and Performance Partnership
CBGR	carbon in the below-ground residues		LUC	Land-use change
CDR	Carbon Dioxide Removal		LULUCF	Land-use, Land-use change and Forestry
CExc	carbon input from animal excreta		NBS	Nature-based solutions
COP	Conference of the Parties		PPA	Power purchase agreement
Cres	carbon input from plant residues		REC	Renewable energy certificate
CSRD	Corporate Sustainability Reporting Directive (EU)		REDD	Reducing Emissions from Deforestation and Degradation
DAC	Direct Air Capture		REIT	Real Estate Investment Trusts
DPM	decomposable plant material		SAG	SBTi Scientific Advisory Group
EAG	Net-Zero Expert Advisory Group		SBTi	Science Based Targets initiative
ESG	Environmental Social Governance		SDA	Sectoral Decarbonization Approach
FAO	Food and Agriculture Organization of the United Nations		SME	Small & medium sized enterprises
FLAG	Forests, Land and Agriculture		SOC	Soil organic carbon
GAEZ	Global Agro-Ecological Zones		SR15	IPCC Special Report on 1.5°C
GAUL	Global Administrative Unit Layers		TAG	SBTi Technical Advisory Group
GHG	Greenhouse Gas		TCFD	Task Force on Climate Related Financial Disclosure
GIS	geographic Information System		UNEP	The United Nations Environment Program
GLC SHARE	Global Land Cover SHARE		UNFCCC	United Nations Framework Convention on Climate Change
GLEAM	Global Livestock Environmental Assessment Model		vPPA	Virtual power purchase agreement
GPP	gross primary production			
GSOCseq	global soil organic carbon sequestration			

