AirPurity

CARBON FOOTPRINT REPORT

AirPurity Ltd 2024

Eco Sourcing Hub

REDUCE COSTS, EMISSIONS & RISKS

OVERVIEW

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INTRODUCTION

At AirPurity Ltd, established in April 2020, we are dedicated to enhancing indoor air quality through state-of-the-art technology. Our innovative AeroTitan™ Environmental Control units and AeroSentinel air quality monitoring systems are designed to detect and neutralise airborne pollutants, ensuring safer and healthier environments for homes, businesses, and public spaces. By responding to real-time changes in air quality, our solutions provide effective, efficient, and sustainable ways to combat the harmful effects of air pollution

We are deeply committed to addressing one of the most pressing environmental and health challenges of our time. Poor air quality is the largest environmental risk in the UK, with significant implications for public health and well-being. Recognising our role in reducing this impact, our products not only aim to improve air quality but also align with broader goals of environmental sustainability by promoting cleaner, healthier indoor spaces.

Beyond improving air quality for our customers, we are committed to understanding and reducing our own environmental footprint. We actively assess and strive to minimise the carbon emissions associated with our operations, supply chain, and product lifecycle. This commitment reflects our belief that protecting the environment requires both innovative solutions and accountability for our impact. By embracing these principles, we aim to set an example in environmental stewardship, contributing to a greener, more sustainable future.

INTRODUCTION

During the reporting year, the company operated fully remotely before establishing our main offices. Additionally, we did not have a fleet; therefore, there were no Scope 1 or Scope 2 emissions for this reporting year.

THIS REPORT:

- Covers the footprint of the entire organisation Air Purity .
- Has been prepared in accordance with the requirements of the Greenhouse Gas Protocol reporting standards (Corporate Accounting and Reporting Standard, 2004; Corporate Value Chain Accounting and Reporting Standard, 2011).
- Endeavours to use primary data wherever possible but especially surrounding all major emissions sources. Where primary data is not available, a consistent and conservative approach to calculation is applied.
- Excludes specific targets or forecasts as well as reports on GHG removals and offsets.

02 METHODOLOGY

This assessment of GHG emissions is compliant with the Greenhouse Gas Protocol, a globally recognised standard jointly developed by the World Resources Institute and the World Business Council for Sustainable Development. The Greenhouse Gas Protocol provides comprehensive, standardised frameworks for quantifying and managing GHG emissions across private and public sector operations, value chains, and mitigation efforts.

02 METHODOLOGY

Five key accounting principles are central to the Greenhouse Gas Protocol methodology:

01 **Relevance**
Ensure that the GHG data collection accurately records and presents all relevant emissions from the organisation.

02 **Completeness**
The calculation captures all emitted GHGs. If any emission sources are omitted, clear and detailed justifications are given.

03 **Consistency**
The calculations are based on uniform methods. Any changes in data sources, calculation boundaries, or emission factors are always reported.

04 **Transparency**
All collected data is clearly and coherently reported, preferably through an accurate audit scheme. All assumptions on methods, approximations and emission factors are well documented.

05 **Accuracy**
The quantification of GHG emissions is without systematic overestimation or underestimation, it is tried to reduce uncertainties as much as possible wherever possible.

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Following the guidelines of the Greenhouse Gas Protocol, the emissions inventory encompasses seven primary (groups of) GHGs: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), nitrogen trifluoride (NF_3), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs). All of these gases are considered in-scope.

The Greenhouse Gas Protocol classifies emissions into 3 scopes and 21 categories:

SCOPE 1 Direct GHG emissions originate from sources controlled by the organisation.

SCOPE 2 Indirect GHG emissions result from purchased electricity.

SCOPE 3 Other indirect GHG emissions beyond those covered by Scope 2 that happen elsewhere in the value chain, both upstream and downstream.

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To assess the global warming impact of emissions, the GHGs are evaluated using the Global Warming Potential (GWP) over a 100-year timeframe.

