Report

French and Jupps Ltd Carbon Footprint 2023

Date: 3rd April 2024

1.0 Overview

French and Jupps Ltd operations have been mapped for carbon emissions across the full three scopes in accordance with the GHG Protocol.

This analysis enables the company to develop a carbon reduction map towards net zero and is the first step in preparing an Environmental Social Governance (ESG) report which is becoming an expectation for suppliers to the brewing, distilling and food supply chain. It is likely to become a legal requirement in the UK by 2027 for businesses such as French and Jupps via the Task Force on Climate Related Financial Disclosure (TCFD) or the expected new IFRS S1 and S2 standards and is already in place in Europe via the Corporate Sustainability Reporting Directive (CSRD).

The carbon analysis in this report uses the latest conversion factors for 2023 from the UK government. Methodology is described in section 2.0.

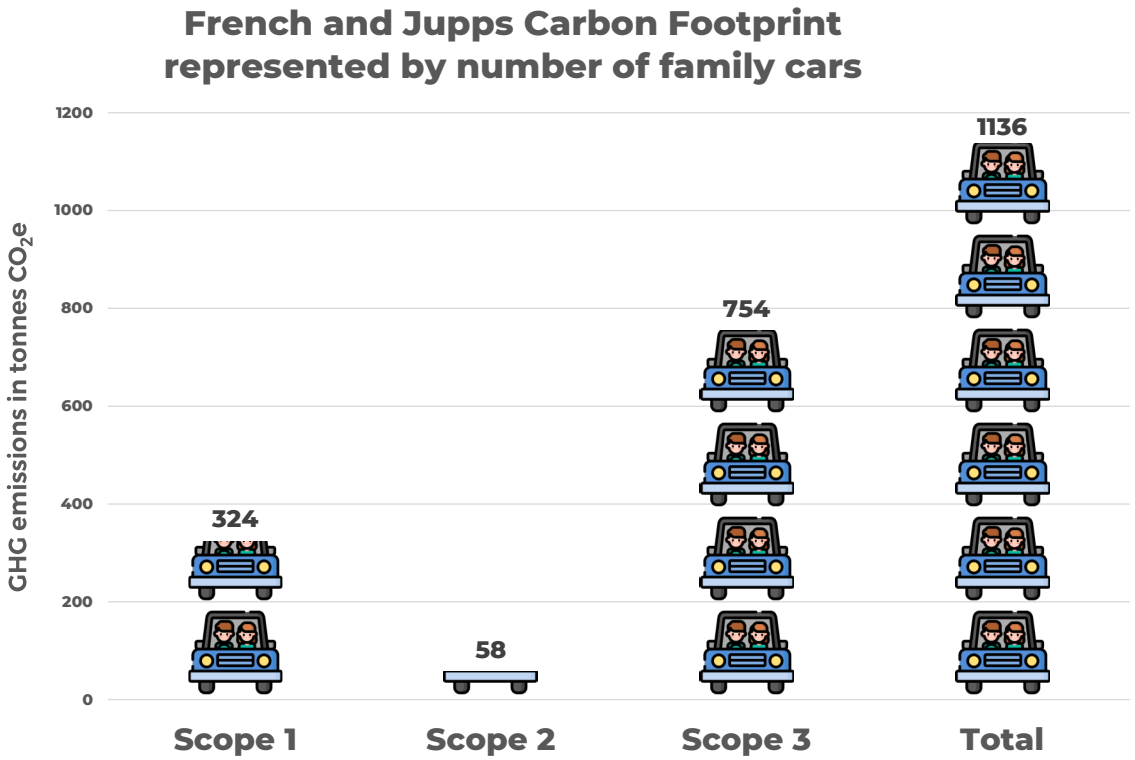
Carbon footprint data

Total supply chain emissions: **5,113.0 tonnes CO_2e/annum location-based[1]**
5,015.5 tonnes CO_2e/annum market-based

Scope 1: **1,460 tonnes CO_2e p.a.**

Scope 2: **259.0 tonnes CO_2e p.a. location-based;**
161.5 tonnes CO_2e p.a. market-based

Scope 3: **3,394 tonnes CO_2e p.a.**



1 see section 3 for explanation of location and market factors

2.0 Methodology

The GreenHouse Gas Protocol guidelines were used in compiling this report[2]

Scope 1 and 2 Operational Carbon Footprint

The carbon footprint calculations made as part of this work have relied on invoiced consumption for gas (scope 1) and electricity (scope 2) usage.

For some reports the consumed (invoiced) electricity is required to have factor of 2.6 applied to it to account for the emissions in generation. In this report that factor is not included because it is not universally applied across all sectors so does not allow a far comparison of site performance.

Electricity is mapped into 2 scopes. The consumption is scope 2 whereas the transmission and distribution (T&D) losses are mapped into scope 3.

