Operational Carbon Footprint Report

Reporting company:	**M & J McGowans Limited**
Reporting company number:	**141718**
Facilities included:	**IDA, Industrial Estate, Poppintree, Dublin 11, Ireland**
Period covered:	**1st January 2022 – 31st December 2022**
Date report produced:	**April 2023**
CarbonQuota project no:	**MCG01_003**

Certified CARBON QUOTA CARBON MEASURED OPERATION

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About this report

We have taken summary data provided by yourselves, and validated it through a series of spot checks, using evidence such as utility bills where we have been able too. We also compared your results to that of the wider industry and established that they are in line with what we would expect. We therefore believe this report to be a fair representation of your carbon footprint.

But you still know your business better than we do, so please verify the data presented in this report carefully, in particular checking the data tables are correct and that the information we have gathered from you is a true and accurate representation of what happens in your organisation. If any of the data results are not in line with what you expect, please let us and know and we can investigate with you.

This report covers your operational carbon footprint, limited to the carbon emissions associated with the energy and processes that you directly control in your buildings and company vehicles. If you have provided details, it also includes the carbon footprint of your staff when they are commuting to work, on business travel, or working at home.

It does not cover the carbon footprint of activities that you do not directly control such as printing substrates, consumables, other goods and services you purchase, sub-contracting, capital goods, waste, external transport, or end-of-life of sold products.

Executive summary

Your Carbon Footprint overview.

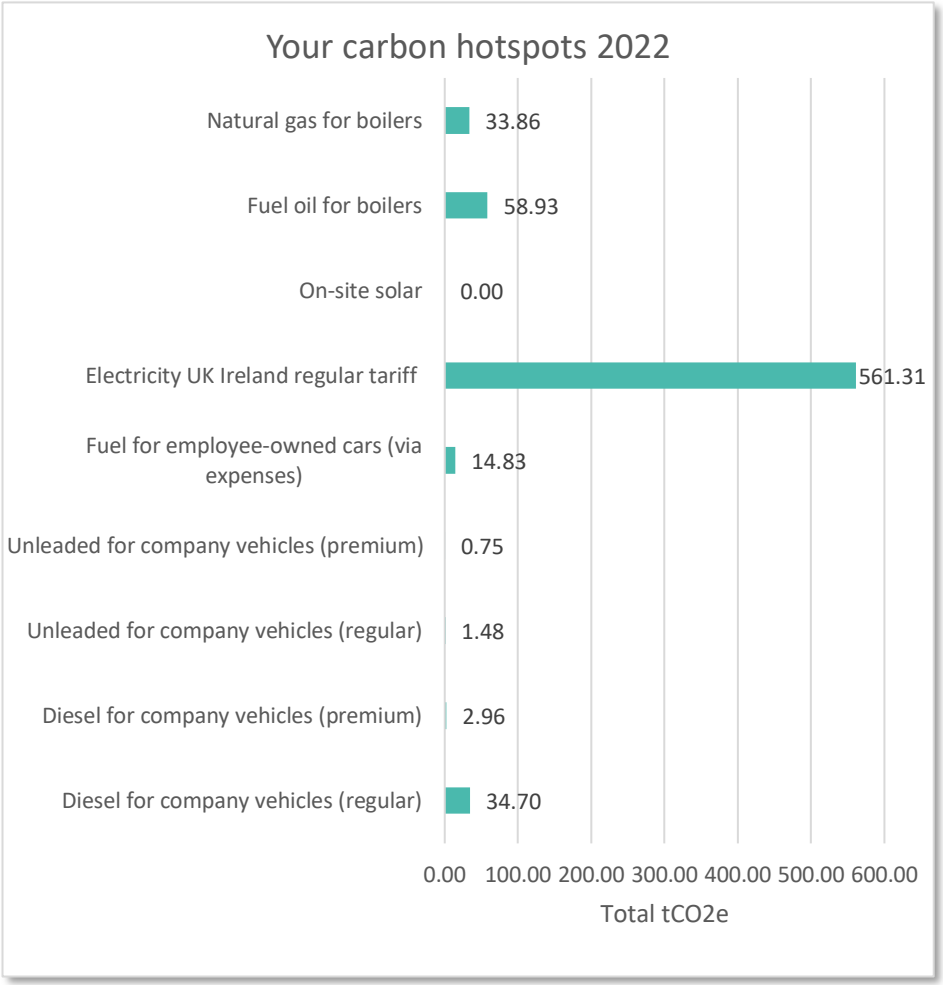
Summary

Your well-organised data allows us to see where the carbon hotspots of your business activities are.