In the subsequent sections, activity categories may be customised in terms of naming, order, and further subdivision to enhance transparency and comparability within the organisation, in accordance with the Greenhouse Gas Protocol accounting principles. However, to ensure standardisation and analysis across industries, each activity category remains directly linked to one of the standard Greenhouse Gas Protocol activity category types.

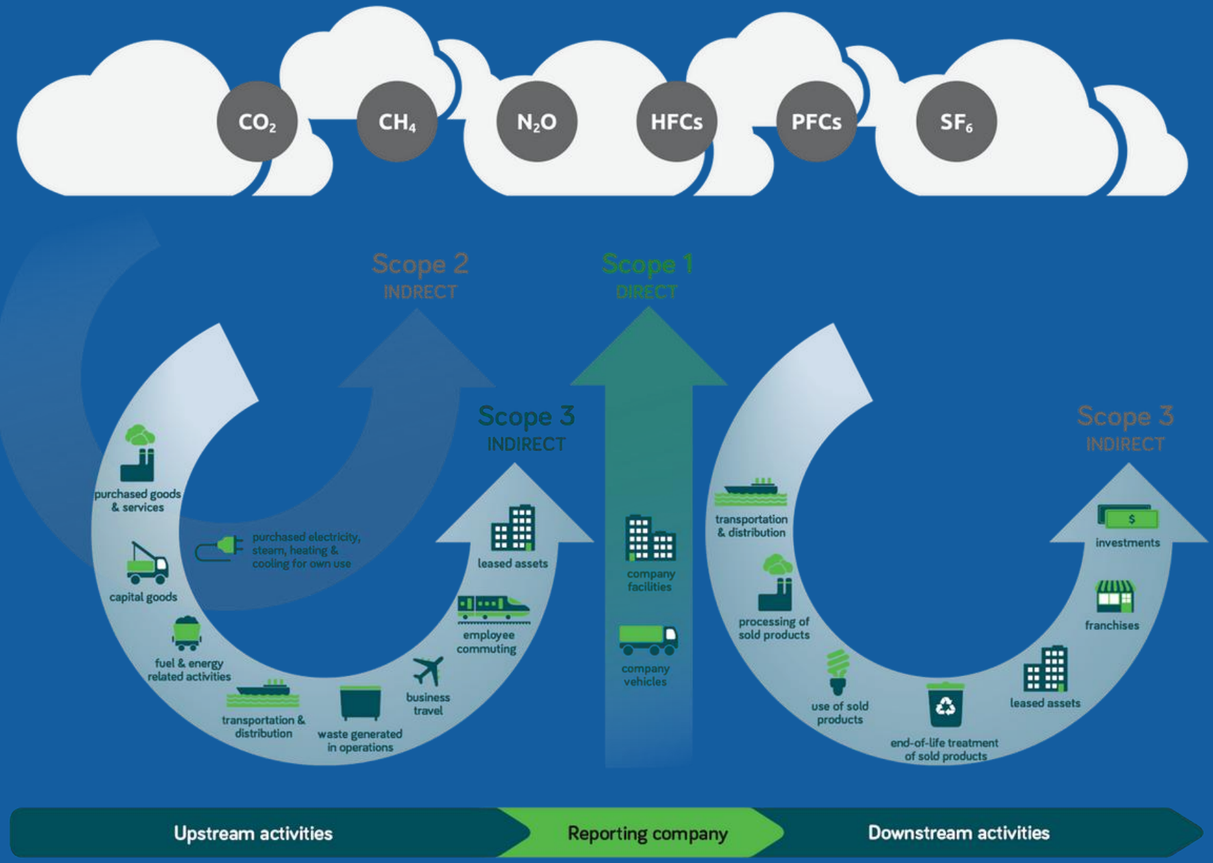

Figure 1: Overview of Greenhouse Gas Protocol scopes and activity categories across the value chain. Adapted from the Greenhouse Gas Protocol Corporate Value Chain Accounting and Reporting Standard.

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ORGANISATIONAL BOUNDARIES

The organisational boundaries for this report were set using the operational control approach for consolidation.

