

Carbon Reduction Plan

Publication date: 14/03/2023

Commitment to achieving Net Zero

Aqua Fabrications Ltd T/A Aqua Signal and Telegraphic Systems and Aqua Geocomposites is committed to achieving Net Zero emissions by 2050.

Baseline Emissions Footprint

Baseline emissions are a record of the greenhouse gases that have been produced in the past and were produced prior to the introduction of any strategies to reduce emissions. Baseline emissions are the reference point against which emissions reduction can be measured.

Baseline Year: 14/1	Baseline Year: 14/11/2021 – 13/11//22		
Additional Details r	elating to the Baseline Emissions calculations.		
Scope 1 emissions in	nclude goods vehicle distance of 263797 miles.		
Baseline year emis	sions:		
EMISSIONS	TOTAL (tCO ₂ e)		
Scope 1	353		
Scope 2	13.6		
Scope 3 (Included Sources)	71.2		
Total Emissions	437.8		



Current Emissions Reporting

Reporting Year: 1 14/11/2022 – 13/11/2023	
EMISSIONS	TOTAL (tCO ₂ e)
Scope 1	TBC
Scope 2	TBC
Scope 3 (Included Sources)	TBC
Total Emissions	TBC

Emissions reduction targets

We project that carbon emissions will decrease over the next five years to 359tCO₂e by 2027. This is a reduction of 18%

Carbon Reduction Projects

In order to continue our progress to achieving Net Zero, we have adopted the following carbon reduction targets.

We believe recycling of materials will greatly reduce our carbon emissions. Currently we recycle all our HDPE, GRP and cardboard.

Aqua have introduced a policy of moving vehicles from petrol/diesel to hybrid and then fully electric, as of 14/11/2023 5 of 8 company cars have moved to hybrid.

Aqua will change heavy goods vehicles to more efficient units, Euro Cat 6 and beyond. Aqua have encouraged staff to use alternative methods of commuting to work, these include cycling and car share – out of 52 employees 15 car share, whilst staff walk 3250 per annum and cycling 1161 miles.

Aqua are seeking an environmental consultant to advise on EPD's and further schemes to reduce carbon emissions.



Declaration and Sign Off

This Carbon Reduction Plan has been completed in accordance with PPN 06/21 and associated guidance and reporting standard for Carbon Reduction Plans.

Emissions have been reported and recorded in accordance with the published reporting standard for Carbon Reduction Plans and the GHG Reporting Protocol corporate standard and uses the appropriate Government emission conversion factors for greenhouse gas company reporting².

Scope 1 and Scope 2 emissions have been reported in accordance with SECR requirements, and the required subset of Scope 3 emissions have been reported in accordance with the published reporting standard for Carbon Reduction Plans and the Corporate Value Chain (Scope 3) Standard³.

This Carbon Reduction Plan has been reviewed and signed off by the board of directors (or equivalent management body).

Signed on behalf of the Supplier:

Stuart Smith

Date: 14/03/2023

¹https://ghgprotocol.org/corporate-standard

²https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting

³https://ghaprotocol.org/standards/scope-3-standard





Executive Summary

MyCarbon has conducted a corporate GHG report for Aqua Fabrications for the period 1^{st} January 2023 to 31^{st} December 2023. Using the market-based approach, the total emissions were 5,739.73 tCO₂e.

Scope 1 emissions were 355.11 tCO₂e, 6.19% of the total. Due to procuring renewable electricity for their site, Scope 2 emissions were 0.00 tCO₂e, 0.00% of the total. Scope 3 made up the remaining 93.81% of the emissions, 5,384.62 tCO₂e. The emissions are listed by Scope in Table 1.

Figure 1 is a doughnut chart segmenting Aqua Fabrications' Scope 3 emissions by source. The largest sources of emissions were purchased goods and services, company vehicles, and capital goods. In order to tackle these emissions hotspots, MyCarbon recommends engaging with suppliers to determine supplier-specific emission factors, which will help improve the accuracy of future GHG reports and reduce the need for conservative data. Additionally, MyCarbon recommends using this GHG report as a baseline for Aqua Fabrications to put a net-zero strategy in place, mapping out future reductions and ensuring the business remains future-proof. A full list of recommendations is included in Section 6.

