Carbon footprint report for Aegg
01 January 2024 to 31 December 2024

Aegg emitted 663,953 $kgCO_2e$ (Kilogrammes of carbon dioxide equivalent) for 2024 (across scope 1 and 2). This can be presented as 664 tCO_2e (tonnes of carbon dioxide equivalent) with an intensity indicator of 0.023 tCO_2e per tonne of product sold.

When Scope 3 is added, this brings the total to 43,799 tCO_2e with the intensity indicator of 1.46 tCO_2e per tonne of products sold.

Table 1. GHG emissions summary data

	Total tCO_2e Base Year 2023	Total tCO_2e Previous Year 2023	Total tCO_2e Current Year 2024	Reduction from base year (%)
Scope 1				
Vehicles	400.90	400.90	505.88	-26.19%
Scope 2				
EV Vehicles	7.45	7.45	5.52	25.85%
Grid Electricity (location based)	66.32	66.32	152.55	-130.01%
Grid Electricity (market based)	116.95	116.95	310.00	-165.07%
Scope 1&2 Total (Location based)	**474.67**	**474.67**	**663.95**	**-39.88%**
Scope 1&2 Total (Market based)	**525.30**	**525.30**	**821.41**	**-56.37%**
Scope 3				
Cat 01 - Purchased Goods & Services	32,062.51	32,062.51	34,388.40	-7.25%
Cat 02 - Capital Goods	146.23	146.23	68.83	52.93%
Cat 03 - Fuel & energy related activities	1,085.71	1,085.71	704.29	35.13%
Cat 04 - Upstream transportation & distribution	4,618.18	4,618.18	4,035.43	12.62%
Cat 05 - Waste disposal	1.46	1.46	0.81	44.66%
Cat 06 - Business Travel	26.85	26.85	36.45	-35.76%
Cat 07 - Employee Commuting	71.92	71.92	75.64	-5.16%
Cat 12 - End-of-life treatment of sold products	3,383.73	3,383.73	3,825.41	-0.83%
Scope 3 Total	**41,396.60**	**41,396.60**	**43,135.26**	**-4.20%**
Scope 1,2 & 3 Total (Location based)	**41,871.28**	**41,871.28**	**43,799.21**	**-4.60%**
Scope 1,2 & 3 Total (Market based)	**41,921.90**	**41,921.90**	**43,956.67**	**-4.85%**
Emissions Intensity				
Gross Product Sold (tonnes)	**26,958**	**26,958**	**29,945**	**-11.08%**
Total tCO_2e per*tonne of products sold on gross scope 1, 2 & 3 (Location based)	**1.55**	**1.55**	**1.46**	**5.64%**
Total tCO_2e per*tonne of products sold on gross scope 1, 2 & 3 (Market based)	**1.56**	**1.56**	**1.47**	**5.90%**

The detailed breakdown of activities and emissions for 2024 is as follows

Table 2. UK GHG emissions and energy use data for period 01 January 2024 to 31 December 2024

Emissions source	Units	kWh	Carbon ($kgCO_2e$)	Carbon (tCO_2e)
Scope 1				
Propane	5 tonne	70,026	16,286.14	16.29
Petrol	1,279 litre	11,471	2,665.95	2.67
Diesel	193,781 litre	1,916,688	486,930.96	486.93
Total Scope 1			**505,883**	**506**
Scope 2				
Average car - BEV	118,234 km	24,862	5,152.62	5.15
Average car - PHEV	26,987 km	1,775	369.99	0.37
UK National Grid electricity	736,768 kWh	736,768	152,547.73	152.55
Total Scope 1 & 2			**663,953**	**664**

Emissions source	Units	kWh	Carbon ($kgCO_2e$)	Carbon (tCO_2e)
Scope 3				
Cat 01 - Purchased Goods & Services				
By spend - By SIC emissions intensity - C - Manufacturing	£276,181		95,992.38	95.99
By spend - By SIC emissions intensity - D - Electricity, gas, steam and air conditioning supply	£219		867.03	0.87
By spend - By SIC emissions intensity - E - Water supply; sewerage, waste management and remediation activities	£5,260		4,619.01	4.62
By spend - By SIC emissions intensity - G - Wholesale and retail trade; repair of motor vehicles and motorcycles	£142,876		7,840.97	7.84
By spend - By SIC emissions intensity - H - Transport and storage	£69,694		74,572.58	74.57
By spend - By SIC emissions intensity - J - Information and communication	£38,665		0.00	0.00
By spend - By SIC emissions intensity - K - Financial and insurance activities	£105,072		0.00	0.00
By spend - By SIC emissions intensity - M - Professional, scientific and technical activities	£220,311		2,015.10	2.02
By spend - By SIC emissions intensity - N - Administrative and support service activities	£78,274		2,147.82	2.15
By spend - By SIC emissions intensity - R - Arts, entertainment and recreation	£833		30.48	0.03
By spend - By SIC emissions intensity - S - Other service activities	£10,548		192.96	0.19