These are as follows: the type of electricity used; fuel and gas for boilers; and diesel for company vehicles.

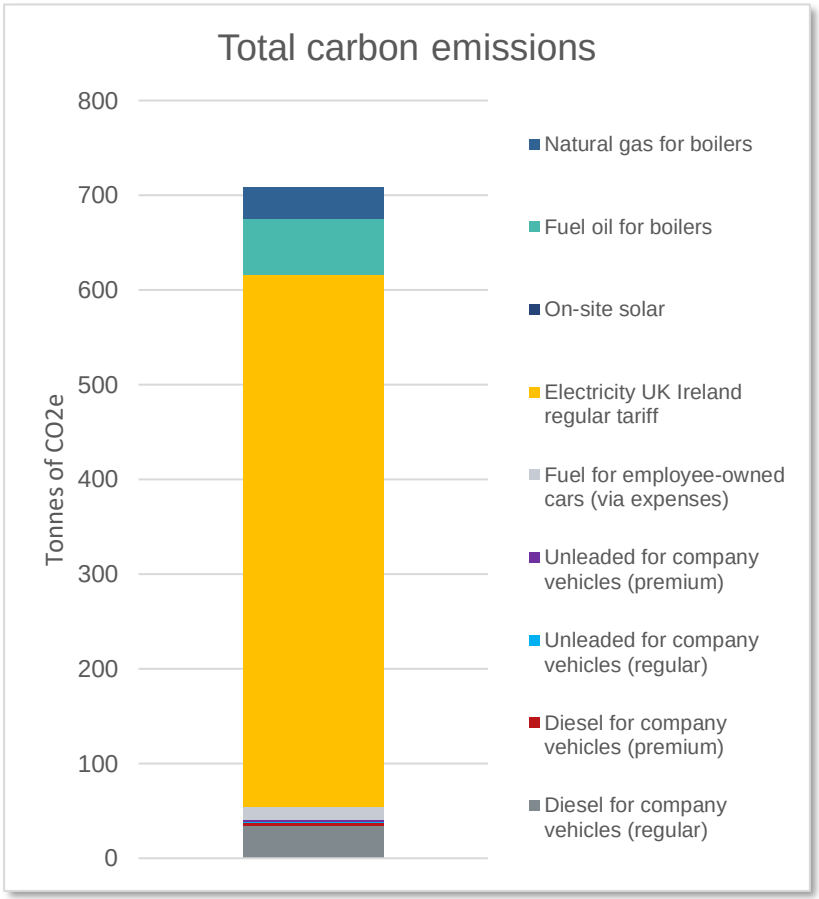
Three urgent things to do

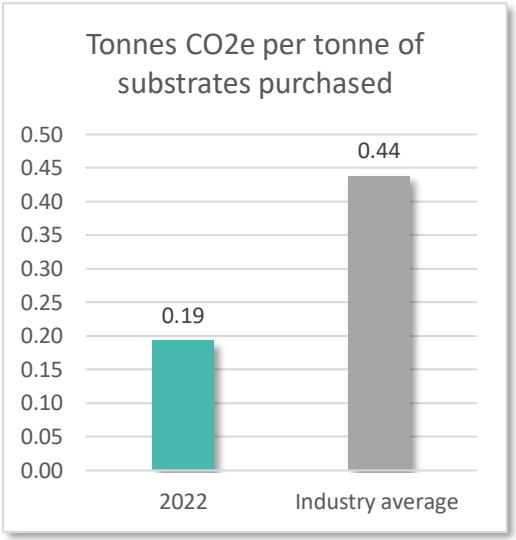
1. Switch to 100% renewable energy.
2. Plan to replace fuel oil and natural gas with electric alternatives.
3. Transition your car fleet to electric vehicles, maybe stepping via hybrid.