Under this approach, the organisation accounts for 100% of the GHG emissions from operations and the value chain over which it has operational control. Operational control applies when the organisation or one of its subsidiaries has the full authority to introduce and implement its operating policies at the operation.

04

OPERATIONAL BOUNDARIES

Details on the description of the activity categories, as well as their rationale to include and their respective Greenhouse Gas Protocol references, can be found in the tables below.

Direct		
Mobile Combustion	Description	Emissions resulting from the combustion of fuels in company owned/controlled mobile combustion sources
	Rationale to Include	Directly related to the organisation’s operations
	GHG Protocol Reference	1.2 Mobile combustion
Stationary Combustion	Description Rationale to Include	Emissions resulting from combustion of fuels in stationary sources Directly related to the organisation’s operations
	GHG Protocol Reference	1.1 Stationary combustion

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Electricity	**Description**	**Emissions resulting from the generation of electricity, purchased by the company**
	Rationale to Include	Major source of indirect emissions
	GHG Protocol Reference	2.1 Purchased electricity
Upstream		
Goods & Services	Description Rationale to Include	Embedded emissions in purchased goods and services Important overview of major indirect emissions sources in the supply chain
	GHG Protocol Reference	3.1 Purchased goods and services
Energy Supply	Description	Embedded emissions in the purchase of fuels and energy in other activity categories
	Rationale to Include	Reflects important upstream emissions coupled with the organisations fuel and energy use
	GHG Protocol Reference	3.3 Fuel- and energy-related activities
Transport Upstream	Description	Emissions related to the transport of goods upstream of the production process or any transport purchased by the company
	Rationale to Include	Reflects the indirect carbon footprint of logistics in the value chain
	GHG Protocol Reference	3.4 Upstream transportation and distribution
Waste	Description	Emissions related to the disposal and processing of waste generated in operations
	Rationale to Include	Important indicator for impact of waste streams
	GHG Protocol Reference	3.5 Waste generated in operations
Business Travel	Description	Emissions related to transportation of employees for business-related activities
	Rationale to Include	Important for understanding and managing travel-related emissions
	GHG Protocol Reference	3.6 Business travel
Commuting	Description	Emissions related to commutes of employees in vehicles not under control of the company
	Rationale to Include	Important for understanding and managing employee commuting emissions
	GHG Protocol Reference	3.7 Employee commuting
Capital Goods	Description	Embedded emissions in capital goods like buildings, cars, ICT and machinery
	Rationale to Include	Important overview of major indirect emissions sources from long-term assets
	GHG Protocol Reference	3.2 Capital goods

Downstream		
Transport Downstream	Description	Emissions related to the transport of goods downstream of the production process not paid for by the company
	Rationale to Include	Reflects the indirect carbon footprint of logistics happening downstream in the value chain
	GHG Protocol Reference	3.9 Downstream transportation and distribution
Use of Product	Description	Emissions related to energy use of the product during its planned lifetime
	Rationale to Include	Important for understanding the full lifecycle impact of products
	GHG Protocol Reference	3.11 Use of sold products
End-of-life of Product	Description	Emissions related to the disposal of the sold product at the end of its planned lifetime
	Rationale to Include	Important for understanding the full lifecycle impact of products
	GHG Protocol Reference	3.12 End-of-life treatment of sold products

In the tables below you can find details on the activity categories that were excluded from this report; the description of each of these, the rationale to exclude and their respective Greenhouse Gas Protocol references.