Material use (BEIS) - Paper - Paper and board (board) - Primary production (virgin stock)	37 tonne		44,343.89	44.34
Material use (BEIS) - Plastic - PET (incl. forming) - Primary material (Virgin stock)	68 tonne		262,327.20	262.33
Material use (BEIS) - Plastic - Plastics: PS (incl. forming) - Primary material (Virgin stock)	43 tonne		187,537.89	187.54
Material use (BEIS) - Plastic - PP (incl. forming) - Primary material (Virgin stock)	1,159 tonne		2,977,996.31	2,978.00
Material use (ecoinvent) - Glass - Packaging glass -White - from Europe	6,346 tonne		5,879,867.21	5,879.87
Material use (ecoinvent) - Glass - Packaging glass -White - from Rest of the World	2 tonne		1,770.51	1.77
Supplier Provided - Supplier reported GHG emissions	24,846 tonne		24,846,280.00	24,846.28
Supply Chain Dashboard			0	0
Cat 02 - Capital Goods				
By Spend - SIC Emissions Intensity - C - Manufacturing	£182,767		63,524.43	63.52
By Spend - SIC Emissions Intensity - F - Construction	£16,111		1,326.25	1.33
By Spend - SIC Emissions Intensity - G - Wholesale and retail trade; repair of motor vehicles and motorcycles	£72,506		3,979.10	3.98
Cat 03 - Fuel & energy related activities				
Transmission & distribution losses - T&D for UK national grid electricity	736,768 kWh		13,482.85	13.48
Well-to-tank (WTT) - Business travel - Flights - WTT - Flights - Domestic, to/from UK - Average passenger (RF)	2,240 mile		120.77	0.12
Well-to-tank (WTT) - Business travel - Flights - WTT - Flights - International, to/from non-UK - Economy class (RF)	14,512 mile		386.76	0.39
Well-to-tank (WTT) - Business travel - Flights - WTT - Flights - Long-haul, to/from UK - Economy class (RF)	57,177 mile		2,264.55	2.26
Well-to-tank (WTT) - Business travel - Flights - WTT - Flights - Short-haul, to/from UK - Economy class (RF)	39,076 mile		1,414.32	1.41
Well-to-tank (WTT) - Business travel - Passenger Vehicles - WTT - Unknown - Average car	253,908 mile		17,975.43	17.98

Well-to-tank (WTT) - Delivery vehicles & Freighting - Air - WTT - Freight flights - Long-haul, to/from UK (with RF)	6,276 tonne.mile		1,365.25	1.37
Well-to-tank (WTT) - Delivery vehicles & Freighting - WTT - Container ship - Average	39,441,568 tonne.mile		231,683.93	231.68
Well-to-tank (WTT) - Delivery vehicles & Freighting - WTT - HGV - All HGVs	159 tonne.mile		6.04	0.01
Well-to-tank (WTT) - Delivery vehicles & Freighting - WTT - HGV - Articulated (>3.5 - 33t)	6,320,365 tonne.mile		277,787.51	277.79
Well-to-tank (WTT) - Electricity - WTT-UK electricity (generation)	736,768 kWh		33,817.63	33.82
Well-to-tank (WTT) - Electricity - WTT-UK electricity (T&D)	736,768 kWh		2,924.97	2.92
Well-to-tank (WTT) - Fuels - WTT - Diesel (average biofuel blend)	193,781 litre		118,402.13	118.40
Well-to-tank (WTT) - Fuels - WTT - Petrol (average biofuel blend)	1,279 litre		743.02	0.74
Well-to-tank (WTT) - Fuels - WTT-Propane	5,433 kg		1,916.06	1.92
Cat 04 - Upstream transportation & distribution				
By tonne.distance - Air - Freight flights - Long-haul, to/from UK (with RF)	6,276 tonne.mile		11,101.37	11.10
By tonne.distance - Road - HGV - All HGVs (Average laden)	159 tonne.mile		24.97	0.02
By tonne.distance - Road - HGV - HGV - Articulated (>3.5 - 33t) (Average laden)	6,320,365 tonne.mile		1,150,514.30	1,150.51
By tonne.distance - Sea - Cargo ship - Container ship - Container ship - Average	39,441,568 tonne.mile		1,023,217.82	1,023.22
By spend - Postal and courier services	£1,394		178.50	0.18
By spend - Road freighting	£463,037		67,763.38	67.76
By spend - Sea freighting	£1,488		6,110.95	6.11
By spend - Warehousing and storage	£223,766		20,466.94	20.47
Supplier provided - Upstream transportation & distribution GHG emissions	1,756,048 kg		1,756,047.68	1,756.05
Cat 05 - Waste disposal				
Commercial and industrial waste (Closed-loop)	6 tonne		35.64	0.04
Commercial and industrial waste (Combustion)	15 tonne		95.01	0.10
Glass (Closed-loop)	96 tonne		617.09	0.62
Plastics: average plastics (Open-loop)	10 tonne		61.67	0.06
Cat 06 - Business Travel				