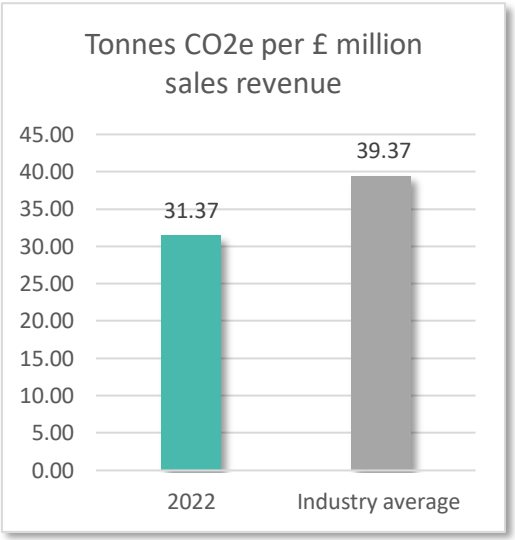


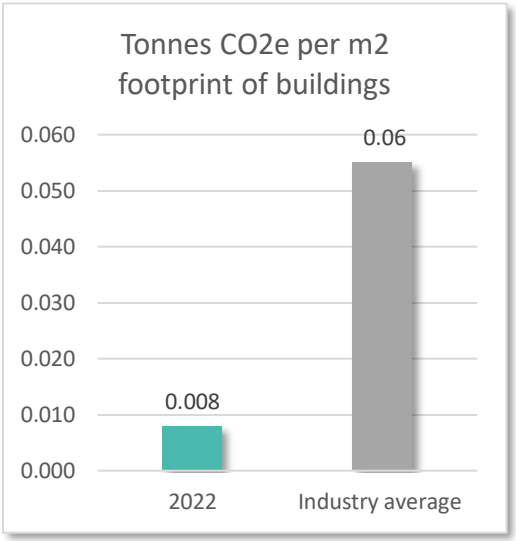
CO2e = carbon dioxide equivalent, the standard international measurement of carbon footprint.