Scope 3 (Supply chain)

Upstream: **Incoming Goods and Services**
Downstream: **Sold Goods and Services**

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 2023 - GOV.UK (www.gov.uk)

The electricity T&D factors are drawn from this same data source and are approximately 10% of the consumption conversion factor.

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 2022[3]

[2] ghg-protocol-revised.pdf (ghgprotocol.org) (Overarching document);
Scope 2 Guidance | GHG Protocol ;
ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporing-Standard_041613_2.pdf (Scope 3)
[3] UK and England's carbon footprint to 2020 - GOV.UK (www.gov.uk)

3.0 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 if 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 0kgCO_2e/kWh factor. Why?

If a company produces green electricity from solar or wind it will have to buy electricity from the grid if it's dark or not windy. Purchased electricity emissions can be neutralised with 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

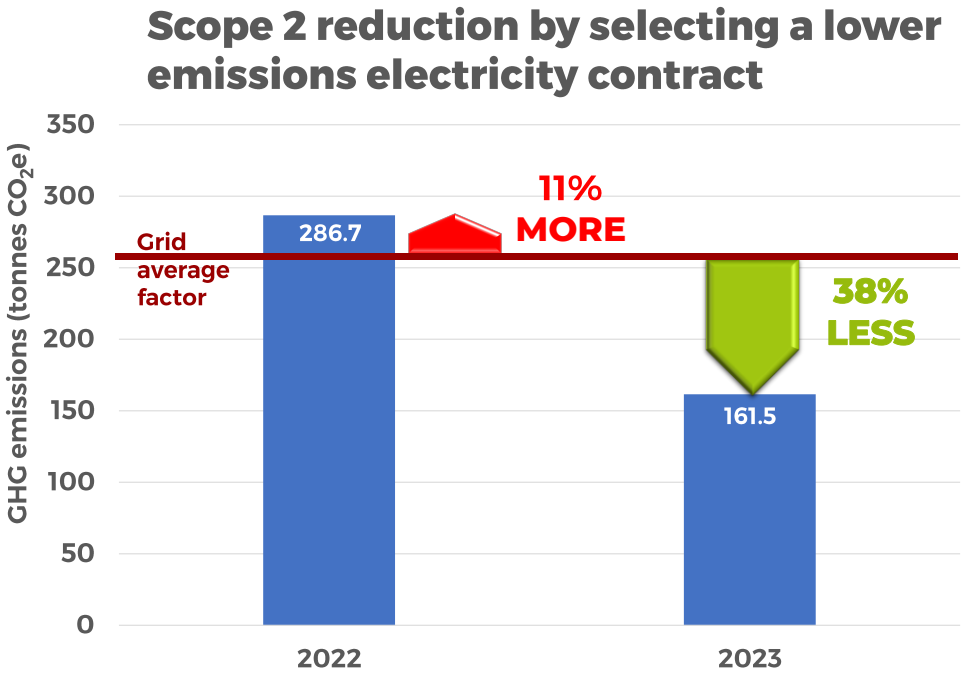
2. Some production of renewable energy with the remainder being neutralised by purchase of REGOs

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

4.0 Emissions reduction achieved by choosing a lower emission electricity contract



British Gas fuel mix table

Energy Source	Green Tariffs	Our other tariffs
Renewables	100%	36%
Nuclear	0%	35%
Coal	0%	2%
Natural gas	0%	25%
Other fuels	0%	2%
CO2 emissions	0 g/kWh	129 g/kWh
High-level radioactive waste	0 g/kWh	0.0025 g/kWh

The French and Jupps market-based factor is 38% lower at 0.192kgCO_2e/kWh than the 2023 national grid average (graph, left).

There has been a substantial swing from being 11% higher than the grid average in 2022 to 38% below the grid average in 2023 by changing the electricity contract for a greener alternative with greater renewable content.

The energy companies produce a fuel mix statement that shows the fuel mix of the electricity generation that they assign to you. British Gas (table below left) have a 70% renewable contract which is the current French and Jupps choice. It has 36% renewables (solar, wind, hydro-electric) and 35% nuclear, hence 70% renewable or zero emissions fuels. That option still includes 2% coal, 25% natural gas and 2% other fuels. There is thus an opportunity to reduce the emissions further by purchasing their green tariff contract with zero emissions.

