cummins
civil engineering

Greenhouse Gas Emissions Report 2023

November 2024
v1.1

Report Information

Company Name	Cummins Civil Engineering Ltd	
Company address	Sunnycroft, Stocks Lane, Over Peover, WA16 8TZ	
Reporting period	01.01.2023 – 31.12.2023	
Report conducted by	George Greaves	
Methodology	The calculations in this report conform to the Greenhouse Gas Protocol Corporate Standard. Scope 1 and 2 emissions are calculated from activity-based data. Scope 3 emissions are calculated from a mix of activity- and spend-based data.	
Carbon emissions	Total (tonnes CO2e)	886.0 tonnes CO2e
	Total per revenue	0.175 kg CO2e / £
	Scope 1	344.1 tonnes CO2e
	Scope 2	3.9 tonnes CO2e
	Scope 3	538.1 tonnes CO2e

Executive Summary

Cummins Civil Engineering Ltd is a civil engineering and groundworks contractor specialising in deep excavation and drainage. It is based in Over Peover, Cheshire, and works on projects all around the UK.

Cummins' carbon emissions were lower in 2023 compared with the previous year. This was in line with a reduced trading volume after the collapse of a key supplier of work. Once again, Cummins have improved their carbon emissions tracking, with a remarkable ~78% of emissions measured using activity-based data, with the rest captured by spend-based methods. This has helped it to build an accurate picture of its carbon emissions and to produce meaningful reduction strategies.

As is typical of construction contractors, a large proportion of Cummins' carbon emissions arise from fuel costs, transport and distribution of materials and machinery, and the purchase of raw materials. Thus, reduction strategies focus on these key areas. The strategies are as follows:

- Van-share wherever possible when travelling to and from site to reduce fuel consumption.
- Source machinery and materials closer to project locations to replace long transport and distribution journeys with shorter ones.
- Replace remaining primary-sourced raw materials with recycled materials.

This report begins with an overview of the methodology used and the data supplied by Cummins to calculate its carbon emissions. The two subsequent sections provide analysis of the year-on-year changes in emissions and the breakdown of emissions by category. Finally, emissions reduction strategies are put forward based on the analysis presented beforehand.

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Methodology

Greenhouse Gas Protocol Corporate Standard

Greenhouse Gas (GHG) Protocol Corporate Standard methodology has been used to calculate and report carbon emissions. Business activity data has been used where available to produce an accurate calculation of carbon emissions. Where activity data was not available, spend-based calculations have been performed and aggregated with activity-based calculations. The percentage of emissions captured by activity-based data is 77.8%, which is a remarkable achievement for a small-to-medium business.

Emissions are categorised into scope 1, 2 and 3 emissions. Briefly, scope 1 includes direct emissions from sources owned or controlled by the company (e.g. emissions from combustion of fuel in company owned vehicles and machinery). Scope 2 accounts for the indirect emissions from purchased electricity, including that used in offices, on site, and by electric vehicles. Scope 3 accounts for all other indirect emissions that arise from consequences of the company's actions, but not from sources owned or controlled by them. This includes, but is not limited to: the materials purchased by the company; the waste it produces; the distribution networks it relies on; and any business travel. Scope 3 emissions also include well-to-tank and transport and distribution emissions associated with fuel and electricity (i.e. fuel and electricity emissions not included in scope 1 or 2). Further details on calculations and categorisation can be found in GHG Protocol documentation.

Data supplied

Civil engineering contractors tend to have a large proportion of their emissions arising from fuel used by company owned vehicles and site machinery, the raw materials used on site, and the distribution and transportation of machinery and raw materials. To ensure accurate emissions calculations, Cummins Civil Engineering Ltd has supplied activity data for:

- Fuel used in company-owned vans, site machinery and generators
- Electricity used in offices
- Raw materials used (aggregates, concrete, soil and other construction materials)
- Waste materials and disposal methods
- Delivery distances, weights and methods
- Business travel and overnight stays.

A smaller contribution to Cummins Civil Engineering Ltd's carbon emissions arises from the purchase of capital and employee commuting. Spend-based data was provided for these categories.

