2021-22
Greenhouse Gas Assessment

In partnership with

Revision B
11/07/2023

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Revisions		
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A	29/06/2023	First issue
B	11/07/2023	Final version

Contents

1 CARBON ASSESSMENT SUMMARY AND SCOPE

The following table displays Bland Group's carbon assessment scope, summary, and CO_{2e} emissions.

Table 1 GHG Emissions Summary for the Bland Group

Organization			Bland Group		
Reported by			Griffon Hoverwork		
Reporting Period			1st April 2021 to 31st March 2022		
Scope	**Emission Source Category**		**Required or recommended**	**Included**	**tCO_2e**
1	Direct emissions from owned, leased or directly controlled stationary sources that use fossil fuels or emit fugitive gases		Required	✓	107.72
	Direct emissions from owned, leased or directly controlled mobile sources		Required	✓	2,057.40
2	Emissions from the generation of purchased electricity, heat, steam or cooling		Required	✓	1081.02
3 (up-stream)	Purchased goods and services (ex. water and consumable supplies)		Recommended	✓	2.91
	Capital Goods	Printers, Laptops, Computers, etc.	Recommended	✓	21.17
	Fuel and energy related activities	Upstream emissions from purchased electricity	Recommended	✓	132.03
		Upstream emissions from company owned vehicles	Recommended	✓	500.64
		Transmission and distribution (T&D) losses	Required	✓	42.89
	Upstream transportation and distribution	Third-party transportation and inbound production-related goods	Recommended	✓	9.13
	Waste generated in operations	Wastewater	Recommended	✓	0.82
		Other waste	Required	✓	47.78
	Business Travel	All transport by air, public transport, rented/leased vehicle taxi	Required	✓	74.88
		Emissions form hotel stays	Recommended	✓	1.86
	Employee Commuting	Employee transport between home and work	Recommended	✓	276.06
	Homeworking	Emissions arising from employee homeworking and remote work	Required	✓	4.26
3 (down-stream)	Downstream Transportation and Distribution	Third-party transportation and storage of sold products	Recommended	✓	72.73
Total					**4,433.28**

2 CONTEXT

2.1 Why measure greenhouse gas emissions?

Greenhouse gas (GHG) emissions assessments quantify the total GHGs produced directly and indirectly from a business or organisation's activities. Also known as a “carbon footprint” a GHG assessment is an essential tool in the process of monitoring and reducing an organisation's climate change impact as it allows reduction targets to be set and action plans formulated. GHG assessment results can also allow organisations to be transparent about their climate change impacts through reporting of GHG emissions to customers, shareholders, employees, and other stakeholders. Regular assessments will allow the organizations within the Bland Group to track their progress in achieving carbon emission reductions over time and provide evidence to support green claims in external marketing initiatives such as product labelling or Corporate Social Responsibility (CSR) reporting.

2.2 The Kyoto Protocol GHGs

GHG assessments quantify the Kyoto Protocol greenhouse gases, as applicable, and are measured in terms of tonnes of carbon dioxide (CO2) equivalence, or tCO2e, where equivalence means having the same warming effect as CO2 over 100 years. The six Kyoto Protocol gas groups are CO2, methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), sulphur hexafluoride (SF6) and perfluorocarbons (PFCs). The global warming potential (GWP) of each is presented in Table 2.

Table 2 Kyoto Protocol GHGs and their global warming potential (GWP)

Greenhouse gas/group	Chemical Formula	GWP (CO_2e)
Carbon dioxide	CO_2	1
Methane	CH_4	25
Nitrous oxide	N_2O	298
Hydrofluorocarbons	HFCs	Depends on specific gas
Sulphur hexafluoride	SF_6	22800
Perfluorocarbons	PFCs	Depends on specific gas

2.3 Calculating emissions

GHG assessments use business-supplied activity data (e.g., kWh of electricity or litres of fuel used), from which GHG emissions estimates are quantified by applying the most relevant conversion factor(s) from published reputable sources. A conversion factor is a representative value that relates the quantity of a pollutant released to the atmosphere with an activity associated with the release of that pollutant. Conversion factors are typically available from government publications, independent agencies, and scientific research journals; however, the quality and accuracy of such factors can vary significantly. Factors can differ depending on the research body and/or underlying methodologies applied. It is therefore good practice to apply emission factors only from reputable sources. This assessment uses the latest conversion factors provided by the UK’s Department for Business, Energy & Industrial Strategy (Department for Business, Energy & Industrial Strategy, n.d.)

2.4 Reporting standards

GHG assessments are generally carried out in accordance with one of two recognised standards for accounting and reporting corporate GHG emissions. The best-known is the “Greenhouse Gas Protocol Corporate Accounting and Reporting Standard” (GHG Protocol, 2011). The International Organization for Standardization (ISO) also produced the (ISO14064, 2018) specification series, detailing specification and guidance for the organisation and project levels, as well as for the validation and verification of emissions.

2.5 Emissions scopes

The aforementioned standards break down emission sources into three distinct categories, known as ‘scopes’.