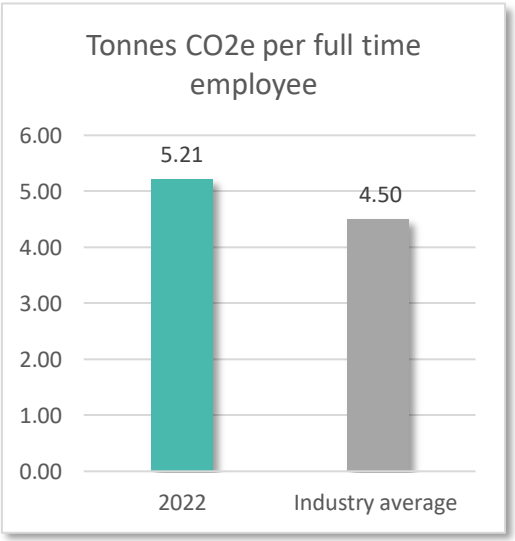
Your carbon emissions





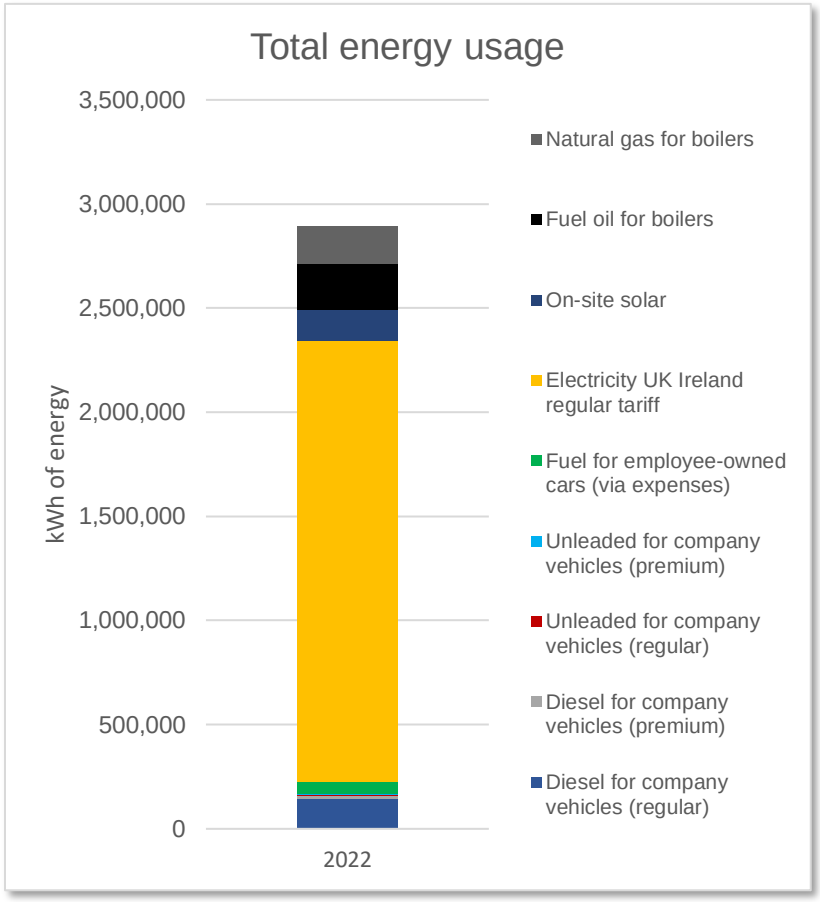


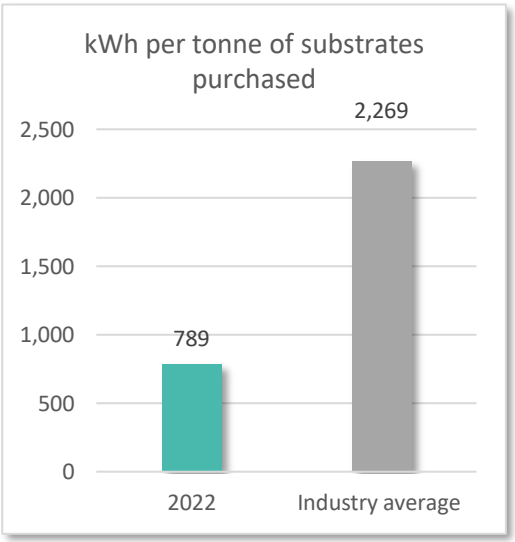


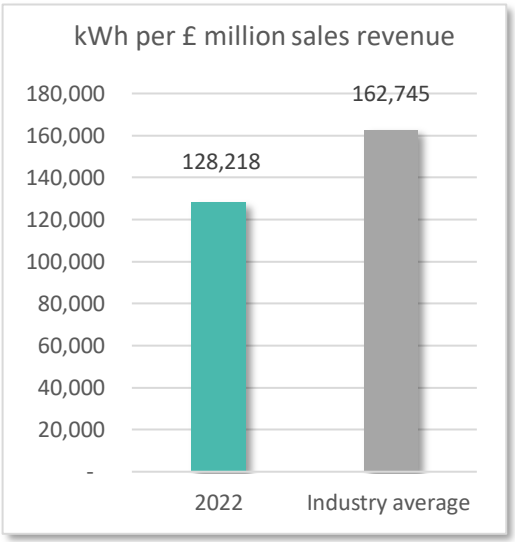


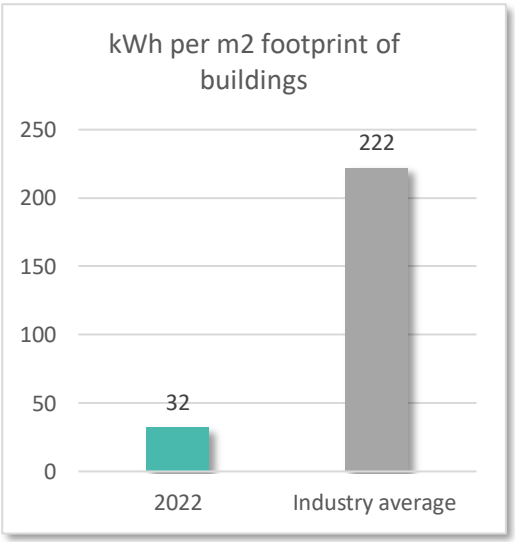
These intensity ratios are a great measure against which to assess improvement projects and investments. You should therefore set aggressive targets and highlight these results with your staff and customers.

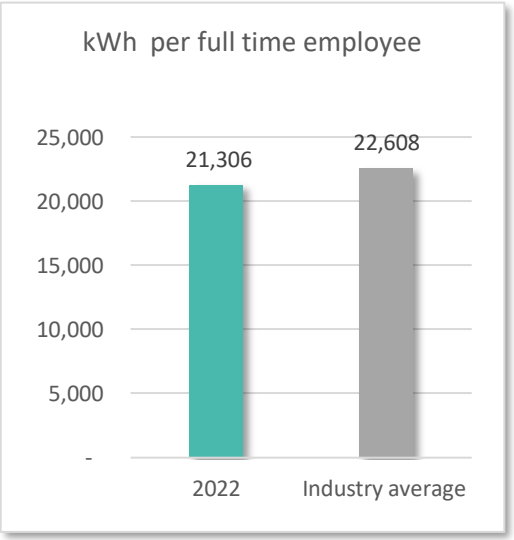
Your energy and carbon emissions











These intensity ratios are a great measure against which to assess improvement projects and investments. You should therefore set aggressive targets and highlight these results with your staff and customers.