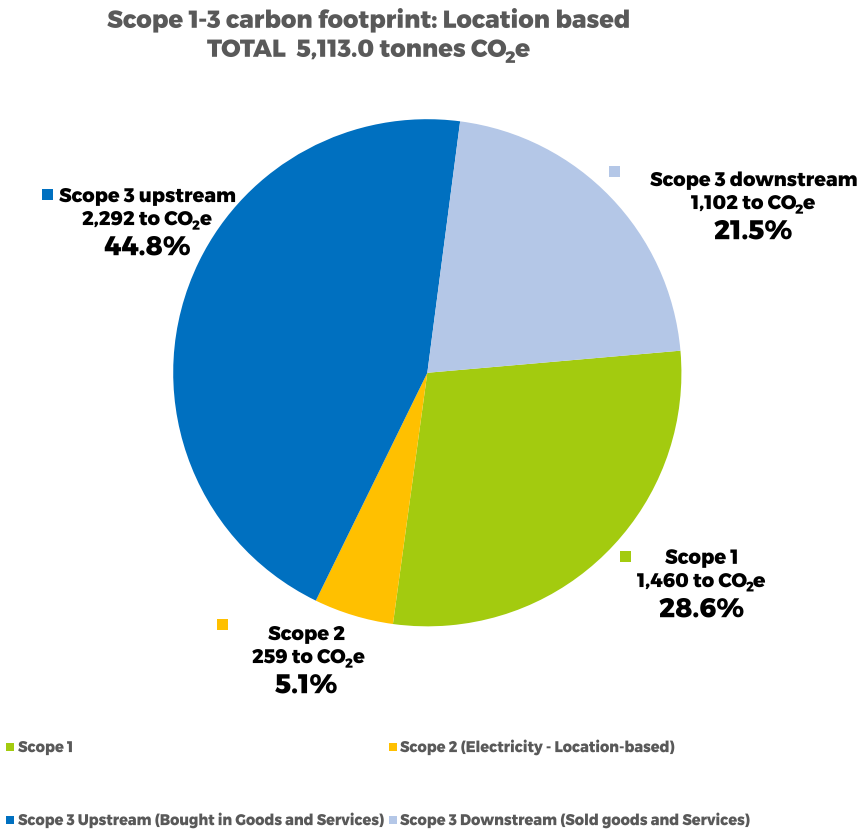
However, this could be very expensive: at least a 60% greater cost is anticipated. Bear in mind the previous description of what green means. British Gas do not guarantee that their green tariff is 100% green supply and will publicise that they have only around half of their demand supplied directly by zero emissions technology, the remainder being balanced by buying credits.

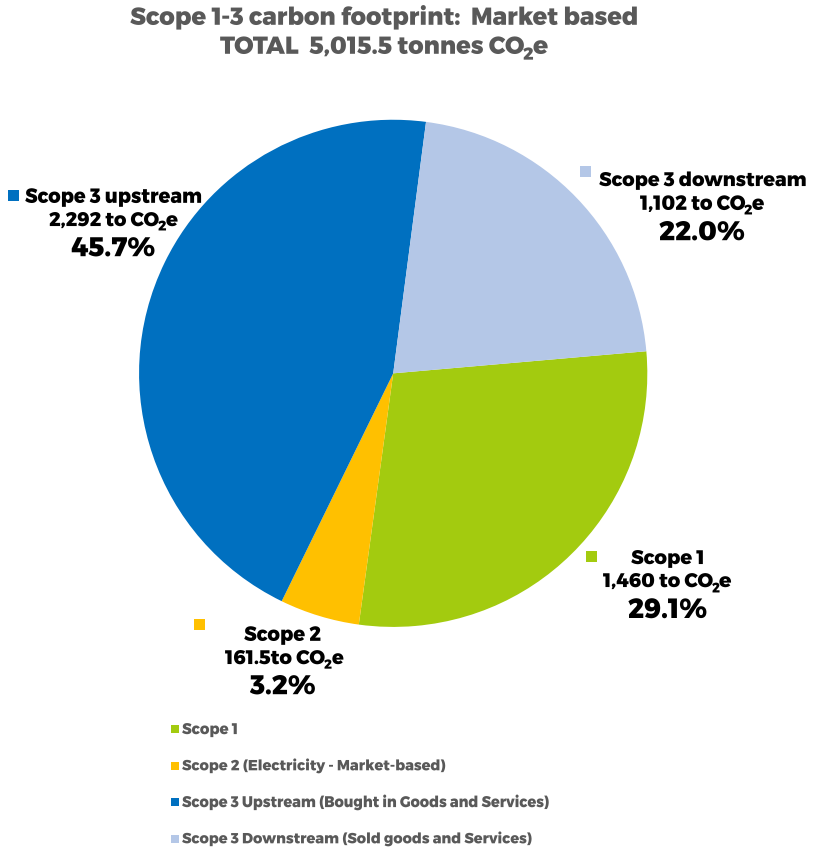
British Gas will buy those credits from sources which support new green electricity generation, but ultimately the electricity you are being supplied is partially carbon neutral electricity, but not carbon net zero.