2.5.1 Scope 1

Scope 1 accounts for direct emissions released from sources that are owned or controlled by the reporting company (such as corporate car fleets, power generation facilities, fuel combustion for heating and power, refrigerant gas losses and where applicable process emissions).

2.5.2 Scope 2

Scope 2 accounts for indirect emissions associated with the off-site generation of purchased electricity, heat, steam, and cooling. The GHG protocol states that corporations should report energy consumption in 2 ways, location-based and market-based (Greenhouse Gas Protocol, n.d.). The energy emissions are calculated based on Conversion factors from the UK government and changes are made if energy from renewable sources is used. (Greenhouse Gas Protocol, n.d.)

2.5.3 Scope 3

Scope 3 includes all other indirect emissions sources not accounted for within scopes 1 and 2. This depends on the company's activities but might include business travel, staff commuting, water consumption, waste disposal, or outsourced activities such as deliveries. The GHG Protocol groups scope 3 emissions into 15 distinct categories to provide companies with a framework to organise, understand and report their emissions from wider upstream and downstream impacts (Greenhouse Gas Protocol, n.d.). The GHG Protocol describes the quantification of scope 1 and 2 as mandatory, whereas scope 3 emissions are optional (Greenhouse Gas Protocol, n.d.). Depending on the nature and remit of an organisation, scope 3 activities can contribute a significant proportion of overall emissions. To gain a proper understanding of an organisation's GHG emissions it is thus advisable to include all relevant sources. For the Bland Group we have agreed to include the scope 3 emissions as they are comparable to scope 1 and scope 2 emissions. The scope 3 activities agreed with the Bland Group are included in this assessment and are listed in Chapter 2.2, Table 2.

2.6 Measuring climate impacts from aviation

The conversion factors for air travel only consider the direct CO2, CH4 and N2O emissions only. However, aviation has other climate change effects including, but not limited to, soot particles and aviation-induced clouds. Currently, there is no suitable climate metric to express the relationship between emissions and climate warming effects from aviation, but this is an active area of research. Nonetheless, aviation imposes other effects on the climate which are greater than that implied from simply considering its CO2 emissions alone. The application of a 'multiplier' to take account of non-CO2 effects is a possible way of illustratively taking account of the full climate impact of aviation. A multiplier of 1.9 is recommended by UK's Department for Business, Energy & Industrial Strategy (BEIS) as a central estimate, based on the best available scientific evidence (Department for Business, Energy & Industrial Strategy, n.d.). Along with this BEIS also recommends having an 8% uplift to take into consideration the non-direct flight paths, time spent on ground, etc. The conversion factors used for this assessment consider both the multiplier and the 8% uplift.

2.7 Homeworking emissions

From 2020 onwards, office working was reduced for many companies as some employees began working from home. Thus, homeworking emissions must be included in GHG assessments. The methodology and conversion factors used for this assessment are referenced from (EcoAct, n.d.)

2.8 Data quality and accuracy

The accuracy of a GHG assessment is directly related to the quality of the data provided. Primary data should always be used where available, which denotes actual activities which occurred during the reporting period (i.e., kWh of electricity consumed via invoice). It is accepted that secondary data (such as estimates, extrapolations, benchmarks, and proxy data such as distance travelled) may be used when 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. Companies should aim to improve the proportion of primary data over time.

3 METHODOLOGY

3.1 Introduction

This assessment has been prepared by Griffon Hoverwork, to estimate GHG emissions associated with the operations of The Bland Group (hereafter 'Bland Group') during the reporting period 1st April 2021 to 31st March 2022. At the time of writing Bland Group employs 586 full-time equivalent (FTE) staff at their premises in the UK, Spain, and Gibraltar. The table below displays a breakdown of the office locations assessed within this report.

Table 3 Sites floor area and staff data

Office	Floor Area (m^2)	Staff
Bland Group (UK)	NA	4
Bland Group (Gibraltar)	120	8
Airborne	18	26
The Rock Hotel	43,075	87
Griffon Hoverwork	3,048	65
BG Tec	150	12
OSG	450	219
Gibair	305	70
Blands Travel	474	11
Viajes Med	115	8
Hovertravel	1,185	72
The Beehive	2,200	4

3.2 Approach

Initially, all the data was collected by the organizations in the required format and sent to Griffon Hoverwork to analyse. GHG emissions were then quantified by applying the most relevant emission factors. GHG emission factors relating to the 2021-22 reporting year are predominantly sourced from UK Government GHG Conversion Factors for Company Reporting (Defra, 2022). See Appendix A for details of all GHG emission factors used in this assessment.

3.3 Operational Boundary

Table 4 displays the operational boundary applied for this assessment along with the quality of the data provided by the client. Suggested actions are included where the data given by the client was an estimate or was not the in the primary form or was applicable to their sites but not provided.