Excluded Activities		
Fugitive Emissions	Description	Emissions resulting from the leakage of refrigerants or the direct release of greenhouse gasses
	Rationale to Exclude	Emissions category not applicable
	GHG Protocol Reference	1.4 Fugitive emissions
Process Emissions	Description	Emissions resulting from the release of greenhouse gasses in production processes
	Rationale to Exclude	Emissions category not applicable
	GHG Protocol Reference	1.3 Process emissions
Steam, Heat, Cooling	Description	Emissions resulting from the generation of steam, heating or cooling, purchased by the company
	Rationale to Exclude	Emissions category not applicable
	GHG Protocol Reference	2.2 Purchased steam, heat, cooling
Leased Assets as Lessee	Description	Emissions related to the operation of assets leased by the reporting company
	Rationale to Exclude	Not relevant for in the applied consolidation approach
	GHG Protocol Reference	3.8 Upstream leased assets (as lessee)
Investments	Description Rationale to Exclude	Emissions related to the operation of investments Emissions are estimated to be insignificant and available data is of poor quality
	GHG Protocol Reference	3.15 Investments
Processing of Product	Description Rationale to Exclude	Emissions related to further processing of the sold product The organisation’s influence on the emission source is too limited
	GHG Protocol Reference	3.10 Processing of sold products
Leased Assets as Lessor	Description	Emissions related to the operation of assets owned by the reporting company
	Rationale to Exclude	Emissions category not applicable
	GHG Protocol Reference	3.13 Downstream leased assets (as lessor)
Franchises	Description Rationale to Exclude	Emissions related to the operation of franchises Emissions category not applicable
	GHG Protocol Reference	3.14 Franchises

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GHG EMISSIONS INVENTORY

In the reporting period Y23/24 the total emissions for the reporting organisation add up to 85 tCO2e.

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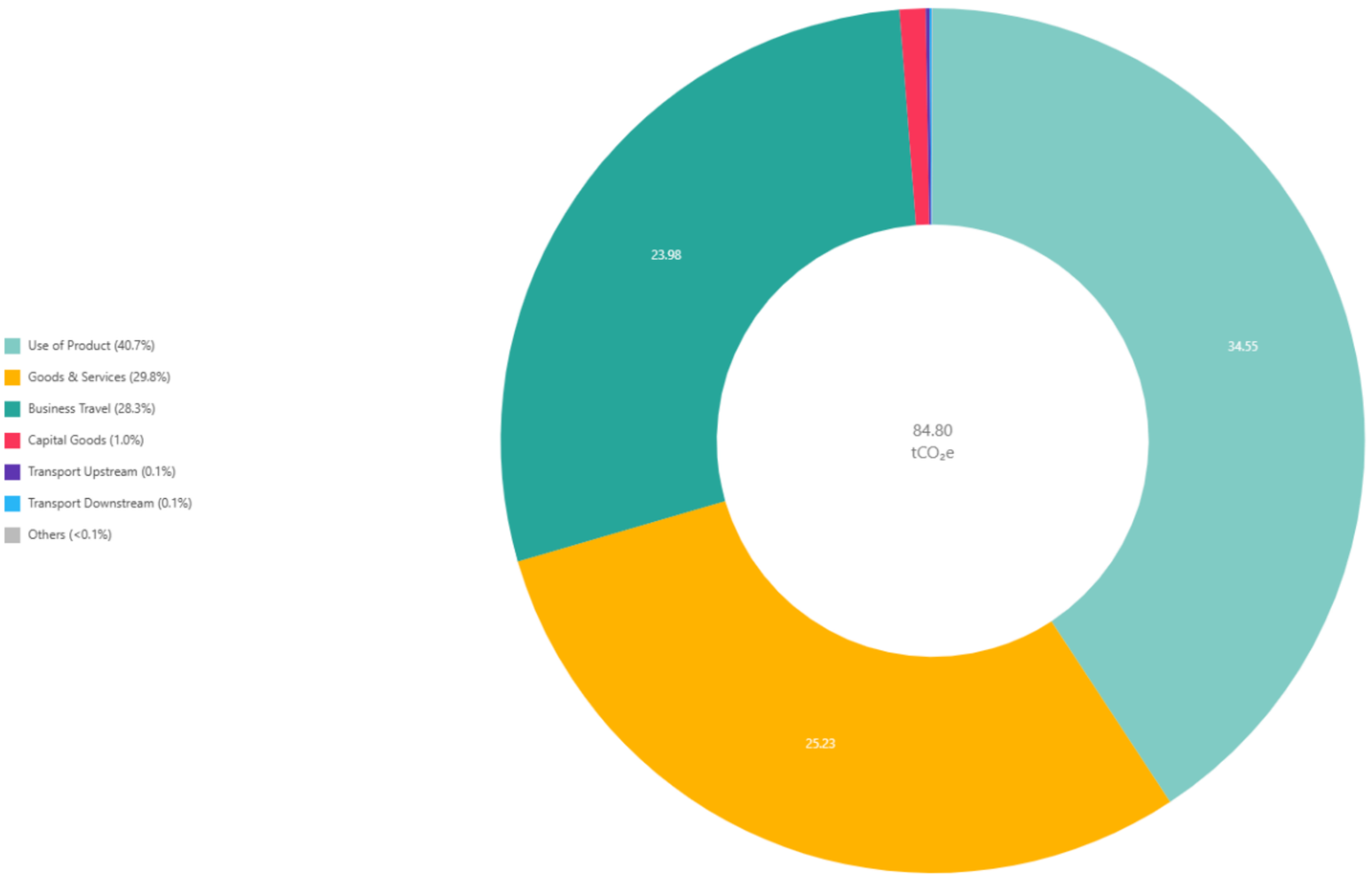
Emissions by activity (tCO_2e)



