Carbon footprint report for Aegg
01 January 2023 to 31 December 2023

Aegg emitted 474,672 kgCO_2e (Kilogrammes of carbon dioxide equivalent) for 2023 (across scope 1 and 2). This can be presented as 475 tCO_2e (tonnes of carbon dioxide equivalent) with an intensity indicator 0.17 tCO_2e per tonne of products sold.

When Scope 3 is added, this brings the total to 38,841 tCO_2e with the intensity indicator of 13.56 tCO2e per tonne of products sold.

Table 1. UK GHG emissions and energy use data for period 01 January 2023 to 31 December 2023

Emissions source	Units	kWh	Carbon (kgCO_2e)	Carbon (tCO_2e)
Scope 1				
Propane	6 tonne	81,884	19,043.96	19.04
Petrol	6,885 litre	61,724	14,441.02	14.44
Diesel	146,261 litre	1,445,790	367,416.88	367.42
Total Scope 1			**400,902**	**401**
Scope 2				
Average car - BEV	105,109 km	-	5,300.67	5.30
Average car - PHEV	83,272 km	-	2,147.59	2.15
UK National Grid electricity (location-based)	320,282 kWh	320,282	66,322.15	66.32
Total Scope 1 & 2			**474,672**	**475**
Total tCO_2e per *tonne of products sold on gross scope 1 & 2				**0.17**

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	£102,995		40,168.17	40.17
By spend - By SIC emissions intensity - D - Electricity, gas, steam and air conditioning supply	£270		1,092.04	1.09
By spend - By SIC emissions intensity - E - Water supply; sewerage, waste management and remediation activities	£16,575		14,838.96	14.84
By spend - By SIC emissions intensity - F - Construction	£2,276		191.06	0.19
By spend - By SIC emissions intensity - G - Wholesale and retail trade; repair of motor vehicles and motorcycles	£117,788		6,590.73	6.59
By spend - By SIC emissions intensity - H - Transport and storage	£4,153		4,570.48	4.57

By spend - By SIC emissions intensity - J - Information and communication	£50,058		0.00	0.00
By spend - By SIC emissions intensity - K - Financial and insurance activities	£88,529		0.00	0.00
By spend - By SIC emissions intensity - M - Professional, scientific and technical activities	£160,277		1,494.69	1.49
By spend - By SIC emissions intensity - N - Administrative and support service activities	£42,612		1,192.17	1.19
By spend - By SIC emissions intensity - S - Other service activities	£14,415		268.86	0.27
Material use (BEIS) - Paper - Paper and board (board) - Primary production (virgin stock)	14,509 kg		11,629.28	11.63
Material use (BEIS) - Plastic - PET (incl. forming) - Primary material (Virgin stock)	73 tonne		291,420.42	291.42
Material use (BEIS) - Plastic - Plastics: PS (incl. forming) - Primary material (Virgin stock)	72 tonne		269,731.09	269.73
Material use (BEIS) - Plastic - PP (incl. forming) - Primary material (Virgin stock)	1,251 tonne		3,866,211.39	3,866.21
Material use (ecoinvent) - Glass - Packaging glass -White - from Europe	2,402 tonne		2,214,758.13	2,214.76
Material use (ecoinvent) - Glass - Packaging glass -White - from Rest of the World	1,995 tonne		2,157,497.36	2,157.50
Supplier Provided - Supplier reported GHG emissions	23,181 tonne		23,180,860.00	23,180.86
Supply Chain Dashboard			0	0
Cat 02 - Capital Goods				
By Spend - SIC Emissions Intensity - C - Manufacturing	£355,734		138,736.16	138.74
By Spend - SIC Emissions Intensity - F - Construction	£22,951		1,926.28	1.93
By Spend - SIC Emissions Intensity - G - Wholesale and retail trade; repair of motor vehicles and motorcycles	£99,472		5,565.88	5.57
Cat 03 - Fuel & energy related activities				
Transmission & distribution losses - T&D for UK national grid electricity	320,282 kWh		5,737.89	5.74
Well-to-tank (WTT) - Business travel - Flights - WTT - Flights - Domestic, to/from UK - Average passenger (RF)	3,521 mile		189.83	0.19