Table 4 Operational Boundary

Scope	Emission Source Category		Included
1	Direct emissions from owned, leased or directly controlled stationary sources that use fossil fuels or emit fugitive gases		✓
	Direct emissions from owned, leased or directly controlled mobile sources		✓
2	Emissions from the generation of purchased electricity, heat, steam or cooling		✓
3 (up-stream)	Purchased goods and services (e.g., water and consumable supplies)		✓
	Capital goods	Printers, laptops, computers etc.	✓
	Fuel and energy related activities	Upstream emissions from purchased fuels	✓
		Upstream emissions from purchased electricity	✓
		Upstream emissions from company owned vehicles	✓
		Transmission and distribution (T&D) losses	✓
	Transportation and distribution	Third party transportation and storage of inbound goods	✓
	Waste generated in	Wastewater	✓

	Operations	Other waste	✓
	Business travel	All transport (air, public transport, rented vehicle, taxi)	✓
		Emissions from hotel stays	✓
	Employee commuting	Employee transport between home and work	✓
	Homeworking	Emissions arising from employee remote work	✓
3 (down-stream)	Transportation and Distribution	Third-party transportation and storage of sold products	✓

Note: Transmission and Distribution (T&D) losses refer to the scope 3 emissions associated with grid losses - the energy loss that occurs in getting the electricity from the power plant to the organisations that purchase it. Well-to-Tank (WTT) emissions refer to the impact of extraction, refining and transportation of primary fuels before their use in the generation of electricity.

3.2 Key Assumptions

Assumptions were applied for the categories where the data was applicable, but data was available.

- For electricity consumption, where data was provided in terms of expenditure, the conversion rate of 0.175 GBP/kWh was applied. (GlobalPetrolPrices, n.d.)
- For electricity consumption, where no data was available, the following benchmark assumptions were applied as good practice depending on the type of site (obtained from CISBE Guide F — Energy Efficiency in Buildings): (Anon., 2012)
    - Office: 226 kWh/m^2/annum.
    - Distribution warehouse! 67 kWh/m^2/annum
- For gas consumption, where data was provided in terms of expenditure, the conversion rate of 0.032 GBP/kWh was applied. (GlobalPetrolPrices, n.d.)
- For gas consumption, where no data was available, the benchmark assumption of 178kWh/m^2/annum was applied as good practice (CISBE Guide F — Energy Efficiency in Buildings). (Anon., 2012)
- For refrigerant gas losses, where no data was available, the following assumptions were applied: 0.0125 tonne air conditioning (AC) unit per m^2 with a 2.27kg refrigerant gas charge per tonne AC weight and a 3% annual leakage, as per the Screening Method set out Defra's 2020 reporting guidelines. The AC unit was classed as a small unit and the refrigerant type was R410A. (H.M. Government, 2019)
- For company owned/leased vehicles, where data was provided in terms of expenditure, the following conversion rates were applied depending on fuel type, which used the average cost for each fuel over the 12-month reporting period from April 2021 to March 2022:
    - Diesel: 1.43 GBP/litre. (TheAutomobileAssociation, n.d.)
- For waste, where data was provided in terms of number of trash bags, it was assumed that each bin bag weighed 5 kg. For organizations where most of the waste was generic office waste (e.g., papers, paper cups, plastic bottles etc), it was assumed that each trash bag weighed 1 kg.
- For waste, where data was provided in terms of number of euro bins, it was assumed that one of the 1,100 litre containers weighed 65 kg. (Business Waste, n.d.)
- For waste, where no data was available, the benchmark of 130 kg/FTE/annum (Cundall, 2013) was applied, with 50% landfilled and 50% recycled. (Clark, Cundall 2013)
- For rail business travel, where data was provided in terms of expenditure the conversion rate of 0.20 GBP/km was applied.
- For taxi business travel, where data was provided in terms of expenditure, the conversion rate of 1.46 GBP/km was applied.
- For car business travel, where data was provided in terms of expenditure, it was assumed that hire cars cost 75 GBP/day and it was assumed that there was a daily distance travelled of 321.9 km. These factors were used to estimate the total distance travelled by car for business travel.
- For water, where no data was available, a benchmark assumption of 45 litres/FTE/day (240) as a standard office benchmark was applied, which represents best practice for offices. (BSRIA, 2011)

- For wastewater, the volume of wastewater discharged to sewer for treatment was assumed to be equal to the volume of mains water supplied.
- For consumables (paper), where data was provided in terms of quantity of A4 sheets, it was assumed that 500 sheets weighed 2.5kg.

4 RESULTS

4.1 GHG Emissions Summary

The table below shows total GHG emissions estimated during the reporting year, together with emissions displayed using metrics related to company activities. Absolute GHG emissions can vary over time and often correspond to the expansion or contraction of an organisation. It is useful to use metrics that take these effects into account to establish emissions intensity. Common emissions intensity metrics include tCO_2e per £m turnover, per FTE staff, or per square metre floor area.