5.0 Carbon Footprint Data: Scopes 1-3

	tonnes CO_2e p.a. (Location based)	tonnes CO_2e p.a. (Market based)
Total carbon footprint (scopes 1-3)	**5,113**	**5,015.5**
Operational (scope 1+2) carbon footprint	**1,719**	**1,621.5**
Supply chain (scope 3) carbon footprint	**3,394**	**3,394**

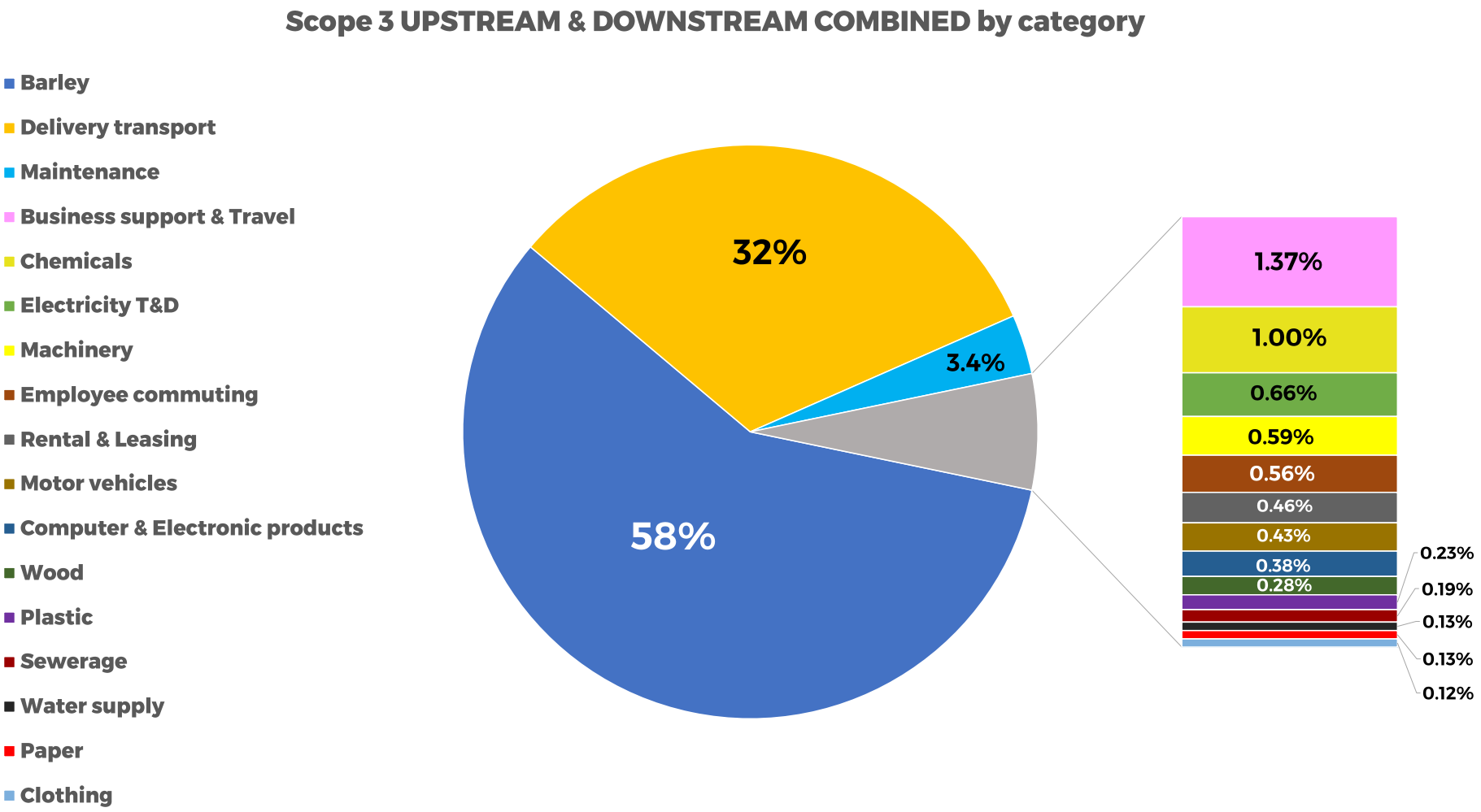
The difference in these two analyses is solely due to the electricity factor, The grid factor for 2022 is 0.207074kgCO_2e/kWh (location based) whereas French and Jupps factor from the fuel mix statement on the invoice is 0.129 kgCO_2e/kWh.