Table 1: Emissions by Scope for Aqua Fabrications

Emissions Source	Emissions (tCO₂e)	% of Total
Scope 1	355.11	6.19%
Scope 2 (Market-based)	0.00	0.00%
Scope 3	5,384.62	93.81%
Total	5,739.73	100.00%



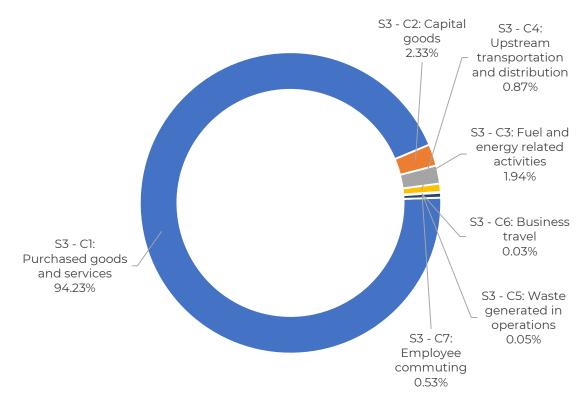


Figure 1: Aqua Fabrications Scope 3 emissions by category



Formal Notes

Client: Aqua Fabrications Ltd

Date: 12/03/2024

Reporting Period: From 1st January 2023 to 31st December 2023

The accuracy of this GHG assessment is directly related to the quality of the data provided by the client.

Primary data representative of activities occurred during the reporting period is used where available. In certain circumstances, secondary data in the form of estimates, extrapolations and/or industry averages is used where primary data is not available.

Assessments based largely on secondary data should only be viewed as an estimate of GHG emissions impact, and actual emissions may vary significantly. It is expected that all clients should aim to improve the proportion of primary data over time.

A Greenhouse Gas inventory produced by MyCarbon, an inventory service provided by Carbon Green Ltd.

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, organization

If Aqua Fabrications Ltd is satisfied with the above information and the data provided is representative of authentic client activities within the reporting period of 01 January 2023 to 31 December 2023, please sign below.

Client Representative: Stuart Smith Email: stuart@aquafab.co.uk

Job title: Managing Director Phone number: 07767495433

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1. Introduction

This is a greenhouse gas (GHG) inventory report for Aqua Fabrications Ltd for the 2023 calendar year, produced by MyCarbon.

Aqua Fabrications Ltd specializes in the innovation and supply of railway drainage products and cable management systems for the UK rail sector. Their product range includes geocomposite formation membranes, plastic drainage piping, and signal cable management solutions. Aqua Fabrications is committed to sustainability, emphasizing environmentally friendly practices in their operations and product designs to minimize environmental impact.

This report follows the five main reporting principals as outlined by ISO 14064-1:

- <u>Transparency:</u> Address all relevant issues in a factual and coherent manner, based on a clear audit trail. Disclose any relevant assumptions and make appropriate references to the accounting and calculation methodologies and data sources used.
- Relevance: Ensure the GHG inventory appropriately reflects the GHG emissions of the company and serves the decision-making needs of users both internal and external to the company
- <u>Accuracy:</u> Ensure that the quantification of GHG emissions is systematically neither over nor under actual emissions, as far as can be judged, and that uncertainties are reduced as far as practicable. Achieve sufficient accuracy to enable users to make decisions with reasonable assurance as to the integrity of the reported information.
- <u>Consistency:</u> Use consistent methodologies to allow for meaningful comparisons of emissions over time. Transparently document any changes to the data, inventory boundary, methods, or any other relevant factors in the time series.
- <u>Completeness:</u> Account for and report on all GHG emission sources and activities within the chosen inventory boundary. Disclose and justify any specific exclusions.

This report presents the findings of this exercise. The report follows the ISO 14064-1 standard entitled *Specification with Guidance at the Organisation Level for Quantification and Reporting of Greenhouse Gas Emissions and Removals.*



2.Context

2.1. What is the Importance of Measuring Greenhouse Gases (GHGs)?

GHG emissions are contributing to global warming and climate change, which have been recognised as a key sustainable development issue. Many governments are taking steps to reduce GHG emissions through national policies that include the introduction of emissions trading programs, voluntary programs, carbon or energy taxes, and regulations and standards on energy efficiency and emissions. As a result, companies must understand and manage their GHG risks if they are to ensure long-term success in a competitive business environment, and to be prepared for future national or regional climate policies.