Well-to-tank (WTT) - Business travel - Flights - WTT - Flights - International, to/from non-UK - Economy class (RF)	9,093 mile		242.34	0.24
Well-to-tank (WTT) - Business travel - Passenger Vehicles - WTT - Unknown - Average car	240,315 mile		16,885.48	16.89
Well-to-tank (WTT) - Delivery vehicles & Freighting - WTT - Container ship - Average	126,750,398 tonne.mile		744,545.22	744.55
Well-to-tank (WTT) - Delivery vehicles & Freighting - WTT - HGV - Articulated (>3.5 - 33t)	4,465,729 tonne.mile		201,017.43	201.02
Well-to-tank (WTT) - Electricity - WTT-UK electricity (generation)	320,282 kWh		14,700.94	14.70
Well-to-tank (WTT) - Electricity - WTT-UK electricity (T&D)	320,282 kWh		1,271.52	1.27
Well-to-tank (WTT) - Fuels - WTT - Diesel (average biofuel blend)	146,261 litre		89,366.91	89.37
Well-to-tank (WTT) - Fuels - WTT - Petrol (average biofuel blend)	6,885 litre		3,999.75	4.00
Well-to-tank (WTT) - Fuels - WTT-Propane	12,706 kg		4,481.03	4.48
Cat 04 - Upstream transportation & distribution				
By tonne.distance - Road - HGV - HGV - Articulated (>3.5 - 33t) (Average laden)	4,465,729 tonne.mile		832,098.61	832.10
By tonne.distance - Sea - Cargo ship - Container ship - Container ship - Average	126,750,398 tonne.mile		3,288,238.08	3,288.24
By spend - Postal and courier services	£226		24.83	0.02
By spend - Road freighting	£499,865		468,188.77	468.19
By spend - Sea freighting	£4,323		21,704.37	21.70
By spend - Warehousing and storage	£156,509		7,923.82	7.92
Cat 05 - Waste disposal				
Commercial and industrial waste (Closed-loop)	5 tonne		107.51	0.11
Commercial and industrial waste (Combustion)	13 tonne		286.74	0.29
Glass (Closed-loop)	44 tonne		933.97	0.93
Plastics: average plastics (Open-loop)	6 tonne		134.49	0.13
Cat 06 - Business Travel				
By mileage - Cars (by size) - Unknown fuel - Average	795 mile	879.33	213.20	0.21
By mileage - Flights - with radiative forcing - Domestic to/from UK - Average	3,521 mile		1,544.57	1.54
By mileage - Flights - with radiative forcing - International, to/from non-UK - Economy class	9,093 mile		1,970.29	1.97

By mileage - Flights - with radiative forcing - Long haul, to/from UK - Economy class	32,710 mile		10,534.12	10.53
By mileage - Flights - with radiative forcing - Short-haul, to/from UK - Economy class	7,319 mile		2,153.99	2.15
By spend - By SIC emissions intensity - Hotel stay - Hotel Stay (I - Accommodation services)	£16,186		971.17	0.97
By spend - By SIC emissions intensity - Travel - Flights (H- Air transport services)	£645		8,437.82	8.44
By spend - By SIC emissions intensity - Travel - Rail Travel (H - Rail transport)	£755		483.68	0.48
By spend - By SIC emissions intensity - Travel - Road Travel (H - Land transport services excluding rail transport)	£3,179		542.77	0.54
Cat 07 - Employee Commuting				
Cars (by size) - Unknown fuel - Average	239,520 mile		64,234.19	64.23
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	84 tonne		1,776.95	1.78
Household residual waste - Landfill	696 tonne		310,593.75	310.59
Household residual waste - Recycling - Closed-loop	2,085 tonne		44,379.42	44.38
Total Scope 3			**38,366,349**	**38,366**
Total Scope 1, 2 & 3			**38,841,021**	**38,841**
Total tCO2e per*tonne of products sold on gross scope 1, 2 & 3				**1,585.77**

Energy efficiency measures taken

2023 is Aegg's base year for measuring 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 actions in 2023 focussed on understanding scope 1,2 and 3 emissions and recognising our likely supply chain impact as 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.
For 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.

We are focused on zero waste projects, for example, the award-winning EKOMAT 100% Recycling Project, an automated reverse vending machine concept which recycles 100% of glass, plastic and metal beverages winning the MONACO Luxe Pack Green Awards 2023 Judge Special Award. This is supported by education in schools through the Recycling Directives Project CEVKO Foundation.

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.
In 2023 Aegg expanded 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.

Aegg only engages with shipping companies with effective environmental policies and the latest ships. There is a focus on optimising 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,

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 ensured our fleet of business use cars are either all electric or hybrid in 2023.

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 2023 we closed our offices in Andover in Hampshire consolidating activities in Eye and reducing duplicate carbon emissions.

Energy efficiency planned

We anticipate significant growth in 2024 necessitating even more focus on carbon emissions intensity reduction. We intend to educate the Aegg Board on sustainability by undertaking the Advanced Carbon Foot-printing (GHG Accounting), Carbon Management and Carbon Reporting 2-day course run by Northumbria University. We will then engage, through training, the Aegg wider workforce in the importance of emissions reduction to advance a sustainability culture at Aegg.

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 develop supplier sustainability standards for regular audit.

We also intend to evaluate and commit Aegg to material UN Sustainability Development Goals and targets during 2024 evaluating for example a commitment to ISO 50001 Energy Management Systems and ISO 14001 Environmental Management.