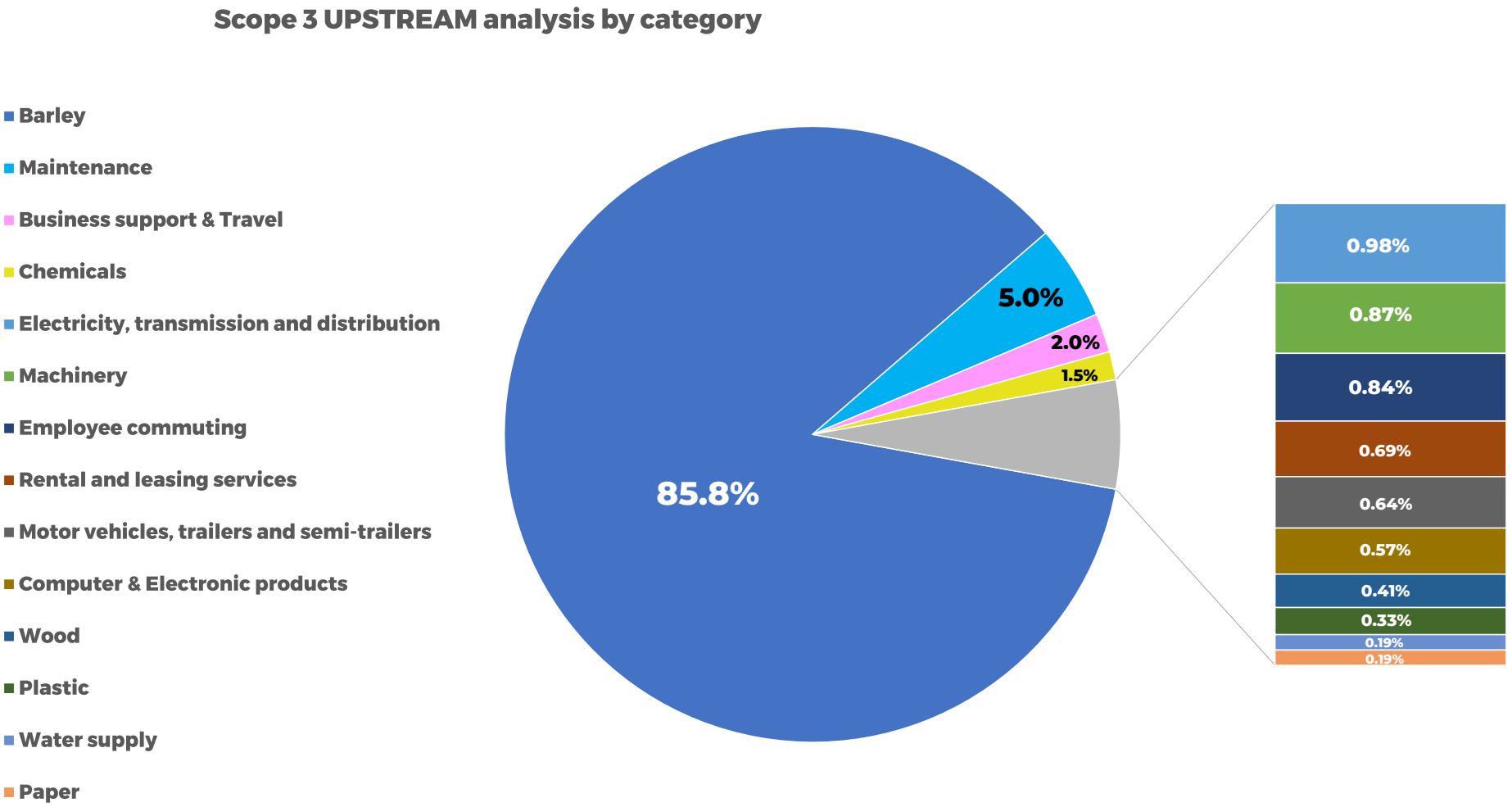
6.0 Carbon Footprint Data: Scope 3 Upstream and Downstream combined

Two categories dominate the supply chain carbon footprint: barley and transportation. They are the ones in which it will be most beneficial to engage with the suppliers to determine if they have carbon data.