Quantification of GHGs emitted by a business or organisation's activities in the form of a carbon footprint is an important tool used by stakeholders to recognise their impact and act, through emissions reduction or offsetting activities.

Offsetting is a particular method employed to reduce, remove, or prevent the release of GHG emissions into the atmosphere, which can be done through the purchase and retirement of carbon credits. Due to the tight control on carbon credits, retirement of a credit is the only method for an organisation to offset their carbon footprint.

2.2. Reporting Standards

When performing a GHG inventory, these assessments should align with one of two recognised standards for accounting and reporting corporate GHG emissions. The most well-known is the "Greenhouse Gas Protocol – Corporate Accounting and Reporting Standard" (GHG Protocol, 2011) developed in a partnership of the World Business Council for Sustainable Development (WBCSD) and the World Resource Institute (WRI). The International Organization for Standardization (ISO) also produced the ISO 14064 specification series, detailing specification and guidance for the organisation and project levels, as well as for the validation and verification of emissions.

Data supplied by clients is used in GHG assessments, which is quantified into GHG emission estimates by applying relevant and up-to-date emission factor(s) from reputable sources. An emission factor is a representative value that attempts to relate the quantity of a pollutant released to the atmosphere with an activity associated with the release of that pollutant. Quality and accuracy of emission factors can vary between sources, therefore it is best practice to apply emission factors only from reputable sources, such as DEFRA.

GHG assessments quantify all six Kyoto Protocol GHGs, where applicable, and are measured in terms of tonnes carbon dioxide (CO_2) equivalence, or tCO_2 e, where equivalence means having the same warming effect as CO_2 over a period of 100 years. The six Kyoto Protocol gases are CO_2 , methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), sulphur hexafluoride (SF_6) and perfluorocarbons (PFCs, including NF_3). The global warming potential (GWP) of each GHG is listed in Table 2.

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Table 2: GHGs listed in the Kyoto Protocol and their Global Warming Potential (GWP)

Greenhouse Gas	Chemical Formula	GWP (CO₂e)
Carbon dioxide	CO ₂	1
Methane	CH ₄	25
Nitrous oxide	N_2O	298
Hydro fluorocarbons	HFCs	Depends on gas
Sulphur hexafluoride	SF ₆	22,800
Perfluorinated compounds	PFCs	Depends on gas

2.3. Emissions Scopes

Emission sources can be broken down into three distinct categories called Scopes.

2.3.1. Scope 1

Scope 1 accounts for the direct GHG emissions occurring from sources that are owned or controlled by the company, for example, emissions from combustion of fuels in owned or controlled boilers, furnaces, vehicles, etc.

2.3.2. Scope 2

Scope 2 accounts for GHG emissions from the generation of purchased energy – e.g., electricity, heat or steam consumed by the company. Purchased energy is defined as energy that is purchased or otherwise brought into the organizational boundary of the company. Scope 2 emissions physically occur at the facility where the energy is generated.

2.3.3. Scope 3

Scope 3 is an optional reporting category that allows for the estimation of all other indirect emissions. Scope 3 emissions are a consequence of the activities of the company but occur from sources not owned or controlled by the company. Some examples of Scope 3 activities are production of purchased materials, transportation of products, and use of sold products.

The GHG Protocol describes the quantification of Scope 1 and 2 as mandatory, whereas Scope 3 emissions are considered optional. Depending on the nature/remit of an organisation, Scope 3 activities can contribute a significant proportion of overall emissions, and therefore to gain a proper understanding of an organisation's GHG emissions it is advisable to include all relevant sources.

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3. Methodology

3.1. Emission Factors

The methodologies used to collect and assess the emissions data varied throughout the inventory. The primary methodology used was multiplying GHG activity data by appropriate GHG emission factors. All methodologies were selected based on their ability to provide accurate and consistent results. The use of activity data and emission factors was possible due to the availability of both accurate activity data and emission factors from reputable organisations.

MyCarbon uses the latest figures from DEFRA and peer reviewed literature for all emission factors. The full list of emissions factors used in this assessment is in the appendix, Table 8.

3.2. Organisational Boundaries

The GHG Protocol Corporate Standard outlines two approaches for consolidating GHG data, the equity share approach or the control approach, through organizational boundaries. These are boundaries that determine the operations owned or controlled by the reporting company, depending on the consolidation approach taken. In some cases, it may be possible to apply these approaches directly to emissions/removals associated with sequestered atmospheric carbon.