Your carbon reduction strategy

What is your carbon reduction plan?

Your top priority should be to switch to a 100% renewable electricity contract. This is a quick win, as, generally speaking, your carbon footprint for this would become zero. Most manufacturers we work with have either switched to 100% renewable electricity, or are seriously considering doing so.

Nevertheless, even with a 100% renewable tariff, you are still using national electricity, which contains fossil fuels and still has a carbon footprint. Therefore, you should install as many solar panels as possible, depending on your building, as a long-term investment. This is the best way to reduce your total carbon footprint as much as possible. Some providers can finance this for you, so you don't have to make the upfront investment. This means that solar energy is always a cost-saving initiative that reduces your carbon footprint as well.

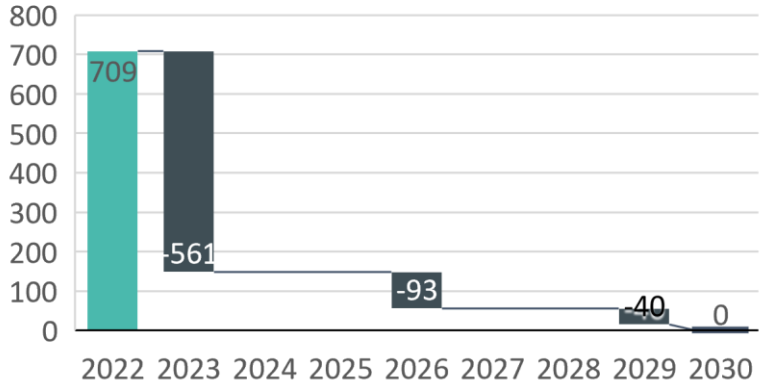
Moreover, one of the most challenging areas for most businesses to deal with is natural gas and fuel oil, which depends on the age and purpose of boilers. You should phase this out in the next few years by switching to electric, because of its lower carbon footprint. There are alternative processes and technologies such as heating people rather than space, and a good short-term fix is to switch to biofuels.

Additionally, using company vehicles and fuel for employee-owned cars is a significant contributor to your carbon footprint. Many manufacturers like you are planning to phase out diesel and petrol vehicles with electric. In some cases, it is more financially viable to step via hybrid vehicles. If a significant proportion of your driving is in cities, this is especially important as it will help reduce air pollution as well.

The next page outlines a number of initiatives that other organisations like yours have been implementing to reduce their energy usage and carbon footprint.

Reducing your carbon emissions requires consistent annual reductions. If you complete these objectives over the next 7 years you will see a consistent carbon reduction. You should be targeting an annual reduction of 101 tonnes of CO2e.