Year-on-year changes in emissions

Fig 1 shows a reduction in total carbon emissions in 2023 compared to 2022. This was achieved by decreases in scope 1 and scope 3 emissions. Note that scope 2 emissions are too small to be seen in the figure.

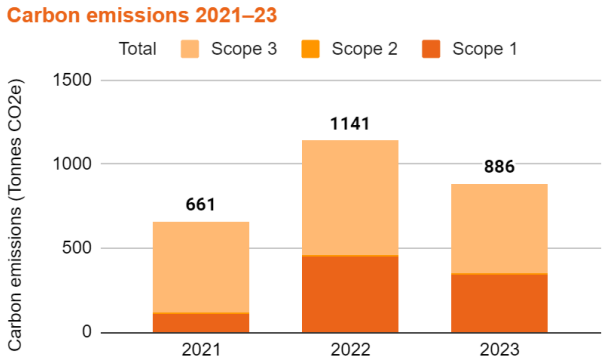

Fig 1. Breakdown of carbon emissions by scope point for 2021, 2022 and 2023. Note that scope 2 emissions are too small to see here.

The decrease in emissions in 2023 can be explained by a smaller volume of trading for Cummins Civil Engineering Ltd, since a major supplier of work collapsed in this year. Fig 2 shows carbon emissions normalised to calendar year revenue. Normalised emissions are more consistent across the three years, suggesting that indeed much of the disparity in total emissions can be explained by different trading volumes.

YoY emissions are closely tied to trading volumes, with differences probably arising from capturing more activity-based data, rather than any operational changes.

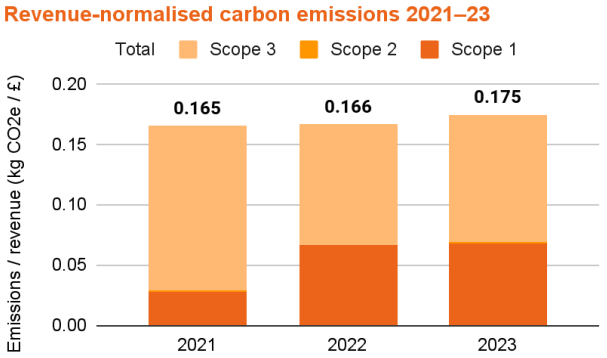

Fig 2. Carbon emissions normalised to calendar year revenue for 2021, 2022 and 2023, broken down by scope point. Note that scope 2 emissions are too small to see here.

The marginal increase in normalised carbon emissions in 2023 might indicate a worse emissions performance in 2023, but it is in fact more than likely a result of including a higher proportion of activity-based calculations.