This GHG inventory report covers all Scope 1, 2, and 3 emissions for Aqua Fabrications. All sites owned or controlled by Aqua Fabrications have been included within the operational boundary.

Aqua Fabrications has compiled a GHG inventory report for the reporting period 01 January 2023 to 31 December 2023 to understand their emissions and carbon footprint. The corporate organisational boundaries for the inventory were defined according to the requirements of **clause 4.1 of the ISO 14064-1 standard.** The operational control approach was used for the consolidation of corporate GHG emissions.

3.3. Identified Emissions and Exclusions

The following emissions were determined to be relevant within the organizational boundaries:

Scope 1

Stationary combustion

Company vehicles

Scope 2

Electricity Usage

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Scope 3

Category 1: Purchased goods and services

Category 2: Capital goods

Category 3: Fuel and energy related activities

Category 4: Upstream transportation and distribution

Category 5: Waste generated in operations

Category 6: Business travel

Category 7: Employee commuting

The following emissions categories were deemed not applicable for Aqua Fabrications:

Category 8: Upstream Leased Assets

Category 9: Downstream transportation and distribution

Category 10: Processing of sold products

Category 11: Use of sold products

Category 12: End of life treatment of sold products

Category 13: Downstream leased assets

Category 14: Franchises

Category 15: Investments

All buildings and vehicles used are owned by Aqua Fabrications and so Category 8 was deemed not applicable.

End products are delivered by a fleet of HGVs and LGVs owned and operated by Aqua Fabrications to the end client, meaning Category 9 is not relevant.

The products sold by Aqua Fabrications are final products which require no further processing, nor do they require any direct energy consumption for their use. With a life cycle of approximately 120 years, there is no current plan for the waste treatment after their use face.

Downstream leased assets are not applicable to Aqua Fabrications, nor are Franchises and Investments.

No categories were excluded in this assessment.

3.4. Adjusting for Currency and Inflation

Where emissions conversion factors based on spend for the appropriate currency were not available, emissions factors based on other currencies were applied. The average exchange rate for the applicable year relating to the emissions factor was found using HMRC [1] and applied to the spend based figure provided by Aqua

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Fabrications. The new figure based on the correct currency was applied to the relevant emissions factor.

To provide an accurate calculation, the average rate of inflation for each currency between the given emissions factor year and the reporting year (2023) was calculated using the Consumer Price Index (CPI) [2]. As inflation increases, emission conversion factors decrease and so the original emissions factor was adjusted based on the rate of inflation. This provided a more accurate and representative emissions factor for 01 January 2023 to 31 December 2023.

3.5. Calculating Emissions from Electricity Consumption

There are two methods for calculating emissions from electricity consumption: the location-based and market-based methods.

The location-based method is used to calculate emissions based on the emissions intensity of the local grid area where the electricity usage occurs. The market-based approach reflects emissions from electricity that companies have purposefully chosen (for example renewable electricity).





4. Emissions Summary

4.1. Full Summary

Using the market-based approach, the total emissions for Aqua Fabrications from 1st January 2023 to 31st December 2023 were 5,739.73 tCO₂e. Scope 1 emissions were 355.11 tCO₂e, 6.19% of the total. Due to procuring renewable electricity for their site, Scope 2 emissions were 0.00 tCO₂e, 0.00% of the total. Scope 3 made up the remaining 93.81% of the emissions, 5,384.62 tCO₂e. The largest sources of emissions were purchased goods and services, company vehicles, and capital goods. The emissions are listed by Scope in Table 3.

Table 3: Emissions by Scope for Aqua Fabrications

Emissions Source	Emissions (tCO₂e)	% of Total
Scope 1	355.11	6.19%
Scope 2	0.00	0.00%
Scope 3	5,384.62	93.81%
Total	5,739.73	100.00%

4.2. Scope 1

The total Scope 1 emissions for Aqua Fabrications from 1^{st} January 2023 to 31^{st} December 2023 were 355.11 tCO₂e. The largest source of Scope 1 emissions was company vehicles at 327.98 tCO₂e, 92.36% of the total Scope 1. The remaining 7.64% (27.13 tCO₂e) is associated with stationary combustion at Aqua Fabrications facilities. These emissions are listed by source in Table 4.