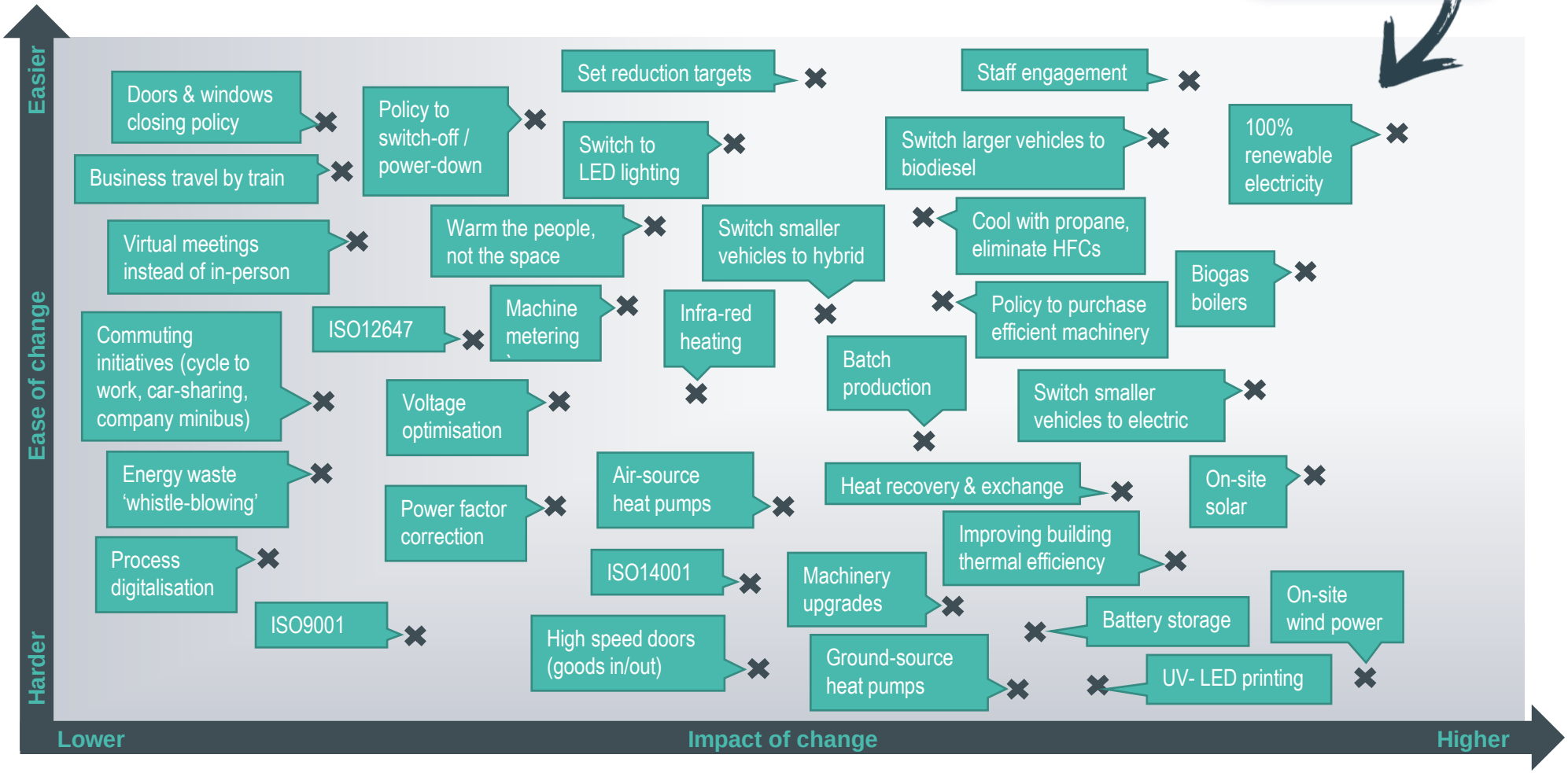
Reduction target	Possible carbon reduction - tCO2e
Switch to 100% renewable electricity	561
Replace fuel oil and natural gas	93
Transition car fleet to electric vehicles	40



Carbon reduction ideas

We have ranked the top thirty initiatives across the print industry that are improving energy efficiency and reducing carbon footprints. How do you compare?

The easiest and most impactful changes for the print sector are towards the top right corner.



Carbon Disclosure

When your customers ask.

It is becoming normal to disclose your carbon footprint to your customers. This can be in statutory reports, in responses to enquiries, and on public directories.

	2022
Scope 1	132.70
Scope 2 (market based)	561.31
Scope 2 (location based)	561.31
Scope 3	14.83
Total (market based)	708.84
Total (location based)	708.84

*Scope 3 only includes car travel by employee-owned vehicles.

External Assessment – what to say about this process:

We have appointed CarbonQuota to independently assess the accuracy, completeness, and consistency of energy use and carbon footprint calculations, within the operations under our direct control.

Being asked about your Scope 3 emissions, or need more help? Contact **info@carbonquota.co.uk**

CarbonQuota can help you with

Creating a reputable, in depth, and market leading carbon reduction plan that will help you to:

- Disclose to organisations such as
  - CDP
  - Ecovadis
  - SECR
- Enhance your ESG reporting;
- Ensure yearly carbon reductions;
- Help financially plan to achieve carbon reduction targets.