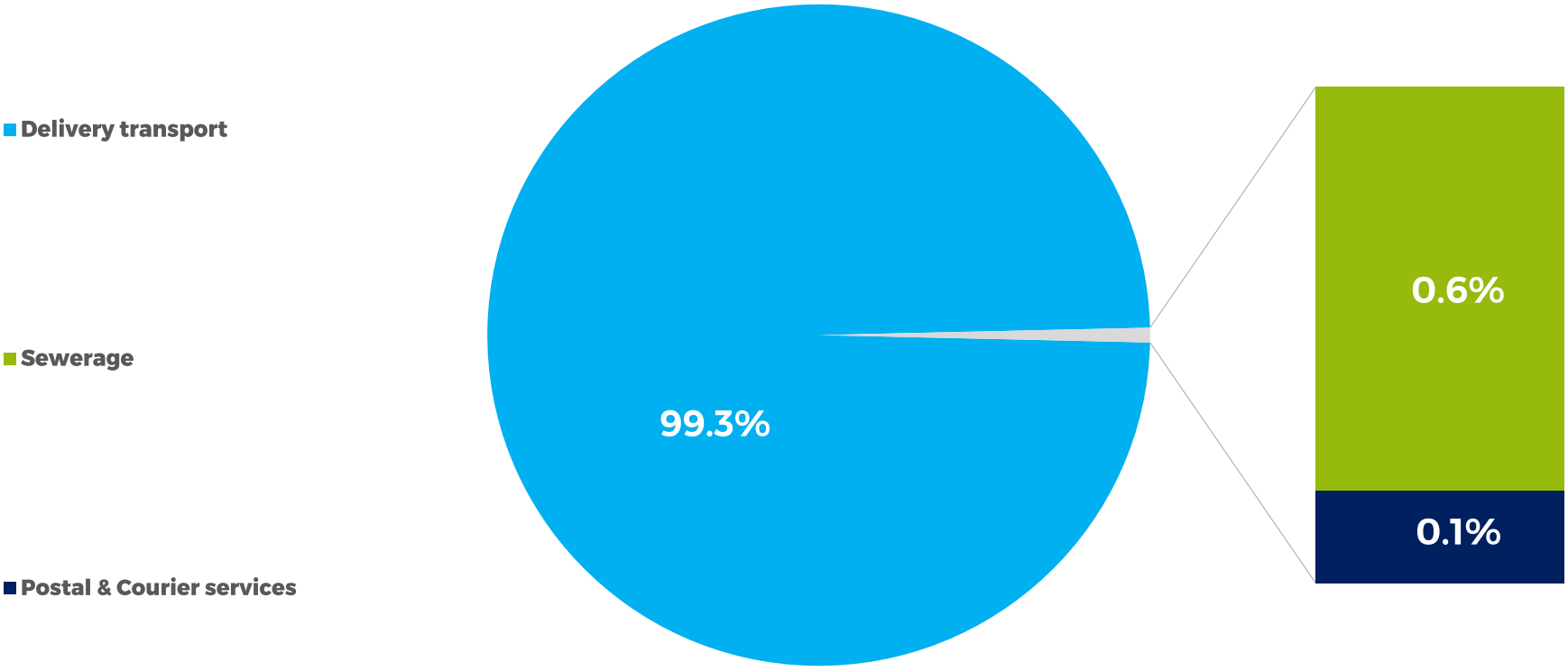


7.0 Carbon Footprint Data: Scope 3 Upstream and Downstream

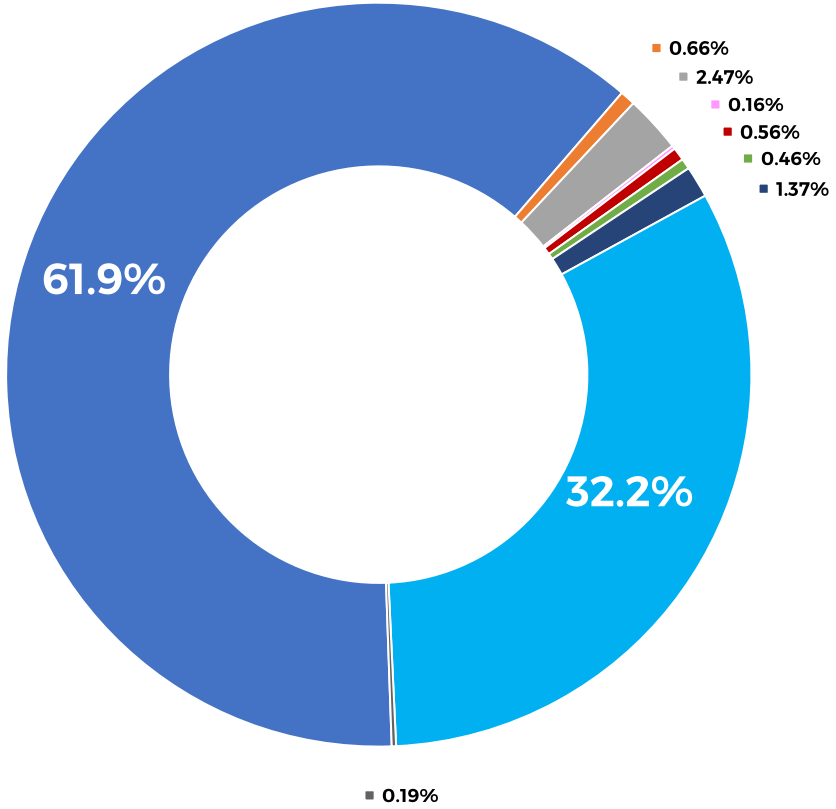
Data below is the percentage of carbon footprint by category either Upstream or Downstream and not a proportion of the total carbon footprint which is shown in a previous graph



Scope 3 DOWNSTREAM analysis by category



8.0 GHG Protocol analysis: analysis of scope 3 categories where they can be identified



Upstream or Downstream	Scope 3 category
Upstream scope 3	1. Purchased goods & Services 2. Capital goods 3. Fuel and energy related activities (not included in scope 1 and 2) 4. Upstream transportation and distribution 5. Waste generated in operations 6. Business travel 7. Employee commuting 8. Upstream leased assets
Downstream scope 3	9. Downstream transportation and distribution 10. Processing of sold products 11. Use of sold products 12. End-of-life treatment of sold products 13. Downstream leased assets 14. Franchises 15. Investments