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06

METHODOLOGICAL DETAILS

The GHG emissions inventory reflects the consolidation of emissions data according to the Greenhouse Gas Protocol reporting standards. These being the Corporate Accounting and Reporting Standard (2004), the Corporate Value Chain Accounting and Reporting Standard (2011), and all associated guidance documents.

- GREENHOUSE WARMING POTENTIAL
- ADDITIONAL RADIATIVE FORCING EFFECTS
- APPROACH TO EMISSION FACTORS
- APPROACH TO BASE YEAR REPORTING
- UNCERTAINTY ASSESSMENT

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01 GREENHOUSE WARMING POTENTIAL

The following GHGs are included in the analysis: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulphur hexafluoride (SF_6), nitrogen trifluoride (NF_3), hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs).

Emissions from these GHGs are expressed in CO_2-equivalent (CO_2e) based on their global warming potential over a time horizon of 100 years (GWP100). The Greenhouse Warming Potential values are based on the Intergovernmental Panel on Climate Change (IPCC) Fourth, Fifth or Sixth Assessment Report (AR4, AR5 or AR6), in accordance with the methodological choices of the emission factor publishers used in this report.

The split of the GHG emissions inventory into the individual contributions of each GHG (or GHG group) can be found in Appendix II. Activities for which a further split in GHGs is not known, are reported under the CO_2e*-column.

02

ADDITIONAL RADIATIVE FORCING EFFECTS

The emission factors for aviation were extended to include the additional effects of radiative forcing through the emission of gases and aerosols and changing cloud abundance. For this a central estimate for a multiplier to the GWP100 figure is used. This estimate tries to reflect the additional effect based on the best available scientific evidence, while being consistent with UNFCCC reporting convention.

Each emission factor used in the calculation has an assigned validity period overlapping or partially overlapping with the application period of the reported activity. The validity period of emission factors is determined by its publication document.

03 APPROACH TO EMISSION FACTORS

For each activity the most relevant and localised emission factor possible has been selected, at the discretion of the reporter. The key considerations in emission factor selection were locality and relevancy, as well as the availability of emission factors and consistency of methodologies throughout each emission factor source.

A full list of emission factor publications used in this report can be found in the table below:

Publisher	Publication Version	Publication Date	URL Usage
UK.gov GHG Reporting Factors	v2023 1.0	2023-05-15	link 49.0%
Exiobase	3.8.2	2021-10-21	link 42.9%
Air Purity	Library of Emission Factors	-	- 8.2%

Each emission factor used in the calculation has an assigned validity period overlapping or partially overlapping with the application period of the reported activity. The validity period of emission factors is determined by its publication document.