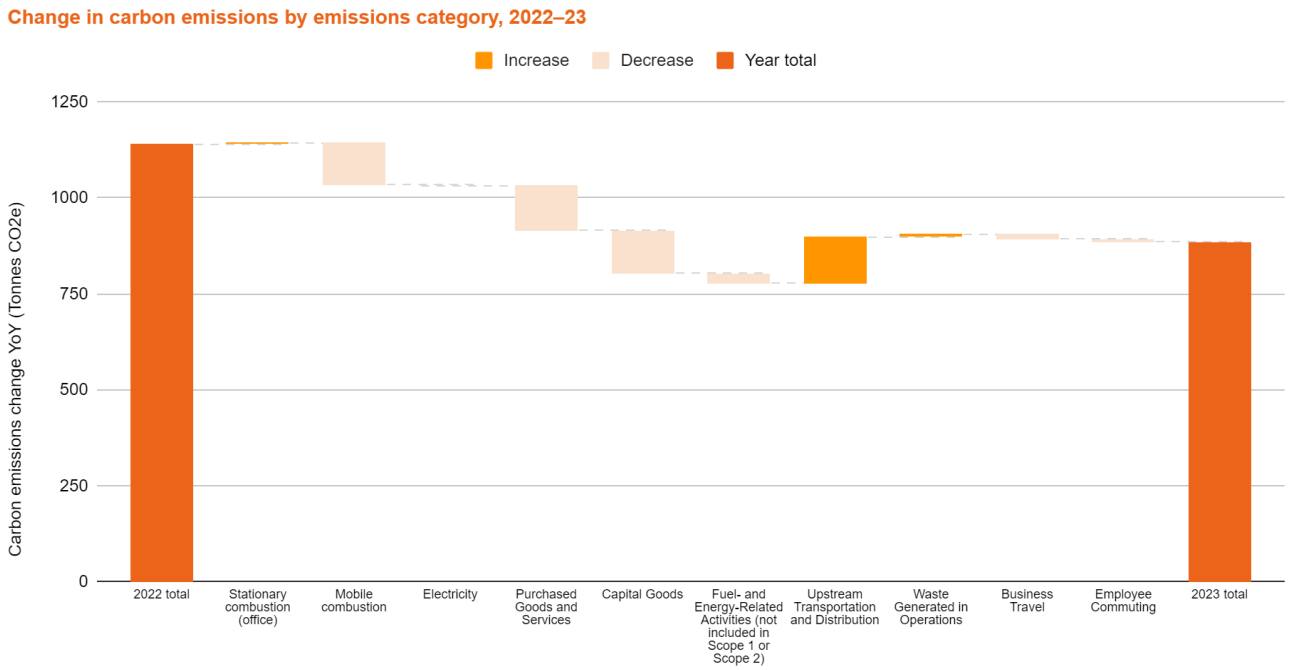

Fig 3. Change in carbon emissions between 2022 and 2023 by emissions category.

Fig 3 shows the changes in emissions between 2022 and 2023 for each emissions category. Mobile combustion and purchased goods both decrease significantly, as might be expected with a lower trading volume year. The emissions due to capital goods also significantly decreased. This was due to a major addition to the fleet of vehicles in 2022.

Notably, despite the lower trading volume year, upstream logistics emissions increased. There were no operational changes to the transportation of materials and machinery in 2023, so this measured increase is likely a result of a higher proportion of activity-based calculations.

Contributions by category

The contributions to total emissions are summarised in the table below.

	Category	Emissions (kg CO2e)
Scope 1		
	Stationary combustion	5,083
	Mobile combustion	339,001
Scope 2		
	Electricity	3,912
Scope 3		
	Purchased Goods and Services	191,037
	Capital Goods	30,600
	Fuel- and Energy-Related Activities (not included in Scope 1 or Scope 2)	85,360
	Upstream Transportation and Distribution	202,327
	Waste Generated in Operations	9,447
	Business Travel	13,001
	Employee Commuting	6,280
Total		**886,048**

The largest contributors to 2023 carbon emissions are shown in fig 4. As expected, the largest contributor is mobile combustion, which includes vehicle and site (machine) fuel. Approximately 80% of these emissions come from vehicle fuel, so this represents a significant target area for reducing carbon emissions.

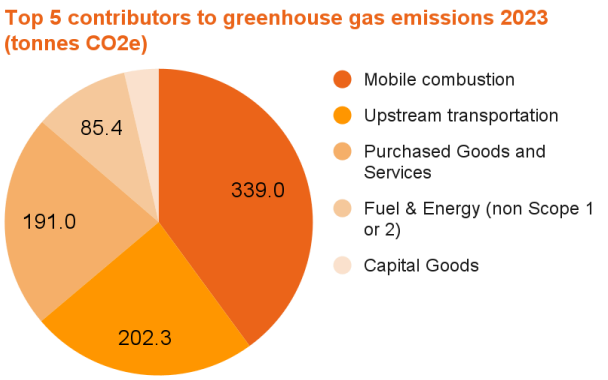

Fig 4. The top five contributing categories to carbon emissions in 2023.

Vehicle fuel represents the largest single contributor to emissions and is therefore the primary target for making reductions.

The second largest contribution is upstream transportation and distribution. Fig 5 shows the distribution of journey distances for the transportation of raw materials and machinery. It shows a typical distribution centred around approximately 25 miles, suggesting that materials and machinery suppliers are reasonably local to project sites.