GHG scope 3 category	Upstream	Downstream	Total ($kgCO_2e$)
Upstream: Purchased goods & services	2,099,169		2,099,169
Fuel and Energy not in scopes 1 & 2	22,435		22,435
Upstream transport	83,861		83,861
Business Travel	5,387		5,387
Employee commuting	19,142		19,142
Upstream leased	15,694		15,694
Other upstream	46,574		46,574
Downstream: Transport		1,094,048	1,094,048
Dowsntream waste		6,396	6,396
Other downstream		1,468	1,468

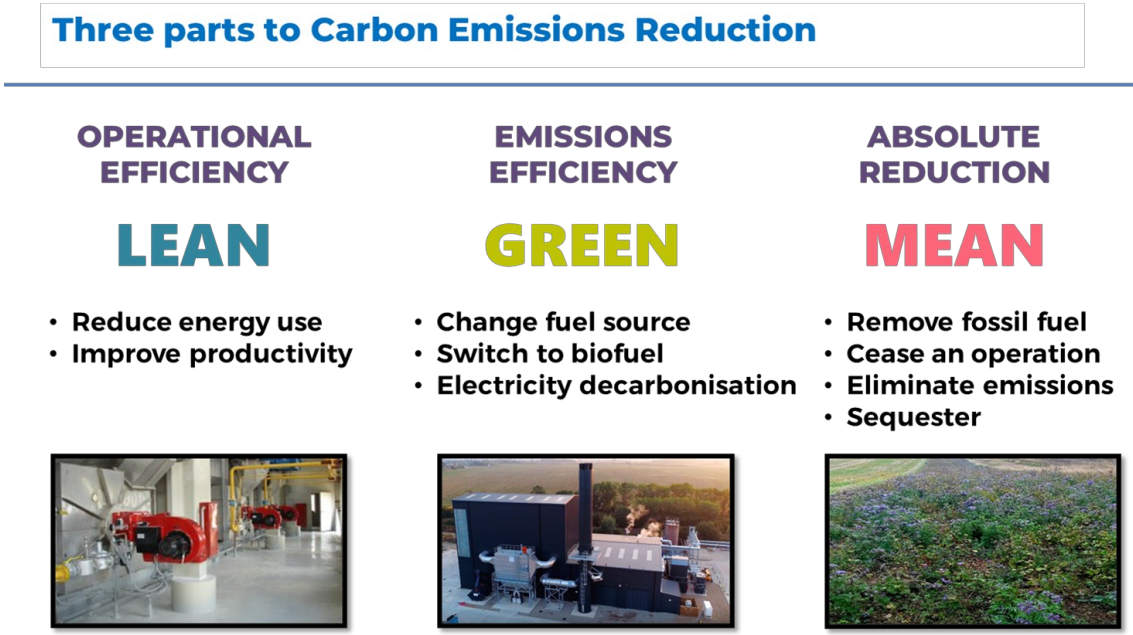
9.0 Net Zero or Carbon Neutral? Net zero is the gold standard

Carbon Neutral: a company purchases carbon credits from activities in which external operators have removed CO_2 from the atmosphere and have had these verified as credits usually offered in tonnes CO_2e 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 CO_2 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 7500 businesses globally called a science based target. This is a voluntary scheme whereby businesses commit to becoming low or zero emitting within a 10 year window starting with a baseline no more than 2 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.



