APM Cleaning and Repair Ltd

Carbon Assessment Report 2021

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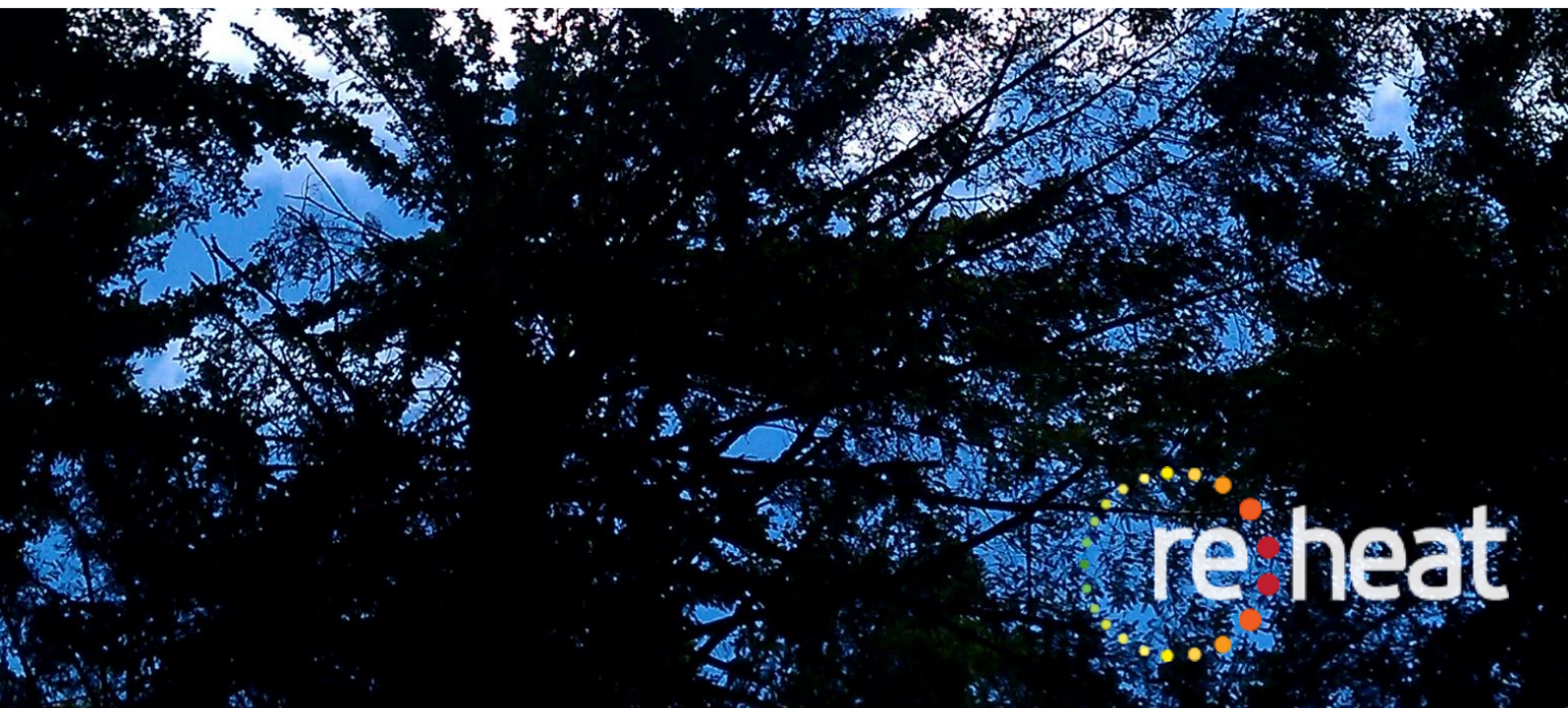

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Introduction

Disclosing an organisation's emissions is key to understanding the impacts they are having on living and non-living natural systems. Greenhouse gas emissions (GHG) are a major contributor to climate change, and with the Intergovernmental Panel on Climate Change (IPCC) now reporting a 'Code red for humanity'[1], organisations of all sizes now need to take responsibility for their emissions, and work towards reducing them in the drive towards the government's target of net-zero by 2050.

By identifying and quantifying carbon impact now and setting a baseline year with emissions reduction targets, businesses will be prepared as they become progressively more expected to disclose emissions, as well as bolster their green credentials in an increasingly environmentally aware market.