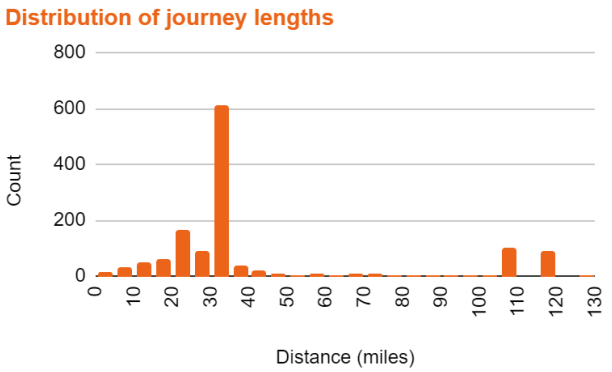

Fig 5. Distribution of journey lengths contributing to upstream transportation and distribution emissions.

There is a high frequency of journeys approximately 35 miles in distance. This represents the route between a project site in Oldham and Cummins Civil Engineering Ltd's sister company UK Aggregate and Plant. There are clear operational efficiencies of using a sister company for transport and distribution, but from an emissions point of view, it might be beneficial to source materials and machinery more locally to project sites where possible.

Fig 5 also shows routes over 100 miles long. While not as frequent as shorter routes, they contribute to approx 30% of transportation and distribution emissions (fig 6). Thus, these longer routes should be reevaluated, and should be replaced with shorter routes where possible.

Long transport and distribution routes should be reevaluated, with more local suppliers being preferred.

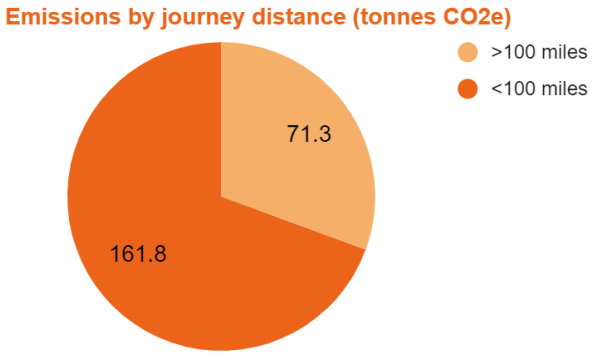

Fig 6. Total emissions of journeys above 100 miles versus under 100 miles.

The third largest contributor to total emissions is purchased goods and services, which is made up of the raw materials used on site. The emissions from the various raw materials purchased is shown in fig 7.

Raw materials from recycled sources should be used wherever possible.

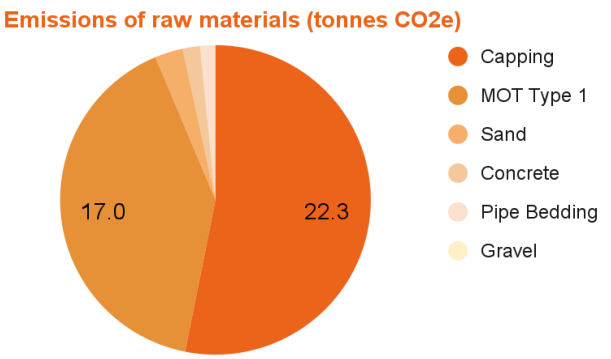

Fig 7. Emissions arising from the purchase of raw materials.

The largest contribution is from materials used for capping. Cummins already sources recycled capping materials, which will help to reduce carbon emissions. However, the second largest contribution, type 1 MOT, is not currently from a recycled source. Switching this and any other such materials to recycled sources would be an effective way to reduce carbon emissions.

Emissions reduction strategy

Van-share where possible. Vehicle emissions are the largest source of emissions for Cummins Civil Engineering Ltd. Wherever possible, its workforce should save on fuel by travelling to and from site together. Introducing more fuel-efficient vans to the fleet would also help reduce emissions.

Evaluate transportation and distribution routes over 100 miles in length. These routes aren't as frequent as shorter routes, but are very emissions intense, so have a large impact on overall carbon emissions.

Switch remaining primary-sourced raw materials to recycled sources. This is particularly important for type 1 MOT, which currently makes up a large portion of emissions.