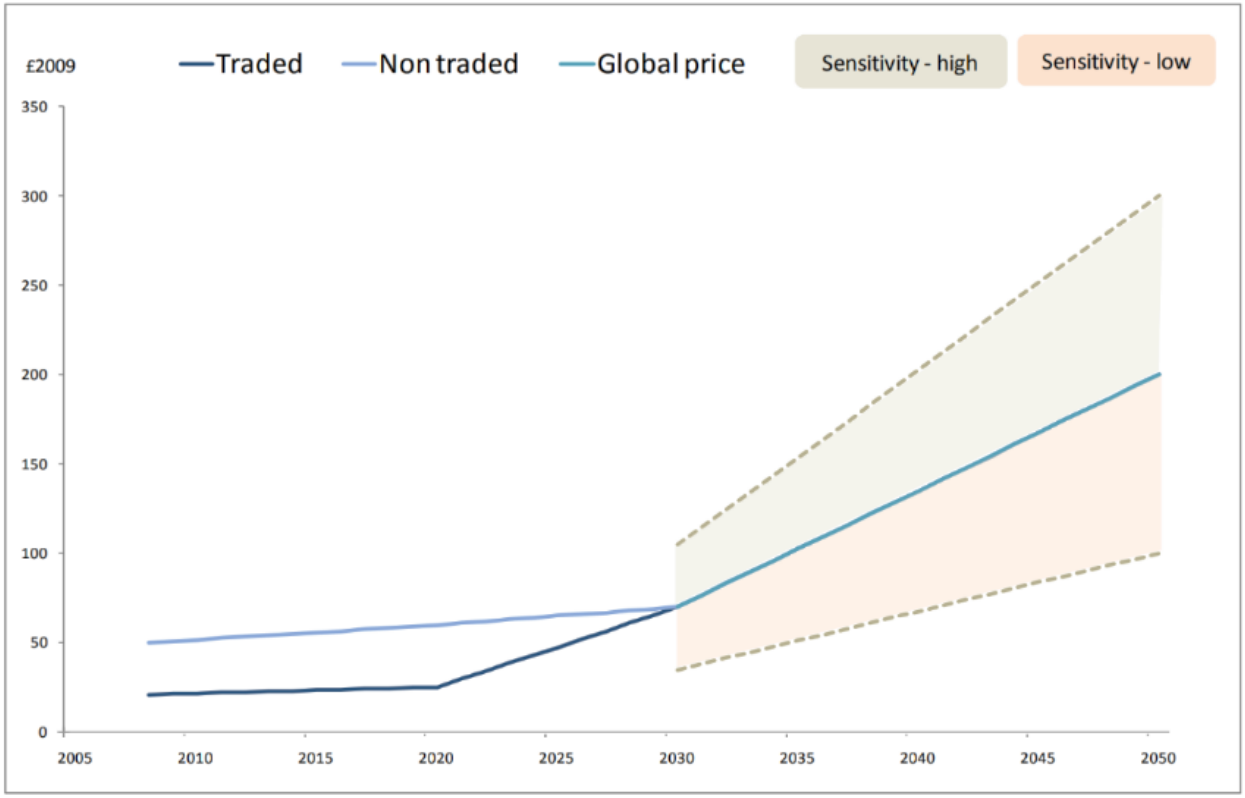
It is essential to set a carbon net zero target for 2040 (latest 2050), making real emissions reduction and not relying on offsetting credits to make the business carbon neutral. This means that a business can do nothing and pretend it is having a lower impact on the climate by relying on the good work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

10.0 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 know 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.



Carbon price prediction for the UK emissions trading scheme

CARBON VALUES BEYOND 2050 (publishing.service.gov.uk)

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.

At the moment due to disturbances in the use of energy and gas supply the UKETS market has dropped back significantly to around £30 a tonne whereas it has been trending at £80 for many months previously and is expected to return and follow an upward trajectory again.

10.1 Internal Price of Carbon

INTERNAL PRICE OF CARBON*

Scope	Location based (annual cost £)		Market based (annual cost £)	
	£80/tonne CO2e	£300/tonne CO2e	£80/tonne CO2e	£300/tonne CO2e
Scopes 1 and 2	137,533	515,748	129,713	486,423
Scope 1 only	116,792	437,972	116,792	437,972
Scope 2 only	20,740	77,776	12,920	48,452
Scope 3	271,534	1,018,252	271,534	1,018,252

To offset French and Jupps operational carbon footprint using UK ETS based carbon credits at £80/tonne would cost in the region of £130,000 per annum at current rates, but could rise to almost £500,000 per annum if the requirement to neutralise is enacted in law. Scope 3 is shown for illustration purposes only because you would not want to offset emissions generated by others, but rather require them to have a program of genuine reduction themselves.

Electricity will become net zero by 2040 by virtue of UK government programmes but scope 1 such a large contributor to operational carbon footprint that this is only a small reduction in total potential cost.

Carbon Pricing Trackers:

GLOBAL Live Carbon Prices Today, Carbon Price Charts • Carbon Credits

EUETS Carbon Price Tracker | Ember (ember-climate.org)

UKETS UK-ETS carbon pricing 2023 | Statista

11.0 Reporting Carbon Footprint to Customers

When asked what the carbon footprint of your products is you should report scopes 1-3. However, there are many different numbers used by your competitors which you need to be aware of when reporting.

OPERATIONAL Carbon Footprint only: Scopes 1&2

Patent total	**237 $kgCO_2e$/tonne**
Crystal total	**227 $kgCO_2e$/tonne**

Operational scopes 1 and 2 is an important metric because it is the one that you have total control over and could be the basis of a future carbon tax. It only relates to your direct operations on site and excludes incoming and outgoing goods and services

TOTAL scopes 1-3 EX FACTORY

Patent total	**565 $kgCO_2e$/tonne**
Crystal total	**555 $kgCO_2e$/tonne**

If transportation to customer is excluded you could quote an ex-factory emission

TOTAL scopes 1-3 ALL ITEMS incl barley & transport

Patent total	**722 $kgCO_2e$/tonne**
Crystal total	**713 $kgCO_2e$/tonne**

This All Items factor is the correct one to quote which includes all incoming materials, operational emissions and transportation to customer.

There is an additional version which has been seen in the supply chain: Reporting only some of scope 3 by including only incoming barley in the upstream value. This is highly misleading and does not follow the rules of the GHG Protocol.

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