Table 5 GHG emissions summary

Metric	GHG Emissions (tCo_2e)
Total GHG Emissions	4,433.28
GHG Emissions per FTE (586)	7.56
GHG Emissions per floor area (51,140m^2)	0.09

4.2 GHG Emissions by Scope

The table below represents GHG emissions by scope estimated for company activities

Table 6 GHG emissions by scope

Emission Scope	GHG Emissions (tCo_2e)
Scope 1 – Direct Emissions	2,165.12
Scope 2 – Indirect electricity emissions	1,081.02
Scope 3 – Other indirect emissions	1,187.14
Total	4,433.28

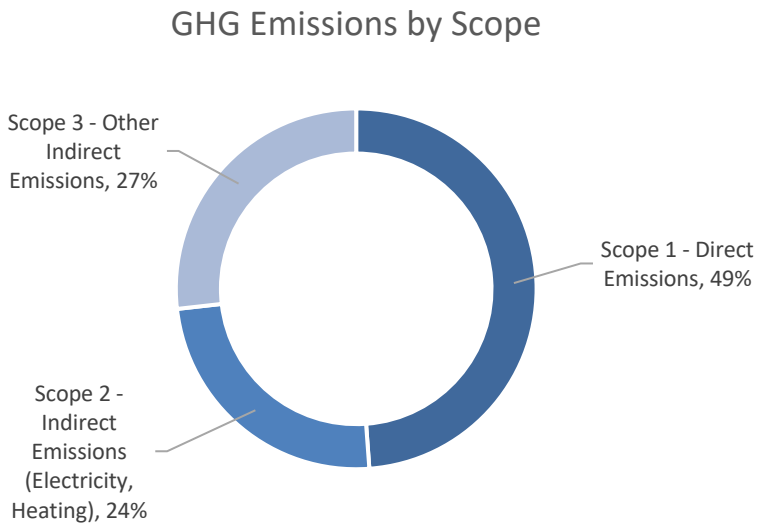

Figure 1 GHG Emissions by scope

Scope 1 (direct) emissions represent the largest emissions scope (49%), predominantly from company owned vehicles (particularly the Hovercraft fuel consumed by Hovertravel). This is followed by scope 3 (other indirect) emissions (27%), predominantly from WTT and T&D emissions from company owned

vehicles, electricity, and employee commuting. Scope 2 emissions from mains gas and electricity consumption account for the remainder of the carbon footprint (24%)

4.3 GHG Emissions by source category

The table below represents GHG emissions by source relating to company activities.

Table 7 GHG emissions by source category

Category	Activity	GHG Emissions (tCO_2e)	Sub-Total (tCO_2e)
Premises	Refrigerant Gas Losses	107.72	**1,412.72**
	Electricity, incl. T&D and WTT	1033.96	
	Mains gas, incl. WTT	208.61	
	Propane, incl. WTT	13.37	
	Water and Wastewater	1.28	
	Waste	47.78	
Company owned/leased vehicles	Diesel Cars, incl. WTT	150.59	**2,558.05**
	Petrol Cars, incl. WTT	40.33	
	Vans, incl. WTT	1.28	
	Motorbikes, incl. WTT	0.55	
	Hovercrafts, incl. WTT	2390.45	
Business Travel	Flights	74.20	**76.73**
	Rail	0.28	
	Taxi & Cars	0.39	
	Hotel Stays	1.86	
Other	Capital Goods	21.17	**385.79**
	Downstream Transportation & Distribution	72.73	
	Incoming Material	9.13	
	Homeworking	4.26	
	Consumables (Paper)	2.45	
	Staff Commuting	276.06	