By mileage - Cars (by size) - Unknown fuel - Average	948 mile	1,055.27	254.65	0.25
By mileage - Flights - with radiative forcing - Domestic to/from UK - Average	2,240 mile		982.60	0.98
By mileage - Flights - with radiative forcing - International, to/from non-UK - Economy class	14,512 mile		3,144.72	3.14
By mileage - Flights - with radiative forcing - Long haul, to/from UK - Economy class	57,177 mile		18,413.61	18.41
By mileage - Flights - with radiative forcing - Short-haul, to/from UK - Economy class	39,076 mile		11,500.10	11.50
By spend - By SIC emissions intensity - Hotel stay - Hotel Stay (I - Accomodation services)	£25,025		1,373.38	1.37
By spend - By SIC emissions intensity - Travel - Rail Travel (H - Rail transport)	£856		469.99	0.47
By spend - By SIC emissions intensity - Travel - Road Travel (H - Land transport services excluding rail transport)	£2,157		315.70	0.32
Cat 07 - Employee Commuting				
Cars (by size) - Unknown fuel - Average	252,960 mile		67,949.00	67.95
Working from Home - Hours Worked Annually	23,040 Hours		7,690.29	7.69
Cat 12 - End-of-life treatment of sold products				
Household residual waste - Combustion	640,616 kg		4,106.74	4.11
Household residual waste - Landfill	7,405,622 kg		3,680,921.06	3,680.92
Household residual waste - Recycling - Closed-loop	21,898,747 kg		140,384.33	140.38
Total Scope 3			**43,135,264**	**43,135**
Total Scope 1, 2 & 3			**43,799,217**	**43,799**
TotaltCO2e per*FTE on gross scope 1, 2 & 3				**1,094.98**
TotaltCO2e per*£m Turnover on gross scope 1, 2 & 3				**1,846.79**

Energy efficiency measures taken

2024 is Aegg's second year measuring our scope 1,2 and 3 carbon emissions. As a UK-based SME company, we are proud and mindful of the UK's legally binding commitments to achieve 'Net Zero' by 2050
Our business grew +11.08% in volume in 2024 over 2023 and consequently our carbon emissions have increased by +4.60% (location based) but encouragingly carbon intensity per tonne has reduced by 5.64%.
This has been driven by

- We have managed a higher tonnage through existing assets
- Our capital expenditure has reduced
- Some carbon emission factors have reduced for example on waste disposal and up-stream transportation
- Use of actual shipping factors versus average shipping factors

Our Scope 2 emissions have increased by a significant 39.88% driven predominantly by electricity usage related to relocating third party plastic production from Northern Ireland to our own operations based at Eye. This will in the future lower emissions from transportation and benefit from our commitment to a Pure Green 100% renewable electricity tariff in 2025.
Our scope 3 emissions have increased by +4.20 % dominated by Purchased Goods and Services which is at the core to our business purpose but again this is in the context of +11.08% volume tonnage growth.