Table 4: Scope 1 Emissions by Source

Emissions Source	Emissions (tCO₂e)	% of Total
Stationary combustion	27.13	7.64%
Company vehicles	327.98	92.36%
Total	355.11	100.00%

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4.3. Scope 2

The total market-based Scope 2 emissions for Aqua Fabrications from 1st January 2023 to 31st December 2023 were 0.00 tCO₂e. The emissions are listed by source in Table 5 using both the market-based and location-based approaches. To remain transparent, both approaches are included in this report, however, the emissions totals and summaries are reported using the values from the market-based approach.

Table 5: Scope 2 Emissions by Source

Emissions Source	Emissions (tCO₂e)	% of Total
Electricity usage (market- based)	0.00	NA
Electricity usage (location- based)	18.99	100.00%
Total	0.00	NA

The only source of Scope 2 emissions was electricity consumption – at 91,728 kWh throughout the year. However, with Aqua Fabrications purchasing its electricity from renewable sources, Scope 2 emissions are zero under the market-based approach.

4.4. Scope 3

The total Scope 3 emissions for Aqua Fabrications from 01 January 2023 to 31 December 2023 was 5,384.62 tCO₂e. The emissions are listed by source in Table 6.

The largest sources of Scope 3 emissions were purchased goods and services $(5,074.16 \text{ tCO}_2\text{e}, 94.23\% \text{ of the Scope 3 total})$, capital goods $(125.64 \text{ tCO}_2\text{e}, 2.33\% \text{ of the total})$, and fuel and energy related activities $(104.67 \text{ tCO}_2\text{e}, 1.94\%)$.



Table 6: Scope 3 Emissions by Source

Emissions Source	Emissions (tCO₂e)	% of Total
C1: Purchased goods and services	5,074.16	94.23%
C2: Capital goods	125.64	2.33%
C3: Fuel and energy related activities	104.67	1.94%
C4: Upstream transportation and distribution	46.95	0.87%
C5: Waste generated in operations	2.88	0.05%
C6: Business travel	1.86	0.03%
C7: Employee commuting	28.46	0.53%
Total	5,384.62	100.00%



5. Hotspot Analysis

The three highest contributors to Aqua Fabrications' 5,739.73 tCO₂e emissions total were purchased goods & services, company vehicles, and capital goods.

5.1. Purchased Goods and Services

Figure 2 is a doughnut chart segmenting the emissions from purchased goods and services (S3-C1) by source. Categories have been simplified and aggregated for visualisation. Purchased goods and services represented 5,074.16 tCO $_2$ e and contributed 88.40% of the Aqua Fabrications total footprint.

Of the goods and services purchased, HDPE plastic products represented the highest share of emissions, at 4,227.47 tCO₂e, 83.31% of the S3-C1 total. 'Plastics, others', a category formed from several plastic products (GRP, FRP, and nondescript packaging plastics) was the second highest emitting category – 428 tCO₂e, representing 8.43% of the S3-C1 total. Metal products, the third highest category, represented 160.03 tCO₂e and 3.15% of the S3-C1 total.

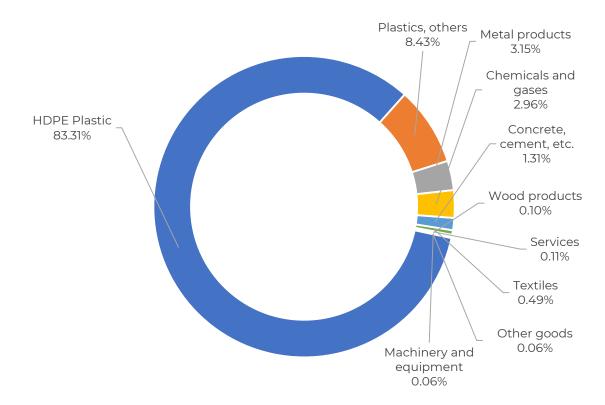


Figure 2: Scope 3 Purchased Goods and Services by source

Conservative UK emissions factor for the plastic categories were used. If Aqua Fabrications was able to verify that the plastic they purchased was manufactured from recycled sources, a significant reduction in overall product emissions could be achieved. An effort should be made going forward to improve the data quality, allowing for more accurate and less conservative emissions factors to be used.

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5.2. Company vehicles

Aqua Fabrications owns a fleet of HGVs and LGVs used for delivery of end products, as well as fleet cars used for general company operations.