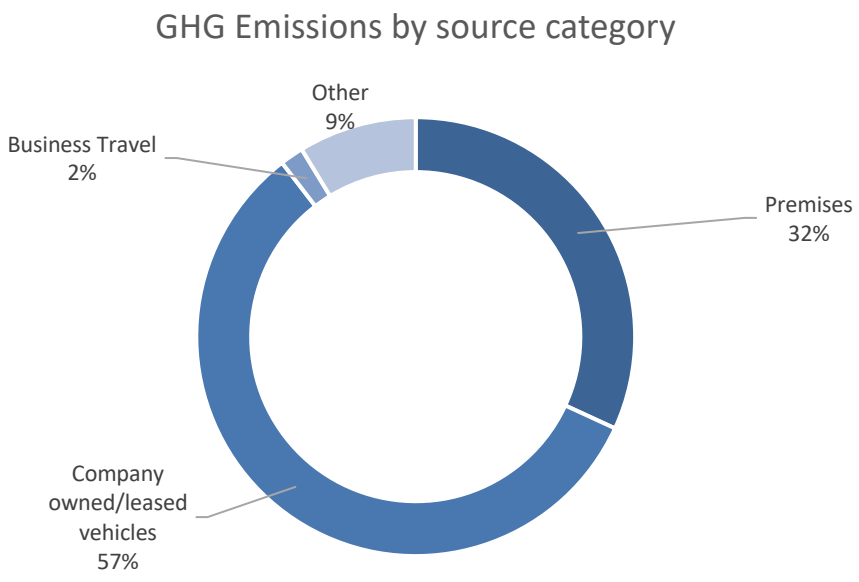

Figure 2 GHG Emissions by source category

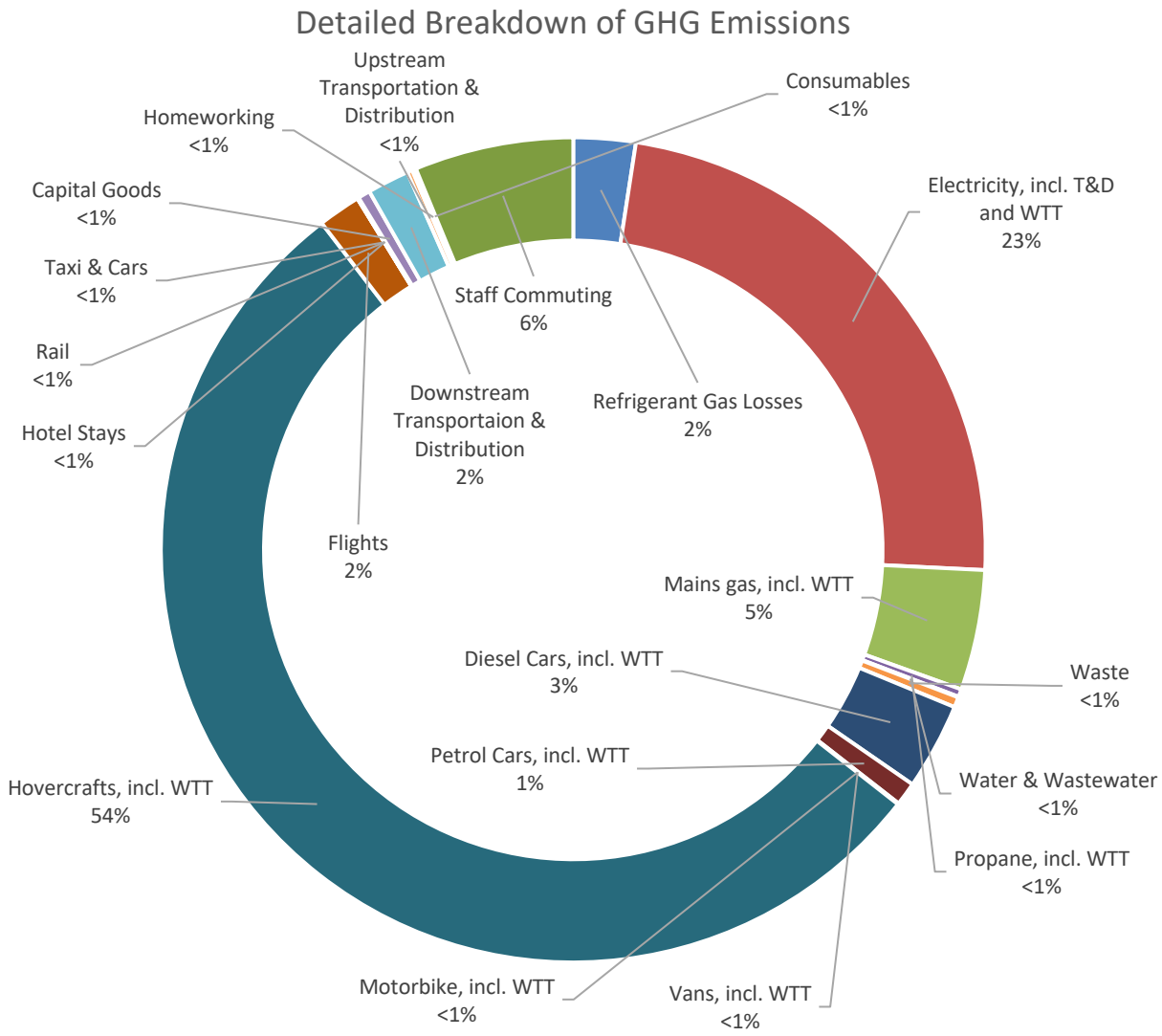

Figure 3 Detailed Breakdown of GHG Emissions

Regarding emission sources, Company owned/leased vehicles are Bland Group's largest emission source (54%), followed by electricity incl. T&D and WTT (23%), Staff Commuting (6%), Mains gas incl. WTT (5%), Diesel Cars (3%), followed by Refrigerant Gas losses, Outbound Distribution, and Flight business travel at (2%) and Petrol cars at (1%). The remaining sources – Homeworking, Consumables, Capital Goods, Propane incl. WTT, Water & Wastewater, Waste, for business travel, Vans Taxis & Cars, and Motorbikes, incl. WTT, Rail, Hotel stays, Inbound Material, and individually account for less than 1% each and make up the remainder of the carbon footprint.