This report follows the following disclosures of the Global Sustainability Standards Board (GSSB) GRI 305 Standards; Disclosure 305-1: Direct (Scope 1) GHG Emissions; Disclosure 305-2; Energy indirect (Scope 2) GHG Emissions; Disclosure 305-4: GHG emissions intensity, completed by re:heat (Renewable Technologies) Limited, for AUS. Emissions have been calculated based on the data provided by the organisation, and any assumptions made are stated. **The overarching purpose of the report is to introduce the organisation to carbon calculations and reporting, by investigating a baseline year, which will enable future reduction plans (Disclosure 305-5).**

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Organisation Description

APM Cleaning Services Ltd is an approachable and trustworthy commercial cleaning and facilities management business based in the north of England.

Methodology

The reporting method is based on the Global Sustainability Standards Board (GSSB) GRI 305 Standards. This approach represents global best practise for sustainability reporting. The Standard itself is built on the requirements of the Greenhouse Gas Protocol (GHGP) Corporate Accounting and Reporting Standard, and the Greenhouse Gas Protocol Corporate Value Chain for Scope 3 Emissions (where applicable). These two standards are part of the GHGP, established by the World Resources Institute (WRI) and the World Business Council on Sustainable Development (WBCSD).

There are seven GHGs that have been agreed internationally, via the Kyoto Protocol, and are listed below:

- Carbon Dioxide (CO_2)
- Methane (CH_4)
- Nitrous Oxide (N_2O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur Hexafluoride (SF_6)
- Nitrogen Trifluoride (NF_3)

[1] https://news.un.org/en/story/2021/08/1097362

Each of these gases have been considered within this report, in the form of CO_2e, based on the specific activity of the organisation. For limitations and uncertainties, please see Annex.

Scopes

The GHGP has formed a grouping method for the activities within an organisation that have associated GHG emissions, called 'Scope'. The standard published by the International Organization for Standardization; 'ISO 14064', represents these categories as below:

Scope 1: Direct GHG emissions (Disclosure 305-1)

GHG emissions from sources owned or controlled by an organisation.

Direct emissions a company are responsible for falls within Scope 1. These commonly originate from the following sources:

- Combustion of fuels:
  - Heating, cooling, or electricity generation.
  - Organisation owned/controlled vehicles used to transport people or materials.
- Physical or chemical processing
- Refrigeration and air conditioning units (HFC emissions)

Scope 2: Energy indirect GHG emissions (Disclosure 305-2)

GHG emissions that result from the generation of purchased or acquired electricity, heating, cooling, and steam consumed by an organisation.

Two sub-categories lie within Scope 2. These are location-based and market-based values. The definitions are as follows:

Location-based: reflects the average emissions intensity of the grid, based on the location at which it was used.

Market-based: this approach looks at contractual instruments, such as green tariffs, renewable certificates, or PPAs, which is proof of a reduced emissions of purchased electricity.

The location-based approach has been selected for this report.

Scope 3: Other indirect GHG emissions

Indirect GHG emissions not included in energy indirect (Scope 2); GHG emissions that occur outside of the organisation, including both upstream and downstream emissions.

Upstream and Downstream categories and activities (for Scope 3) are defined in the GHGP's Corporate Value Chain Standard. Reporting on Scope 3 emissions is not covered in this report; however, it is typical that most of an organisation's emissions lie within the Scope 3 category. More on Scope 3 emissions can be found in the Annex of this report.

Baseline year

A baseline year is fundamental to setting targets for emission reductions. 2021 has been selected as the baseline year for the organisation, as this is the previous full calendar year for which data is available. A baseline year can be adjusted justifiably at any point to reflect changes within an organisation, for example

company expansion, as long as context behind the recalculation is disclosed. This may be favoured, due to the disruption caused by COVID-19, including the introduction (and continuation) of working from home.

Intensity metrics (Disclosure 305-4)

Tracking environmental performance can be achieved through intensity metrics. These are organisation specific metrics which are expressed in GHG emissions per unit of activity and will aid in framing the organisations yearly emissions and enable comparison between departments and other organisations. Examples include (but are not limited to):

- Total kg CO_2e / FTE (full time equivalent)
- Scope 2 kg CO_2e / m^2 (office floor space)
- Scope 1 kg CO_2e / kg of final product

Selecting the most appropriate functional unit (denominator – eg. FTE) is key in setting realistic targets for reducing your organisations emissions.

APM Cleaning and Repair's GHG Emissions

In this section, we aim to provide you (the organisation) with transparency around your Scope 1, 2 emissions.

Scope 1

The organisation has company owned vehicles that produce emissions from fuel, and we have been provided with fuel cost total (£1800pcm). It should be noted that the organisation does use natural gas, hence amount should be investigated in future and noted in Scope 1 emissions.