Aegg in the UK will explore renewable energy sources for its Head Office in Suffolk exploring a partnership with Thrive Renewables https://www.thriverenewables.co.uk/projects/eye-wind-farm as well as evaluating 100% Green Electricity Energy contracts for introduction in 2025.
The warehouse roof is designed to let in natural light via skylights on north-facing elevations and take solar panels on the south-facing elevations with potential introduction in 2025.

We anticipate undertaking a fleet review in 2024 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.

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 has 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].

Scope 1 and 2

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

Scope 3

- 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.
- 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.

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.
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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 (CO_2e). (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:

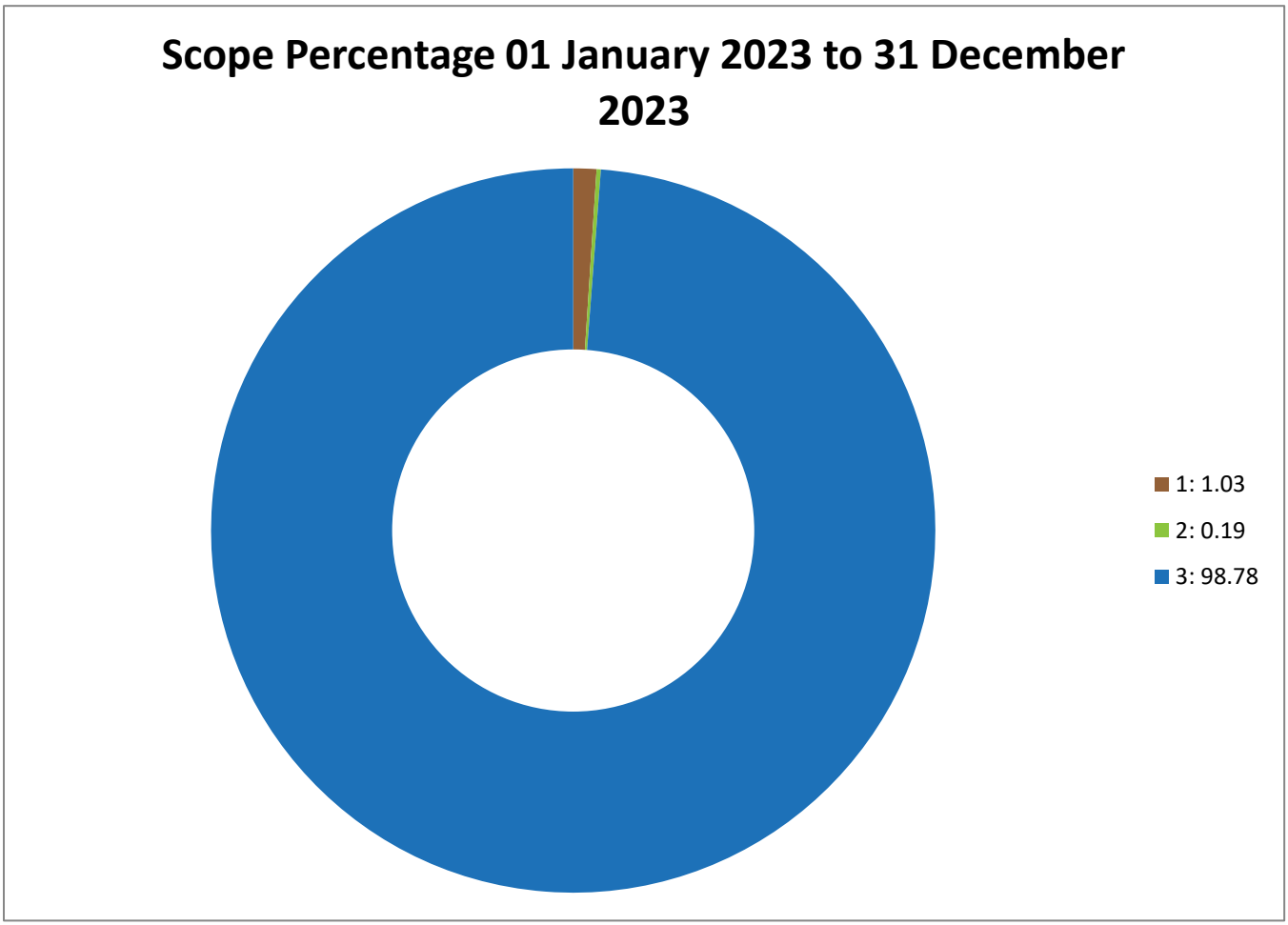
1. The GHG Protocol Corporate Accounting and Reporting Standard. Revised Edition (2015) World Resource Institute and World Business Council for Sustainable Development.

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 01 January 2023 to 31 December 2023