The emissions arising from the use of these vehicles amount to $327.98 \text{ tCO}_2\text{e}$ and account for 5.71% of Aqua Fabrications' total footprint. Table 7 lists these emissions by fuel source.

A gradual switch towards battery electric vehicles would prove significant reduction in overall emissions associated to company vehicles. Battery electric delivery vehicles can produce up to 50% less emissions than their diesel counterparts, and up to 70% less than their petrol counterparts per the tonne.km travelled [3].

Table 7: Company vehicle emissions by fuel type

Emissions Source	Emissions (tCO₂e)	% of Total
Diesel AGO	170.05	51.85%
BP Cleaner Diesel	95.08	28.99%
BP Ultimate Diesel	15.36	4.68%
Unleaded - medium octane	13.35	4.07%
BP Unleaded	12.26	3.74%
Unleaded High Perf	10.03	3.06%
High Performance Diesel	5.49	1.67%
BP Ultimate Unleaded	3.46	1.05%
Premium Unleaded	2.56	0.78%
Unleaded - High octane	0.34	0.10%
Total	327.98	100.00%



5.3. Capital Goods

Figure 3 is a doughnut chart segmenting the emissions from capital goods (S3-C2) by source. This category represented 125.64 tCO_2e and contributed 2.32% of the Aqua Fabrications total footprint.

Of the capital goods purchased, motor vehicles represented the highest share of emissions, at 71.15 tCO $_2$ e, 56.63% of the S3-C2 total. Machinery and equipment was the second highest emitting category – 32.34 tCO $_2$ e, and representing 25.74% of the S3-C2 total. Computers and electronics, the third highest category, represented 12.26 tCO $_2$ e and 9.76% of the S3-C2 total.

An effort should be made going forward to improve the data quality, allowing for more accurate and less conservative emissions factors to be used. For instance, weight of products as opposed to expenditure.

Supplier-secific emissions factors would prove more accurate and potentially lead to emissions reductions if products used recycled materials and/or were manufactured using sustainable practices.

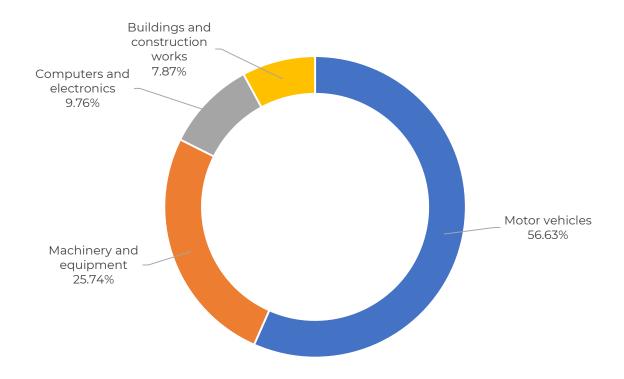


Figure 3: Capital goods emissions by source



6.Next Steps & Recommendations

This report has outlined the results from a corporate GHG assessment conducted for the 2023 calendar year for Aqua Fabrications. It has highlighted that Scope 3 emissions were the largest contributors to the overall footprint.

The following are recommendations for how Aqua Fabrications may address their impact:

- Net-zero strategy: Having identified the sources and hotspots for their emissions, MyCarbon recommends conducting a net-zero strategy for Aqua Fabrications. Using this initial GHG inventory as a baseline, MyCarbon can model the required reductions for Aqua Fabrications to reach Net-Zero in the coming decades and ensure the business remains future-proof. This will include the mapping of various emissions reduction methods, such as electrification of fleet vehicles, and their impact on Aqua Fabrications future emissions.
- 2. Supplier engagement: Purchased goods and services was identified as a key emissions hotspot for Aqua Fabrications. One element of this was the need for industry average emissions factors used due to a lack of supplier-specific data (for example what percentage of the material they purchase is recycled). Engaging with suppliers to determine supplier-specific emission factors will help improve the accuracy of future GHG reports and reduce the need for this conservative data. MyCarbon proposes to conduct a supplier engagement project with Aqua Fabrications. This will include creating supplier questionnaires and hosting interviews in order to retrieve more accurate data.
- 3. Life Cycle Assessments (LCA): Having identified and quantified Aqua Fabrications emissions at the corporate level, it is recommended that lifecycle assessments (LCAs) are conducted to determine the emissions associated with specific Aqua Fabrications products. As customers, particularly in the construction sector, become increasingly aware of the carbon footprint of their projects, pressure is increasing on manufacturers to provide environmental performance data for their products. MyCarbon recommends conducting an in-depth LCA for Aqua Fabrications high-volume products in order to meet this demand and offer a unique selling point to their customers.
- 4. **Electrification of the HGV fleet and fleet vehicle:.** Company vehicles proved to be a hotspot of emissions, with Aqua Fabrications owning the fleet of HGVs with which their end products are transported to their clients. The gradual electrification of this fleet will prove a significant decarbonisation

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effort. This electrification is one decarbonisation effort that MyCarbon proposes modelling in a net-zero strategy.