4.4 Comparison of Site Emissions

A comparison of GHG emissions from each business entity is provided below

Table 8 Comparison of sites' GHG emissions

Organization	GHG emissions (tCO2e)		
	Total	Per FTE	Per m2
Bland Group (UK)	4.14	1.04	N/A
Bland Group (Gibraltar)	25.43	3.18	0.21
Airborne	37.03	1.45	2.06
The Rock Hotel	886.82	10.19	0.02
Griffon Hoverwork	234.96	3.61	0.08
BG Tec	21.23	1.77	0.14
OSG	170.89	0.78	0.38
Gibair	131.29	1.88	0.43
Blands Travel	91.59	8.33	0.19
Viajes Med	27.16	3.40	0.24
Hovertravel	2487.27	34.55	2.10
The Beehive	315.46	78.87	0.14
Total	**4433.28**	**7.56**	**0.09**

Notes: Hovertravel is Bland Group's largest emissions source – a large proportion of these emissions are attributed to the diesel fuel used to operate the hovercrafts. Other significant emitters are The Rock Hotel, The Beehive and Griffon Hoverwork.

4.5 Comparison of Site Emissions by Source

A comparison of GHG emission sources from each business entity is provided in Table 9 and Table 10.

Table 9 Comparison of site GHG emissions by source

Organization	GHG emissions (tCO_2e)							
	Electricity, incl. T&D and WTT	Mains gas, incl. WTT	Propane, incl. WTT	Refrigerant gas losses	Company owned vehicles, incl. WTT	Waste	Business Travel	Consumables (Paper)
Bland Group (UK)	-	-	-	-	-	-	3.16	<0.1
Bland Group (Gibraltar)	19.98	-	-	-	-	4.45	-	<0.1
Airborne	4.63	0.69	-	<0.1	-	0.25	0.24	<0.1
The Rock Hotel	649.82	-	13.37	96.98	0.40	34.16	-	0.80
Griffon Hoverwork	21.02	32.61	-	-	9.40	<0.1	69.99	0.16
BG Tec	19.88	-	-	<0.1	-	<0.1	0.36	<0.1
OSG	29.44	-	-	-	78.70	0.51	-	0.20
Gibair	54.38	11.65	-	0.69	24.95	2.55	0.36	0.56
Blands Travel	25.07	-	-	1.07	58.52	0.33	0.53	0.13
Viajes Med	8.77	-	-	0.26	-	0.49	-	0.22
Hovertravel	61.42	9.22	-	-	2386.08	0.18	0.25	0.23
The Beehive	139.53	154.45	-	-	-	4.81	-	<0.1
Total	**1033.56**	**208.61**	**13.37**	**107.72**	**2585.05**	**47.78**	**74.88**	**2.45**

Table 10 Comparison of site GHG emission by source

Organization	GHG emissions (tCO_2e)						
	Downstream Transportation & Distribution	Water & Wastewater	Capital Goods	Staff Commuting	Hotel Stays	Upstream Transportation & Distribution	Homeworking
Bland Group (UK)	-	<0.1	0.24	-	0.38	-	0.34
Bland Group (Gibraltar)	-	<0.1	0.6	0.2	-	-	<0.1
Airborne	0.11	<0.1	0.96	29.71	-	-	0.34
The Rock Hotel	-	<0.1	2.90	88.35	-	-	<0.1
Griffon Hoverwork	72.62	<0.1	5.79	19.48	1.23	-	2.56
BG Tec	-	-	0.33	-	-	0.14	0.17
OSG	-	<0.1	-	59.54	-	2.49	-
Gibair	-	<0.1	5.72	28.58	<0.1	1.78	-
Blands Travel	-	<0.1	-	5.89	-	<0.01	-
Viajes Med	-	<0.1	-	12.89	-	4.54	-
Hovertravel	-	0.78	0.96	27.39	0.17	0.16	0.43
The Beehive	-	0.29	3.68	4.04	-	-	0.30
Total	**72.73**	**1.28**	**21.17**	**276.06**	**1.86**	**9.12**	**4.26**

4.6 Comparison with GHG emissions for 2020-21 reporting year.

Table 11 and Figure 4 show the comparison between the GHG emissions for the 2021-22 reporting year and the 2020-21 reporting year. It should be noted that staff commuting wasn't considered in the 2020-21 GHG emissions report, therefore a spike in the scope 3 emissions is to be expected for the 2021-22 assessment. Since post Covid normal office working conditions have returned which led to an increase in premises GHG emissions such as electricity, refrigeration and waste and a decrease in homeworking emissions can be seen. We have also seen the addition of The Beehive's carbon emission this year who were not included in the 202-21 scope.

Table 11 Comparison with previous year's GHG emissions

Activity	2020-21 GHG Emissions (tCO_2e)	2021-22 GHG Emissions (tCO_2e)
Scope 1	**2,630.9**	**2,887.75**
Refrigerant Gas Losses	3.2	107.72
Mains Gas	218	208.61
Propane	11.4	13.37
Company Vehicles	2,398.3	2,558.05
Scope 2	**463.8**	**1,033.96**
Electricity	463.8	1033.96
Scope-3	**370.7**	**511.57**
Water	2.5	1.28
Homeworking	27.1	4.26
Waste	78.9	47.78
Business Travel	43.6	74.88
Staff commuting	-	276.06
Inbound Material	0.1	9.12
Consumables (Paper)	2.5	2.45
Capital Goods	39.9	21.17
Hotel Stays	104.3	1.86
Outbound Distribution	71.8	72.73
Total	**3,467.3**	**4,433.28**