CDP DISCLOSURE INSIGHT ACTION

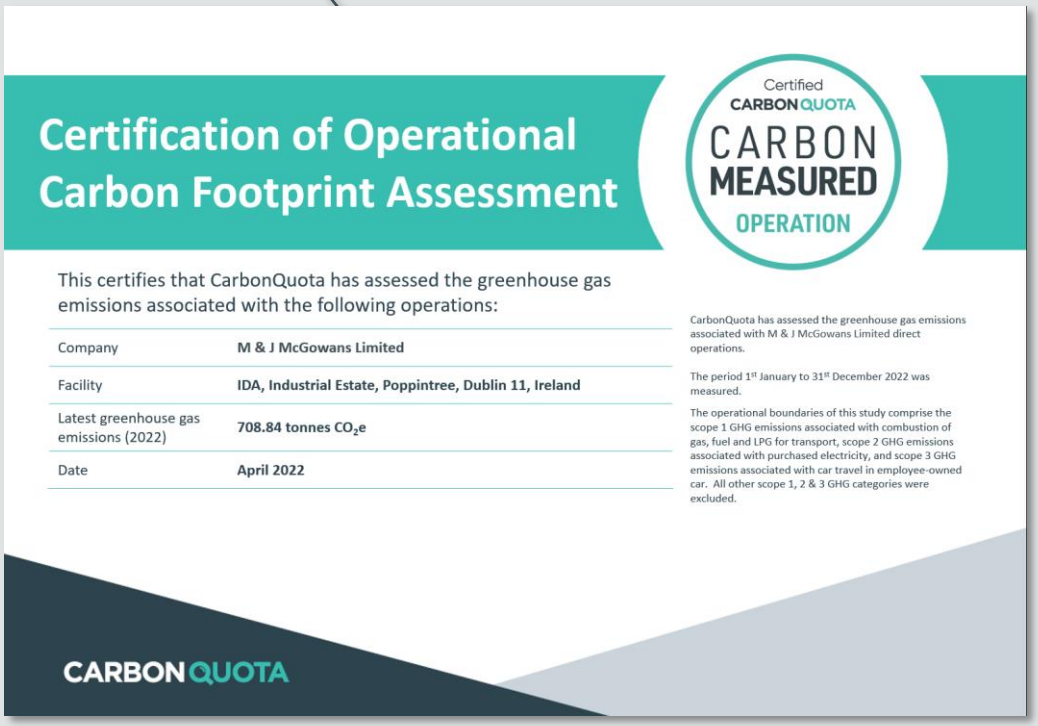
ecovadis

SECR

Marketing toolkit

Here is the material you can now use.

Shout about it on your website



Certification of Operational Carbon Footprint Assessment

Certified CARBON QUOTA CARBON MEASURED OPERATION

This certifies that CarbonQuota has assessed the greenhouse gas emissions associated with the following operations:

Company	M & J McGowans Limited
Facility	IDA, Industrial Estate, Poppintree, Dublin 11, Ireland
Latest greenhouse gas emissions (2022)	708.84 tonnes CO_2e
Date	April 2022

CarbonQuota has assessed the greenhouse gas emissions associated with M & J McGowans Limited direct operations.

The period 1st January to 31st December 2022 was measured.

The operational boundaries of this study comprise the scope 1 GHG emissions associated with combustion of gas, fuel and LPG for transport, scope 2 GHG emissions associated with purchased electricity, and scope 3 GHG emissions associated with car travel in employee-owned car. All other scope 1, 2 & 3 GHG categories were excluded.

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What to say

As part of our commitment to limit our carbon footprint, we have measured our operations' direct CO2e emissions for the year 2022 (certified: CarbonQuota 2023).

Input table

Activity	Scope	Unit	2022
Revenue		0	€ 22,599,117
FTE			136
Building area		m2	89500
Substrate purchased		tonnes	3674.32
Diesel purchased for company vehicles	1	litre	13,631
Diesel premium purchased for company vehicles	1	litre	1,164
Unleaded for company vehicles	1	litre	685
Unleaded premium for company vehicles	1	litre	346
Diesel distance for employee-owned cars (via expenses)	3	km	88,070
Electricity UK Ireland regular tariff	2	kWh	2,114,956
On-sit solar - no FIT to generate electricity	1	kWh	152,933
Fuel Oil for boilers	1	litre	18,513
Natural Gas for boilers	1	kWh	184,162

Results table – carbon footprint

Activity	Scope	Unit	2022
Diesel purchased for company vehicles	1	tCO2e	34.70
Diesel premium purchased for company vehicles	1	tCO2e	2.96
Unleaded for company vehicles	1	tCO2e	1.48
Unleaded premium for company vehicles	1	tCO2e	0.75
Diesel distance for employee-owned cars (via expenses)	3	tCO2e	14.83
Electricity UK Ireland regular tariff	2	tCO2e	561.31
On-sit solar - no FIT to generate electricity	1	tCO2e	0.00
Fuel Oil for boilers	1	tCO2e	58.93
Natural Gas for boilers	1	tCO2e	33.86
Total (Location-Based)			**708.84**
Total (Market-Based)			**708.84**