Our actions in 2024 focussed on

- **Company-wide sustainability education**
  - The Aegg Board undertook the Advanced Carbon Foot-printing (GHG Accounting), Carbon Management and Carbon Reporting 2-day course run by Northumbria University and then engaged, through training, the Aegg wider workforce in the importance of emissions reduction to advance a sustainability culture at Aegg.
- **Supply chain impact**
  - We are a growing packaging solutions provider importing and distributing glass and plastic containers from Europe, Turkey, The Middle East and Asia for predominantly UK food customers. We actively reached out to our suppliers to understand their emissions reduction plans and have embodied this in our commitment to UN SDG 12 Responsible Consumption and Production target whereby '80% strategic sourcing of suppliers will be audited against sustainability criteria' As an example, our major glass partner in Turkey has been measuring total fossil fuel emissions since 2016 through QSI, the first verified Body for Greenhouse Gas Verification Regulation in Turkey. Industrial waste is diverted to licensed recycling facilities and wastewater is reused. By 2030 60% of their own suppliers will need to comply with sustainability targets. They are also committing to SBTis in 2025.
  - Our Turkish suppliers are leading members of the Federation of European Glass Packaging Manufacturers (FEVE) and a founding member of the 'Hybrid Furnace of the Future' initiative aiming to transform the glass packaging industry by 2050 to achieve climate-neutral packaging solutions and full circularity and to meet 2030 EU decarbonisation targets through furnace electrification and encourage the use of 90% recycled glass by 2030. https://feve.org/glass-industry/projects/furnace-future/
  - Glass production is an energy-intensive process, traditionally using natural gas but our suppliers have already reduced energy consumption by 30% using regenerative furnaces which reuse waste heat, melt with lower heat in the furnace and use electrical boosting systems instead of natural gas. Investment in renewable energy is crucial to reducing carbon. Our Turkish partner is actively investing in local land purchase, to build a 50MW solar power plant that will provide by 2030 30% of all electricity for their energy consumption. In addition, the goal is to reduce energy consumption per/tonne by 7% by 2030.

- **Product innovation**
  - In 2024 Aegg continued to expand its specialist in-house design team to continuously review product design with sustainability at the fore; glass weight, product dimensions, palletisation and container optimisation all contribute to reducing carbon emissions. Glass today is 30% lighter, 70% less energy-intensive and emits 50% less CO_2 than fifty years ago. We continue to focus on designing even lighter jars and bottles using fewer raw materials and energy usage more efficient. This is now embedded in our commitment to UN SDG 9 Industry Innovation and Infrastructure *'80% of all volume to be 'right weighted' by 2030.*
- **Shipping**
  - We focussed our shipping contracts into suppliers with the lowest emissions factors reflecting the most effective environmental policies and the latest ships. There is a focus on optimisation of sea shipping for all product transportation regardless of journey length. The main methods for reducing emissions in green shipping include optimizing vessel speed and route, improving vessel design and operation, and using alternative fuels and propulsion systems. We look to maximize the use of ships with alternative fuels such as biodiesel, natural gas and electricity.
- **Vehicles transport**
  - Aegg owns its own fleet of trucks (8 trucks and 9 curtain siders, 15 Skellies) and puts great focus on optimising cargo and fleet management as a way of reducing the environmental impact of distribution.
  - We use GPS tracking to monitor routes and optimize delivery times, implement route planning software to minimize fuel consumption and utilize more efficient loading and unloading methods.
  - We are a member of ECO Stars, a Fleet Recognition Scheme for efficient and clean operations with a score of 4/5 https://www.ecostars-uk.com/ . We continue to ensure our fleet of business use cars are either all electric or hybrid in 2024.
- **Smart warehouse**
  - Aegg owns a 120,000sq ft warehouse at Eye in Suffolk only 33 miles from the container port at Felixstowe, minimising road haulage. This provides great assurance and flexibility for customers' 'just in time' stock management. In 2024 we consolidated our operations in Eye and undertook the planning for new Smart Warehouse Design to be implemented in 2025. This is embodied in our commitment to UN SDG 9 *'Smart Warehouse Layout Design introduced in 2025'*
- **Commitment to material UN SDG targets**
  - In 2024 we evaluated the UN SDG framework and committed to the most relevant 7 UN SDGs including SDG 7 Affordable and Clean Energy and SDG 13 Climate Action. We agreed the following targets to drive increased focus on carbon reduction:
    - Implementing ISO 14001 Environmental Management and ISO50001 Energy Management System in 2026
    - Pure Green Tariff 100% renewable electricity generated from wind, solar and hydro sources by 2025
    - Energy Consumption per tonne sold reduced by at least 22% by 2034 from the 2024 baseline.
    - Approved SBTIs in 2025 and commitment to net zero by 2050.

Energy efficiency planned

We anticipate significant growth in 2025 necessitating even more focus on carbon emissions intensity reduction.