Activity description	Conversion factor	Conversion factor units	Total kg CO_2e	Total tonne CO_2e
£1800pcm = £21,600pa. Hence, this equates to 14,693.88 litres of diesel fuel (assumed £1.47/litre). Assumed average biofuel blend.	2.51233	Kg CO_2e/litre	36,914.49	36.91

Only company owned vehicles contribute towards the organisations Scope 1 emissions. **Hence, the total Scope 1 emissions, as per the data provided by the organisation and assumptions made, were 36.91 tonne CO_2e.**

Scope 2

Emissions associated with the generation of purchased energy, in the form of electricity, heating, or cooling, falls within this scope. The organisation purchases electricity, as below:

Activity description	Conversion factor	Conversion factor units	Total kg CO_2e	Total tonne of CO_2e
7692kWh of purchased electricity. UK grid (2021).	0.21233	Kg CO_2e/kWh	1,633.24	1.63

The organisation did not purchase any other means of heating or cooling in the reporting year; **hence the total Scope 2 emissions were 1.63 tonne of CO_2e.**

Total emissions

The total tonne of CO_2e the organisation is responsible for is below. The total will be sequentially used to determine the intensity ratios.

Scope 1	36.91
Scope 2	1.63
Scope 3	-
Total	38.54

The share of emissions can be evaluated to determine where within an organisation most emissions lie. 96% of all emissions are within Scope 1 (*figure 1*).

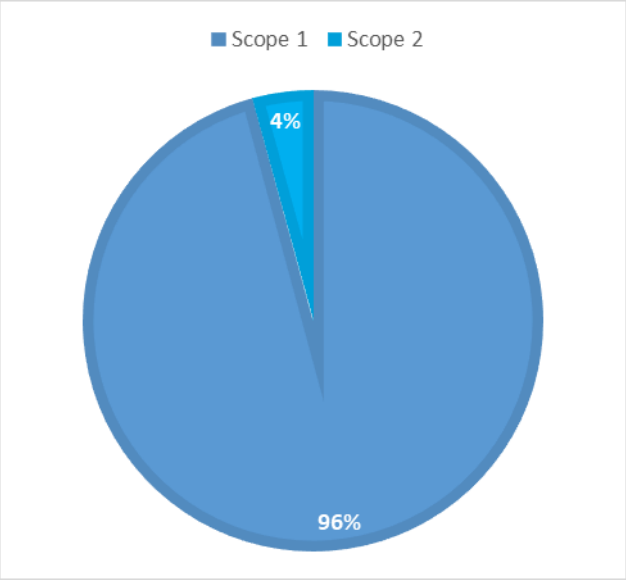

Figure 1: Share of total CO_2e emissions

Intensity metrics

The organisation-specific metrics selected for the organisation are turnover and FTE. The intensity metric with its associated units can be used as a measure to compare between organisations.

Metric	Value	Intensity metric	Intensity metric units
Turnover, £	591,111	0.0652	Kg CO_2e / £
Full time equivalent	60	0.6423	Tonne CO_2e / FTE

Organisation specific emissions reductions advice

In this section, we will provide you (the organisation) with specific measures you can take to reduce your current emissions. It should be noted that this guidance does not specifically follow Disclosure 305-5 of the standard used for this report and is only additional information that can be used to help reduce current organisations emissions.

- As most of APM's emissions lie within Scope 1 and are attributed to travel, taking the shortest, most efficient route to destinations will reduce overall emissions and Scope 1 share.
- Implementing electric/hybrid vans or other company owned vehicles will reduce emissions.
- Purchasing green electricity tariffs which pledge that a percentage of delivered electricity is generated through renewable means, will reduce Scope 2 emissions.
- Reducing Scope 2 can be achieved by implementing renewable technologies for electricity generation on site, such as solar PV.
- Optimizing heating control within a building, by consumer means such as closing windows and adjusting thermostats accordingly, as well as implementing modern heating emitters with smart meters will reduce overall reliance on gas/electric heating and in turn reduce Scope 1 emissions.
- Low power LED lighting.
- Lighting sensors to ensure lighting is used only at the point of need.

- Educating employees on carbon foot printing and the importance of reducing carbon emissions.

Next Steps

- Follow the remaining disclosures within the GRI 305: Emissions Standard.
- Investigating Scope 3 emissions and preparing a Scope 3 inventory (Disclosure 305-3). Measuring emissions in supply chains not only strengthens an organisation green credentials, attracting more customers, but allows for better supply chain management through exploring low carbon opportunities and risk management in an increasingly environmentally conscious economy.
- Setting GHG reduction targets (Disclosure 305-5). These targets can be used in combination with Scopes 1, 2 and 3, such that a comprehensive reduction plan can be created, and actions taken to reduce. Reduction initiatives include but are not limited to conversion and retrofitting of equipment, fuel switching and changes in behavior. Offsetting should be reported separately (as per the standard used).
- Investigate best suitable operational boundaries specific to the organisation, for better accuracy of total responsible emissions.
- Internal and site-specific data can be used to reduce uncertainty inherent from the assumptions made. Sources of data should also be stated within each activity.