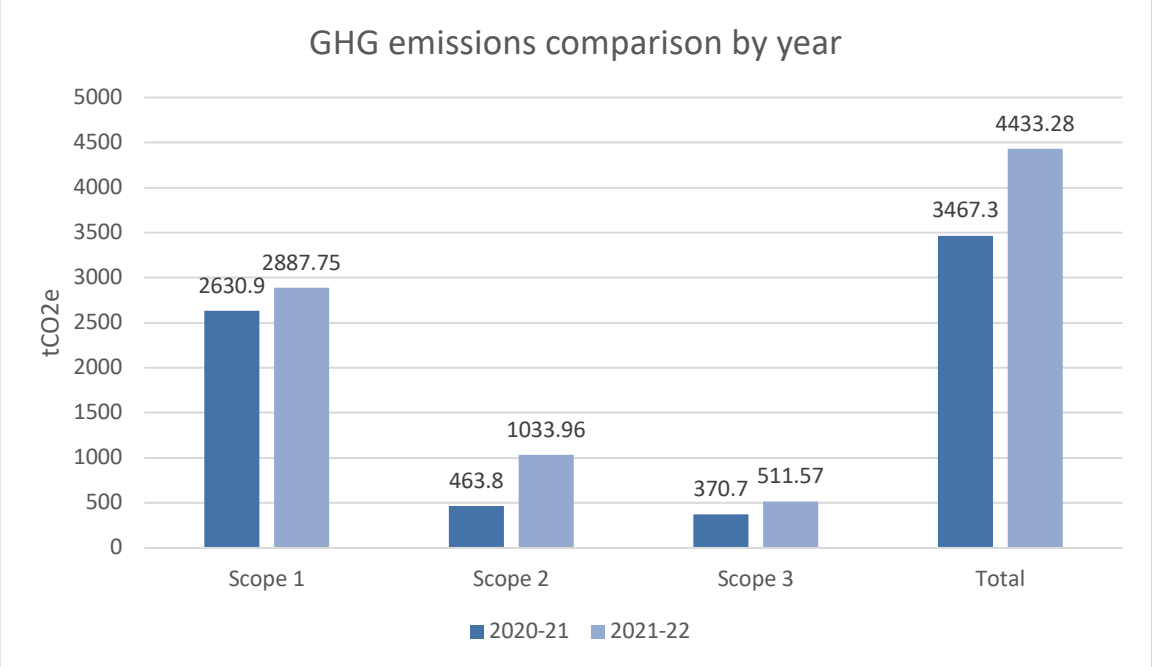

Figure 4 Comparison with previous year's GHG emissions

4.7 Impact after Covid-19

Since most of the organizations have returned to normal working conditions after the Covid-pandemic bland Group will likely have experienced an increase in total emissions for the 2021-22 reporting period. Moreover this increase can be seen in the premises GHG emissions such as electricity, refrigeration and waste. Homeworking emissions have decreased since normal post covid working conditions have resumed. It is therefore concluded that last year's report is an anomaly from the baseline assessment. An opportunity has arisen from the pandemic in the way businesses can communicate remotely, and measures could be taken to prevent emissions from business travel increasing and staff commuting significantly again.

4.8 Total GHG Emissions offset value

Businesses are encouraged to reduce their carbon footprint by purchasing/consuming energy produced by renewable sources/renewable energy. Renewable energy is energy derived from natural sources that are replenished at a higher rate than they are consumed. Sunlight and wind, for example are such sources that are constantly being replenished. Fossil fuels – coal, oil and gas on the other hand, are non-renewable sources that take hundreds to millions of years to form. Fossil fuels, when burned to produce energy, cause harmful greenhouse gas emissions such as carbon dioxide. Renewable Energy Guarantees of Origin (REGOs) certificates allow electricity suppliers to demonstrate to their customers how much of the electricity they supply was produced from renewable sources. In most cases the supplier's invoice will state if a client is on a 100% green tariff and for the purpose of this exercise, the invoice can be used as a validation that energy has been procured from renewables. In terms of the Bland Group, only Hovertravel's electricity is sourced from 100% renewable sources powered entirely by hydro and wind energy. This was verified via an electricity supplier invoice. Hovertravel's electricity is fully backed by Renewable Electricity Guarantees of Origin and independently verified by EcoAct, a Carbon Disclosure Project Accredited Provider. The wind and hydro assets are wholly or partly owned by SSE Renewables. The emissions with respect to electricity will be deducted from the total tCO2e offset value. Other organizations within the Bland Group are also encouraged to follow the same to reduce their carbon emissions.