We anticipate evaluating and committing Aegg to a Net Zero Plan by 2050 in line with the SBTi SME streamlined route and continue to encourage our suppliers to sign up to SBTis too and implement further supplier sustainability standards through regular strategic sourcing supplier audits.

Aegg in the UK will implement 100% Green Electricity Energy contracts for introduction in 2025.

We anticipate undertaking a fleet review in 2025 evaluating the introduction of electric trucks and anticipate replacing half our gas FLTs with electric, introducing smart warehouse flow and adhere to GFSI-recognised standards. We also plan to upgrade our operational energy reduction measures such as SMART BMS (Building Management Systems), occupancy-sensing and zonal controls, Internal lobby doors to prevent heat loss and energy-efficient lighting. There will also be a focus on zero waste to landfill.

In 2025 we will commence measurement against the UN SDG framework including SDG 7 Affordable and Clean Energy and SDG 13 Climate Action. Specifically focussed on carbon reduction

- Implementing ISO 14001 Environmental Management and ISO50001 Energy Management System in 2026
- Pure Green Tariff 100% renewable electricity generated from wind, solar and hydro sources by 2025
- Energy Consumption per tonne sold reduced by at least 22% by 2034 from the 2024 baseline.
- Approved SBTIs and commitment to net zero by 2050.

Notes about methodology:

- Aegg has adopted an operational control approach to establishing the boundary. The methodology adopted in line with the Greenhouse Gas Protocol[1] and the BEIS Environmental Reporting Guidelines[2]. The calculations were completed on the SmartCarbon™ Calculator[3] using the UK Government emissions factors[4] and spend based emissions factor from ONS[5].
- CO_2e is the universal unit of measurement to indicate the global warming potential (GWP) of Greenhouse Gases (GHGs), expressed in terms of the GWP of one unit of carbon dioxide. There are seven main GHGs that contribute to climate change, as covered by the Kyoto Protocol: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6) and nitrogen trifluoride (NF_3). Different activities emit different gases. Using CO_2e allows all greenhouse gases to be measured on a like-for-like basis.
- For National grid electricity consumption, THE ORGANISATION has included factors for the transmission and distribution of electricity (T&D) losses, which occur between the power station and site(s). The emissions from T&D have been accounted for in Scope 3. As with other Scope 3 impacts, reporting T&D is voluntary but is recommended standard practice by UK Government[2].

<u>Scope 1 and 2</u>

- Emissions from electricity and fuel consumptions reported by using the actual consumption figures.
- Company car emissions reported by annual mileages.

<u>Scope 3</u>

- Category 1 Purchased Goods & Services - 99% of the emissions from purchased goods was measured using the product footprint rather than spend. Out of that 72% were measured using specific suppliers provided product carbon footprint. Rest measured from average product footprint data.
- Category 2 Capital Goods – Measured by expenditure.
- Category 4 Upstream Transportation & Distribution – 89% of the emissions were measured by weight and distance of goods moved. Remaining 11% of emissions were measured by expenditure. Where available, emissions data from shipping company has been used reporting.
- Category 6 Business travel – Flights were measured using the distance and travel class. Employee business travel in private vehicles reported through mileage claims figures. Hotels, rail and taxi travels reported by expenditure.
- Category 7 Employee Commute – The distance is calculated from employee resident to place of work.
- Sub Category 12 End of Life Treatment of Sold Product – The total amount (by weight) of products sold in the reporting period has been used to calculate the end of life emissions. This figure has been updated for both 2023 and 2024 due reporting error in previous year.

Estimations:

- For business travel and employee commute, it is assumed that average car of non-specified (unknown) fuel type is used.
- The end of life treatment of sold glass products were assumed to be 74.2% recycled and 25.8% sent to Landfill. This is based on British Glass website (https://www.britglass.org.uk/our-work/recycling/recycle-it-right).
- The end of life treatment of sold plastic products were assumed to be 50% recycled and 50% combusted at energy from waste plant.
-

Exclusions:

- All relevant sources of emissions were included and none excluded.

Definitions:

Carbon footprint - The total set of greenhouse gas emissions (GHG) caused directly and indirectly by an individual event, organisation, or product expressed as Carbon Dioxide Equivalent (CO2e). (Source: Greenhouse Gas Protocol).

Scope 1 (direct emissions) emissions are those from activities owned or controlled by your organisation. Examples of Scope 1 emissions include emissions from combustion in owned or controlled boilers, furnaces and vehicles; and emissions from chemical production in owned or controlled process equipment.