References

- [1] HMRC, "HMRC Yearly average and spot rates," 20 08 2023. [Online]. Available: https://www.gov.uk/government/publications/exchange-rates-for-customs-and-vat-yearly. [Accessed 20 08 2023].
- [2] Office for National Statistics, "Consumer price inflation tables," 20 08 2023. [Online]. Available: https://www.ons.gov.uk/economy/inflationandpriceindices/datasets/consum erpriceinflation. [Accessed 20 08 2023].
- [3] DEFRA, "Greenhouse Gas Reporting: Conversion factors 2023," 2023. [Online]. Available: https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2023.
- [4] DEFRA, "UK and England's carbon footprint to 2020," 2020. [Online]. Available: https://www.gov.uk/government/statistics/uks-carbon-footprint. [Accessed 12 03 2024].
- [5] G. Wernet, C. Bauer, B. Steubing, J. Reinhard, E. Moreno-Ruiz and b. Weidema, "The ecoinvent database version 3 (part I): overview and methodology.," *The International Journal of Life Cycle Assessment*, vol. 21, no. 9, pp. 1218-1230, 2016.
- [6] ICE, "Inventory of Carbon & Energy V3," 2019. [Online]. Available: http://www.circularecology.com/embodied-energy-and-carbon-footprint-database.html.



Appendix

Table 8: Emissions factors used in this assessment.

Category	Emission Factor (kg CO₂e/Unit)	Units	Reference
Natural Gas	0.18	kWh	[3]
Burning oil	2.54	litres	[3]
Petrol (average biofuel blend)	2.10	litres	[3]
Diesel (average biofuel blend)	2.51	litres	[3]
UK Electricity	0.21	kWh	[3]
Electricity - 100% renewable	0.00	kWh	(NA)
Rental and leasing services	0.11	GBP	[4]
Soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations	0.61	GBP	[4]
12.7.1 Other services n.e.c.	0.23	GBP	[4]
12.5 Insurance	0.23	GBP	[4]
12.6.2 Other financial services n.e.c.	0.23	GBP	[4]
Furniture	0.32	GBP	[4]
Accommodation services	0.27	GBP	[4]
Food and beverage serving services	0.24	GBP	[4]
Postal and courier services	0.21	GBP	[4]
Creative, arts and entertainment services	0.17	GBP	[4]
Other professional, scientific and technical services	0.16	GBP	[4]
Public administration and defence services; compulsory social security services	0.14	GBP	[4]
Information services	0.14	GBP	[4]
9.5.4 Stationery and drawing materials	0.09	GBP	[4]
Water supply	0.15	m^3	[3]
Computer programming, consultancy and related services	0.11	GBP	[4]
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Accounting, bookkeeping and auditing services; tax consulting services	0.11	GBP	[4]
Programming and broadcasting services	0.10	GBP	[4]
Employment services	0.10	GBP	[4]
4.3.2 Other services for the maintenance and repair of the dwelling	0.06	GBP	[4]
Advertising and market research services	0.09	GBP	[4]
Repair services of computers and personal and household goods	0.09	GBP	[4]
Telecommunications services	0.09	GBP	[4]
Real estate services on a fee or contract basis	0.07	GBP	[4]
Insurance and pension funding services (except compulsory social security services)	0.06	GBP	[4]
Legal services	0.05	GBP	[4]
Insurance, reinsurance and pension funding services, except compulsory social security	0.06	GBP	[4]
Plastics: HDPE (incl. forming)	3,255.93	tonne	[3]
Plastics: average plastics	3,102.45	tonne	[3]
Organic chemicals (weight)	Confidential	kg	[5]
Concrete	131.75	tonne	[3]
Metals	4,005.14	tonne	[3]
Rubber and plastic products	0.49	GBP	[4]
Rest of repair; Installation - 33.11-14/17/19/20	0.16	GBP	[4]
Cement, lime, plaster and articles of concrete, cement and plaster	0.92	GBP	[4]
Machinery and equipment n.e.c.	0.28	GBP	[4]
Basic iron and steel	1.19	GBP	[4]
Basic from an a stock			
Other basic metals and casting	0.84	GBP	[4]
	0.84	GBP GBP	[4] [4]