APPENDIX 4

The 110 SIC codes and emission intensities per unit of spend

SIC Code	Description	GHG (kgCO ₂ e per £)
1	Products of agriculture, hunting and related services	2.315
2	Products of forestry, logging and related services	0.328
3	Fish and other fishing products; aquaculture products; support services to fishing	0.76
5	Coal and lignite	1.598
6	Crude petroleum and natural gas	1.471
8	Other mining and quarrying products	0.756
9	Mining support services	1.905
10.1	Preserved meat and meat products	0.817
10.2-3	Processed and preserved fish, crustaceans, molluscs, fruit and vegetables	0.745
10.4	Vegetable and animal oils and fats	0.96
10.5	Dairy products	0.969
10.6	Grain mill products, starches and starch products	0.939
10.7	Bakery and farinaceous products	0.567
10.8	Other food products	0.725
10.9	Prepared animal feeds	0.925
11.01-6	Alcoholic beverages	0.728
11.07	Soft drinks	0.421
12	Tobacco products	1.036
13	Textiles	0.805
14	Wearing apparel	0.738
15	Leather and related products	0.712
16	Wood and of products of wood and cork, except furniture; articles of straw and plaiting materi	0.545
17	Paper and paper products	0.756
18	Printing and recording services	0.434
19	Coke and refined petroleum products	1.866
20.3	Paints, varnishes and similar coatings, printing ink and mastics	1.048
20.4	Soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations	0.837
	Other chemical products	1.338
20A	Industrial gases, inorganics and fertilisers (all inorganic chemicals) - 20.11/13/15	1.391
20B	Petrochemicals - 20.14/16/17/60	1.5
20C	Dyestuffs, agro-chemicals - 20.12/20	1.232
21	Basic pharmaceutical products and pharmaceutical preparations	0.581
22	Rubber and plastic products	0.634
23.5-6	Cement, lime, plaster and articles of concrete, cement and plaster	0.982
23OTHER	Glass, refractory, clay, other porcelain and ceramic, stone and abrasive products - 23.1-4/7-9	1.31
24.1-3	Basic iron and steel	1.792
24.4-5	Other basic metals and casting	0.11
25.4	Weapons and ammunition	0.469
25OTHER	Fabricated metal products, excl. machinery and equipment and weapons & ammunition - 25.1-3	0.575
26	Computer, electronic and optical products	0.404
27	Electrical equipment	0.438
28	Machinery and equipment n.e.c.	0.445
29	Motor vehicles, trailers and semi-trailers	0.416
30.1	Ships and boats	0.303
30.3	Air and spacecraft and related machinery	0.427
30OTHER	Other transport equipment - 30.2/4/9	0.336
31	Furniture	0.457
32	Other manufactured goods	0.617
33.15	Repair and maintenance of ships and boats	0.3
33.16	Repair and maintenance of aircraft and spacecraft	0.45
33OTHER	Rest of repair: Installation - 33.11-14/17/19/20	0.205
35.1	Electricity, transmission and distribution	1.95
35.2-3	Gas; distribution of gaseous fuels through mains; steam and air conditioning supply	1.607
36	Natural water; water treatment and supply services	0.292
37	Sewerage services; sewage sludge	0.397
38	Waste collection, treatment and disposal services; materials recovery services	1.392
39	Remediation services and other waste management services	3.443
41.2	Buildings and building construction works	0.324
42.1-2	Constructions and construction works for civil engineering	0.353
42.99	Specialised construction works	0.312
45	Wholesale and retail trade and repair services of motor vehicles and motorcycles	0.297
46	Wholesale trade services, except of motor vehicles and motorcycles	0.022
47	Retail trade services, except of motor vehicles and motorcycles	0.193
49.1-2	Rail transport services	0.794
49.3-5	Land transport services and transport services via pipelines, excluding rail transport	0.621
50	Water transport services	2.407
51	Air transport services	1.497
52	Warehousing and support services for transportation	0.339
53	Postal and courier services	0.264
55	Accommodation services	0.341
56	Food and beverage serving services	0.316
58	Publishing services	0.102
59	Motion picture, video and TV programme production services, sound recording & music publish	0.135
60	Programming and broadcasting services	0.201
61	Telecommunications services	0.173
62	Computer programming, consultancy and related services	0.153
63	Information services	0.2
64	Financial services, except insurance and pension funding	0.119
65.1-2	Insurance, reinsurance and pension funding services, except compulsory social security	0.088
66	Services auxiliary to financial services and insurance services	0.097
68.12	Real estate services, excluding on a fee or contract basis and imputed rent	0.151
68.2IMP	Owner-Occupiers' Housing Services	0.044
68.3	Real estate services on a fee or contract basis	0.104
69.1	Legal services	0.068
69.2	Accounting, bookkeeping and auditing services; tax consulting services	0.137
70	Services of head offices; management consulting services	0.161
71	Architectural and engineering services; technical testing and analysis services	0.198
72	Scientific research and development services	0.222
73	Advertising and market research services	0.124
74	Other professional, scientific and technical services	0.163
75	Veterinary services	0.107
77	Rental and leasing services	0.177
78	Employment services	0.126
79	Travel agency, tour operator and other reservation services and related services	0.172
80	Security and investigation services	0.112
81	Services to buildings and landscape	0.193
82	Office administrative, office support and other business support services	0.189
84	Public administration and defence services; compulsory social security services	0.25
85	Education services	0.188
86	Human health services	0.32
87	Residential care services	0.214
88	Social work services without accommodation	0.228
90	Creative, arts and entertainment services	0.329
91	Libraries, archives, museums and other cultural services	0.251
92	Gambling and betting services	0.141
93	Sports services and amusement and recreation services	0.291
94	Services furnished by membership organisations	0.215
95	Repair services of computers and personal and household goods	0.123
96	Other personal services	0.093
97	Services of households as employers of domestic personnel	0.013

APPENDIX 5: Data sources used in this report

Scope 1: Invoiced propane (Avanti FLT):
note this year no heating oil included as none used

Scope 2: Invoiced electricity ex EDF

Scope 3: Purchased Goods and Services

Purchase order inventory for all goods and services procured
Amazon spend report

Transportation

Pallet network report. The post code to postcode distances were calculated using a bespoke Excel routine that reference road distances and not as the crow flies. This module has been developed by Maltdoctor Ltd to make the process of mapping much quicker

European shipments report

Other

Employee commuting survey and mileage

Business mileage

Note not hotel stay or flight data was available which could be included in a future analysis

Waste log

Water invoices

For purchased goods and services the spends for production items were allocated in this way:

Inks: Pigments and SOL

Other Chemicals: Pearl, Effect, Metallic, ADD, Calcium carbonate

Plastic: Poly

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Maltdoctor will not assume any responsibility or liability for losses incurred by any parties, other than you, as a result of their reliance on any part of this Report or on verbal advice that may be provided by Maltdoctor or its staff in the course of any discussions with them relating to this matter.

For this Document we have relied upon information provided through discussions with and data supplied by Broadway Colours Ltd which was believed to be correct at the time of the issue but the information and recommendations and expectations provided by Maltdoctor are subject to change and are contingent upon factors over which Maltdoctor may have no control.

The report has been prepared with care and with the most up to date knowledge and experience of Maltdoctor or its representatives.



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