Scope 2 (energy indirect) emissions are those released into the atmosphere that are associated with your consumption of purchased electricity, heat, steam and cooling. These indirect emissions are a consequence of your organisation's energy use, but occur at sources you do not own or control.

Scope 3 (other indirect) emissions are a consequence of your actions that occur at sources you do not own or control and are not classed as Scope 2 emissions. Examples of Scope 3 emissions are business travel by means not owned or controlled by your organisation, waste disposal, materials or fuels your organisation purchases. Deciding if emissions from a vehicle, office or factory that you use are Scope 1 or Scope 3 may depend on how you define your operational boundaries. Scope 3 emissions can be from activities that are upstream or downstream of your organisation. More information on Scope 3 and other aspects of reporting can be found in the Greenhouse Gas Protocol Corporate Standard.

References:

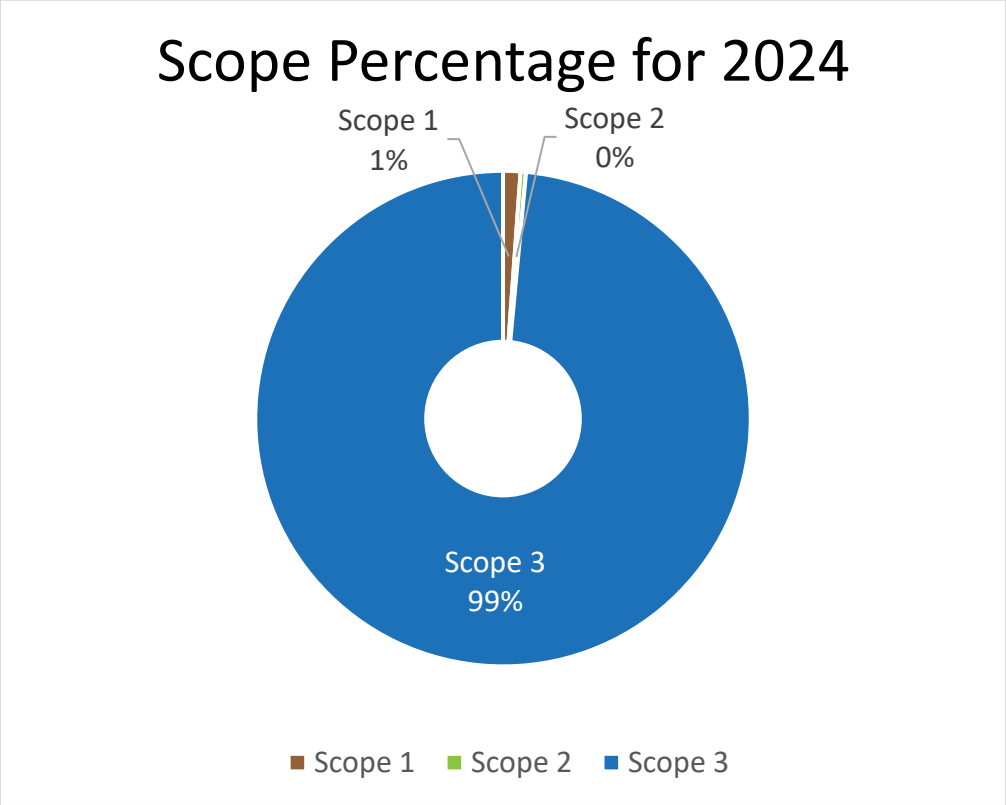
1. The GHG Protocol Corporate Accounting and Reporting Standard. Revised Edition (2015) World Resource Institute and World Business Council for Sustainable Development.

2. Environmental Reporting Guidelines: Including streamlined energy and carbon reporting guidance (March 2019) UK Government Department for Business, Environment and Industrial Strategy.

3. SmartCarbon Calculator: https://www.smartcarboncalculator.com/

4. Greenhouse gas reporting: conversion factors - Full set (for advanced users). More at this link: https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting

5. Greenhouse gas and carbon dioxide emissions intensity (the level of emissions per unit of economic output), by industry (SIC 2007 group – around 130 categories). More at this link: https://www.ons.gov.uk/economy/environmentalaccounts/datasets/ukenvironmentalaccountsatmosphericemissionsgreenhousegasemissionsintensitybyeconomicsectorunitedkingdom



Emissions Categories Percentage 2024