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Wood and of products of wood and cork, except furniture; articles of straw and plaiting materials	0.40	GBP	[4]
Fabricated metal products, excl. machinery and equipment and weapons & ammunition - 25.1-3/25.5-9	0.39	GBP	[4]
Industrial gases, inorganics and fertilisers (all inorganic chemicals) - 20.11/13/15	1.15	GBP	[4]
Textiles	0.65	GBP	[4]
Other manufactured goods	0.57	GBP	[4]
Wholesale and retail trade and repair services of motor vehicles and motorcycles	0.18	GBP	[4]
Buildings and building construction works	0.26	GBP	[4]
Computer, electronic and optical products	0.32	GBP	[4]
Fabricated metal products, excl. machinery and equipment and weapons & ammunition - 25.1-3/25.5-9	0.39	GBP	[4]
Wearing apparel	0.67	GBP	[4]
Computer, electronic and optical products	0.32	GBP	[4]
UK Electricity WTT	0.05	kWh	[3]
Average Car, Unknown Fuel WTT	0.04	km	[3]
Regular Taxi WTT	0.04	passenger.km	[3]
Flight, Domestic, Average Passenger WTT	0.03	passenger.km	[3]
WTT Natural Gas	0.03	kWh	[3]
WTT - UK electricity (generation)	0.05	kWh	[3]
National rail WTT	0.01	passenger.km	[3]
WTT - UK electricity (T&D)	0.00	kWh	[3]
International rail WTT	0.00	passenger.km	[3]
Flight, Long-Haul, Average Passenger WTT	0.03	passenger.km	[3]
Flight, Short-Haul, Average Passenger WTT	0.02	passenger.km	[3]
Flight, International, Average Passenger WTT	0.02	passenger.km	[3]
WTT - Petrol (Average biofuel blend)	0.58	Litres	[3]
WTT - diesel (Average biofuel blend)	0.61	Litres	[3]
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WTT Burning Oil	0.53	Litres	[3]	
WTT - HGV Average Laden	0.02	tonne.km	[3]	
WTT - Cargo ship (general cargo)	0.00	tonne.km	[3]	
WTT - Average car - diesel	0.04	km	[3]	
WTT - Average car - petrol	0.05	km	[3]	
WTT - Average car - hybrid	0.03	km	[3]	
WTT - Average car - unknown fuel	0.04	km	[3]	
WTT - Average car - EV	0.01	km	[3]	
Printing and recording services	0.32	GBP	[4]	
HGV - All HGVs, Average laden	0.10	tonne.km	[3]	
Cargo ship, general cargo, average	0.01	tonne.km	[3]	
Plastics, average plastics, open loop	21.28	tonne	[3]	
Paper and board: mixed, closed loop	21.28	tonne	[3]	
Glass, open loop	21.28	tonne	[3]	
Mixed Recycling	21.28	tonne	[3]	
Commercial and industrial waste, combustion	21.28	tonne	[3]	
Anaerobic Digestion	8.91	tonne	[3]	
Water treatment	0.27	m3	[3]	
Commercial and industrial waste	21.28	tonne	[3]	
Waste: Plastics: HDPE (incl. forming)	21.28	tonne	[3]	
Waste: Plastics: Average Plastics	21.28	tonne	[3]	
Waste: Paper & Board: Mixed	21.28	tonne	[3]	
Waste: Metals	21.28	tonne	[3]	
UK Hotel	10.40	night	[3]	
Average Car, Unknown Fuel	0.17	km	[3]	
Regular Taxi	0.15	passenger.km	[3]	
National rail	0.04	passenger.km	[3]	
London Hotel	11.50	night	[3]	
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International rail	0.00	passenger.km	[3]
Average car - diesel	0.17	km	[3]
Average car - petrol	0.16	km	[3]
Average car - hybrid	0.12	km	[3]
Average car - unknown fuel	0.17	km	[3]
Average car - EV	0.05	km	[3]



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