Table 12 Total GHG Emission offset value

Metric	GHG Emissions (tCo_2e)
Total GHG Emissions	4,433.28
Emissions from Renewable Sources	61.42
Total GHG emissions to be offset	**4,371.86**

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APPENDIX A: APPLIED EMISSION FACTORS

Emission Source	Notes	Factor	Unit	Reference
Electricity	UK Production fuel mix	0.21233	$kgCO_2e/kWh$	Defra 2022
	UK T&D	0.01879	$kgCO_2e/kWh$	Defra 2022
	UK WTT	0.05529	$kgCO_2e/kWh$	Defra 2022
	UK WTT, T&D	0.00489	$kgCO_2e/kWh$	Defra 2022
	Spain, production fuel mix	0.22026	$kgCO_2e/kWh$	AIB 2019
	Spain T&D	0.03218	$kgCO_2e/kWh$	Defra 2017
	Spain, WTT	0.03218	$kgCO_2e/kWh$	Defra 2020
	Spain, WTT T&D	0.03787362	$kgCO_2e/kWh$	Defra 2020
	Gibraltar, production fuel mix	0.71	$kgCO_2e/kWh$	Gibraltar Govt
	Gibraltar, WTT	0.103055545	$kgCO_2e/kWh$	Defra 2020
	Gibraltar, WTT T&D	0.003288395	$kgCO_2e/kWh$	Defra 2020
Gaseous Fuels	Natural Gas	0.18316	$kgCO_2e/kWh$	Defra 2022
	Natural Gas, WTT	0.03135	$kgCO_2e/kWh$	Defra 2022
	Propane	2997.55	$kgCO_2e/t$	Defra 2022
	Propane, WTT	350.456	$kgCO_2e/t$	Defra 2022
Refrigerant Gas Losses	Kyoto protocol R410A	2088	$kgCO_2e/kg$	Defra 2022
Liquid Fuels	Petrol (average)	2.1935	$kgCO_2e/l$	Defra 2022
	Petrol (average) WTT	0.6132	$kgCO_2e/l$	Defra 2022
	Diesel (average)	2.5123	$kgCO_2e/l$	Defra 2022
	Diesel (average) WTT	0.6099	$kgCO_2e/l$	Defra 2022
Refuse	Recycled	467.046	$kgCO_2e/t$	Defra 2022
	Landfilled	21.294	$kgCO_2e/t$	Defra 2022
Business Travel – Air (to/from UK)	Short Haul Economy	0.24587	$kgCO_2e/p.km$	Defra 2022
	Short Haul Economy WTT	0.02691	$kgCO_2e/p.km$	Defra 2022
	Medium Haul Economy	0.15353	$kgCO_2e/p.km$	Defra 2022
	Medium Haul Economy WTT	0.01681	$kgCO_2e/p.km$	Defra 2022
	Long Haul Economy	0.19309	$kgCO_2e/p.km$	Defra 2022
	Long Haul Economy WTT	0.02114	$kgCO_2e/p.km$	Defra 2022
Business Travel – Air (international)	Average Passenger Economy	0.18362	$kgCO_2e/p.km$	Defra 2022
	Average Passenger Economy	0.02011	$kgCO_2e/p.km$	Defra 2022

Rail	National Rail	0.03549	$kgCO_2e/p.km$	Defra 2022
	National Rail WTT	0.00892	$kgCO_2e/p.km$	Defra 2022
	Tram/Light Rail	0.02861	$kgCO_2e/p.km$	Defra 2022
	Tram/Light Rail WTT	0.00745	$kgCO_2e/p.km$	Defra 2022
Taxi	Regular Taxi	0.30624	$kgCO_2e/km$	Defra 2022
Cars	Average, petrol	0.17431	$kgCO_2e/km$	Defra 2022
Water	Supply	0.149	$kgCO_2e/m^3$	Defra 2022
	Treatment	0.272	$kgCO_2e/m^3$	Defra 2022
Paper	Primary material production	919.4	$kgCO_2e/t$	Defra 2022
Capital goods	Standard mid-range computer	300	$kgCO_2e$/unit	RSK
	Standard mid-range monitor	330	$kgCO_2e$/unit	RSK
	Standard mid-range laptop	240	$kgCO_2e$/unit	RSK
	Standard mid-range printer	885	$kgCO_2e$/unit	RSK
Freight flights	Long Haul	1.0189	$kgCO_2e/t.km$	Defra 2022
	Long Haul WTT	0.11157	$kgCO_2e/t.km$	Defra 2022
Vans	Average	0.21345	$kgCO_2e/t.km$	Defra 2022
	Average WTT	0.05041	$kgCO_2e/t.km$	Defra 2022
Sea	General Cargo	0.01323	$kgCO_2e/t.km$	Defra 2022
	General Cargo WTT	0.00297	$kgCO_2e/t.km$	Defra 2022
Hotel Stays	UK	19.7	$kgCO_2e$/night	Defra 2022
	North America	13.9	$kgCO_2e$/night	Defra 2022
	Europe	23.5	$kgCO_2e$/night	Defra 2022
	Middle East	80	$kgCO_2e$/night	Defra 2022
	Africa	25	$kgCO_2e$/night	Defra 2022
	Other	56.5	$kgCO_2e$/night	Defra 2022
Homeworking	UK	1.1586	$kgCO_2e$/day	Ecoact. 2020