Annex – Further Information

Glossary of terms

GWP	Global Warming Potential	Values that are used to convert GHG emissions for non-CO_2 gases into a standard unit: CO_2 equivalent (CO_2e).
GHGs	Greenhouse Gases	Gases that absorb infrared radiation and contribute to the greenhouse effect.
CO_2e	Carbon Dioxide Equivalent	Measurement used to compare emissions with associated greenhouse gas potentials.
IPCC AR#	Intergovernmental Panel on Climate Change Assessment Report #	A series of reports published which outlines and assesses the science related to climate change. This includes Global Warming Potential values which change as science advances.
GHGP	Greenhouse Gas Protocol	An international accounting tool to quantify and oversee greenhouse gas emissions.

Limitations and uncertainties

The Standard used contain the following disclosures which are not developed on in this report; Disclosure 305-3 Other indirect (Scope 3) GHG emissions; Disclosure 305-5 Reduction of GHG emissions; Disclosure 305-6 Emissions of ozone-depleting substances; Disclosure 305-7 Nitrogen oxides (NOx), sulphur oxides (SOx) and other significant air emissions.

Accurately measuring emissions is fundamental to promoting an organisations green credentials. As explained in 4.0, conversion factors that are used in this report are based on GWP values of various GHGs (IPCCs AR4). The GWP of each gas has varied over time as scientific research progresses, hence using GWP values from the most recent IPCC Assessment Report is important.

Conversion factors also come with their own uncertainties that are outlined in the *Government's factors 2021: methodology*. As an when more comprehensive data becomes available, the conversion factors have (and will continue) to change each year and these alterations can be found on the government website (eg. *Conversion factors 2021: major changes)*. The changes can be based on more thorough research into the activity itself, or as emissions associated with that factor materially change. For example, as the grid decarbonises as the UK switches to renewable sources of electricity generation, the CO_2e associated with the kWh of electricity will reduce.

As researchers gain a better understanding of the CO_2e associated with specific vehicles or transport, such as shipping tankers and trains, the conversion factor will also change, but this is based on the accuracy, rather than deliberate physical reduction of associated emissions. It should be noted that the gradual predicted reduction of emissions for an associated conversion factor (in this instance, grid decarbonisation), should not be used within an organisation's individual targets for their emissions reduction over time, as this falsely represents direct action taken. This also highlights the importance of utilising conversion factors corresponding to the year of that activity.

GWP Potential and Example Calculation

Each gas can trap light on a molecular scale (greenhouse effect). The amount of energy it can absorb and how long the gas remains in the atmosphere is considered when calculating Global Warming Potential (GWP) of each of these gases. A baseline of 1 GWP is used for CO_2 for comparison. For example, CH_4 has a GWP of 28 based on the IPCC's Fifth Assessment Report (AR5), which indicates that methane is a 28x more potent GHG than carbon dioxide (over a 100-year time horizon). Historically, the GWP of these gases have not changed dramatically, however as science progresses, they have been reassessed to reflect more accurately their ability to trap energy and/or persist in the atmosphere.

The GWP of each gas is used in the calculation of Carbon Dioxide Equivalent (kg CO_2e), which is universal unit of measurement (conversion factor) to indicate GWP of GHGs. CO_2e is the sum of all the 7 gases related to that activity. The UK Government GHG Conversion Factors, based on the IPCCs AR4, are freely available and have been used. An example calculation is below:

1 Employee business travelled by a company owned car using 20 litres of average biofuel blend petrol.

Calculation:

The UK Government Conversion Factors states that Petrol (average biofuel blend) has a kg CO_2e of 2.19 per litre of fuel used. As 20 litres is used, the calculation is as follows:

2.19 x 20 = 43.8kg CO_2e

Hence, this activity (which in this instance is part of Scope 1 as the vehicle is company owned) has contributed 43.8kg of CO_2e to the organisation's total emissions.

NOTE: If only kg CO_2 was used, which is also provided in the Governments Conversion Factors, the mass of emissions would be 43.6kg (a difference of 0.2kg). This 0.2kg equates to the remaining of the seven gases mentioned previously that are released with burning this type of fuel. As mentioned, the GWP of each gas varies significantly, hence using CO_2e – a combination of all the gases – is considerably more accurate, and widely recognised in carbon accounting.