Results table – energy usage

Activity	Scope	Unit	2022
Diesel purchased for company vehicles	1	kWh	144,215.13
Diesel premium purchased for company vehicles	1	kWh	12,319.14
Unleaded for company vehicles	1	kWh	6,478.02
Unleaded premium for company vehicles	1	kWh	3,271.74
Diesel distance for employee-owned cars (via expenses)	3	kWh	59,165.03
Electricity UK Ireland regular tariff	2	kWh	2,114,956.00
On-sit solar - no FIT to generate electricity	1	kWh	152,933.41
Fuel Oil for boilers	1	kWh	220,119.57
Natural Gas for boilers	1	kWh	184,162.00
Total			**2,897,620.04**

Results tables – intensity ratios

Carbon intensity ratios (yours are location-based, industry average is market-based*)

Activity	2022	Industry average
Tonnes CO2e per tonne of substrates purchased	0.19	0.44
Tonnes CO2e per £ million sales revenue	31.37	39.37
Tonnes CO2e per m^2 footprint of buildings	0.008	0.06
Tonnes CO2e per full time employee	5.21	4.50

Energy intensity ratios

Activity	2022	Industry average
kWh per tonne of substrates purchased	788.61	2,269.01
kWh per £ million sales revenue	128,218	162,745.40
kWh per m^2 footprint of buildings	32.38	222.03
kWh per full time employee	21,306	22,608.16

*Carbon intensity ratio industry averages are based on a market-based assessment, where the electricity for organisations that pay a premium for 100% renewable tariff are reported as zero carbon footprint. Industry averages are sourced from CarbonQuota's database of 'Printing' companies for 2021.

Appendix – carbon footprinting approach

Operational and organisational boundaries

The operational boundaries of this study comprise the scope 1 GHG emissions associated with combustion of gas, fuel and LPG for transport, scope 2 GHG emissions associated with purchased electricity, and scope 3 GHG emissions associated with car travel in employee-owned car. All other scope 1, 2 & 3 GHG categories were excluded.

The organisational boundaries of this study comprise the facilities noted on the cover sheet. The consolidation of facility level GHG emissions was undertaken using the operational control approach.

There are no GHG removals and reservoirs within operational and organisational boundaries.

Methodology

In carrying out carbon footprint calculations and preparing this document, CarbonQuota has followed the general principles of the Greenhouse Gas Protocol (Corporate Standard), with further guidance from the Greenhouse Gas Protocol (Corporate Value Chain Accounting and Reporting Standard).

Within the organisational boundaries, a consistent approach was used to quantify and to document GHG emissions and removals by completing, as applicable, the following steps: (1) Identification of GHG sources and sinks was carried out using CarbonQuota's industry expertise and previous experience, and guidance from international publications such as the GHG Protocol; (2) The selected quantification method is based on the multiplication of GHG activity data by GHG emission or removal factors, which was thought to be the most appropriate approach for this study; (3) The GHG activity data were collected from activity data used consistent with the quantification methods; (4) Selection or development of GHG emission or removal factors - the most appropriate and current GHG emission factors have been selected from the European Environment Agency's Dataset up to 2020, IEA Emissions Factors 2021, Defra/DECC 2021 greenhouse gas conversion factor repository (previous years databases used for previous years reporting year); (5) the calculations of the GHG emissions and removals have been carried out by multiplying the GHG activity data by GHG emission or removal factors. These calculations have been undertaken in a Microsoft Excel model.

The following underlying primary data were used to provide summarised data to CarbonQuota for calculating the carbon footprint and energy footprint: utility company bills; supplier invoices; expense claims.

All IPCC 2007 GHGs were considered in the calculation of this organisational carbon footprint, which were converted to carbon dioxide equivalents (CO2e) using the 2007 IPCC Global Warming Potentials (GWPs). Whilst more recent IPCC GWPs are available, the latest version of the main source of secondary data used in this study (i.e. EEA, IEA, Defra) currently uses IPCC 2007 GWPs.

The calculations were assured on behalf of CarbonQuota by Dr Matt Fishwick who found no evidence to suggest that they were not materially correct and were not a fair representation of the GHG data and information.

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