04 APPROACH TO BASE YEAR REPORTING

The reporting period for Y23/24 marks the first GHG reporting period for the company and serves as the base year for current reporting cycles. However, as the company is still in its startup phase and not yet fully operational, we anticipate reassessing the base year once the company reaches full operational capacity within the next 2-3 years. In the meantime, to ensure we maintain focus on our environmental impact, we will use this year as a baseline until a new baseline can be calculated.

05

UNCERTAINTY ASSESSMENT

To assess the uncertainty involved with the emissions calculations in this report, we applied the Greenhouse Gas Protocol's Quantitative Uncertainty Guidance to the inventory data. Using a system with discrete levels of uncertainty, a point estimate for each data point was obtained, which then was propagated across the entire inventory to result in a general quantified uncertainty estimation.

The first step in this process is separating the activity data uncertainty from the emission factor uncertainty. Activity data uncertainty (or volume uncertainty) reflects the reliability, completeness, and temporal, geographical and technical representativeness of the numerical value used into the emissions calculation (e.g. the uncertainty on "1000 kg of product A"). The emission factor uncertainty on the other hand, reflects the reliability, completeness and representativeness of the numerical value of the estimated emission intensity (e.g. the uncertainty on "500 kgCO_2e per kg of product A").

For both the activity data uncertainty and the emission factor uncertainty, a single parameter uncertainty value is derived. This single parameter reflects the incomplete knowledge of the exact value in a probability distribution, based on qualitative assessments of how the evaluated parameter scores on the aforementioned dimensions (e.g. reliability). The numerical link between the qualitative assessment (very good, good, fair, poor) and the probability distribution is given by a pedigree matrix, provided by the Greenhouse Gas Protocol in the Quantitative Uncertainty Guidance (link).

Once the single parameter uncertainty of both activity data and emission factor is established for each entry, this uncertainty is propagated across all entries in the inventory. With this, we can obtain an estimate for the full uncertainty across all measurements. This propagation happens through Taylor series expansion under lognormal distribution assumptions (conform Greenhouse Gas Protocol guidance). It is likely that this leads to a conservative estimate, in other words the total uncertainty is likely an overestimation or an upper-bound of the real uncertainty.

Finally, this propagated uncertainty is aggregated; first on activity category level, and eventually for the total emissions across the entire inventory. The uncertainty is expressed as a 95% confidence interval of the actual value, assuming a lognormal distribution. The ”-29% to +40%” uncertainty estimation for a value of 1000 tCO2e therefore indicates that with 95% certainty, the real value for this number lies between 710 tCO2e (1000 tCO2e -29%) and 1400 tCO2e (1000 tCO2e +40%).

Activity Group	Emissions (tCO_2e)	Uncertainty	Share of total emissions
Goods & Services	25.23	-26% to +35%	29.8%
Transport Upstream	0.12	-30% to +42%	0.1%
Waste	0.02	-38% to +60%	0.0%
Business Travel	23.98	-26% to +35%	28.3%
Capital Goods	0.82	-32% to +48%	1.0%
Transport Downstream	0.07	-48% to +91%	0.1%
Use of Product	34.55	-37% to +58%	40.7%
End-of-life of Product	0.01	-53% to +115%	0.0%
Total GHG emissions	84.80	-20% to +25%	100.0%

Overview Table of GHG Emissions

Activity Category	All GHG	CO_2	CH_4	N_2O	SF_6	NF_3	HFCs	PFCs	CO_2e*
	(tCO_2e)	(tCO_2e)	(tCO_2e)	(tCO_2e)	(tCO_2e)	(tCO_2e)	(tCO_2e)	(tCO_2e)	(tCO_2e)
Direct	-	-	-	-	-	-	-	-	-
Mobile Combustion	-	-	-	-	-	-	-	-	-
Stationary Combustion	-	-	-	-	-	-	-	-	-
Electricity	-	-	-	-	-	-	-	-	-
Electricity	-	-	-	-	-	-	-	-	-
Upstream	50	35	4	1	<1	-	<1	<1	10
Goods & Services	25	14	4	<1	<1	-	<1	<1	6
Energy Supply	-	-	-	-	-	-	-	-	-
Transport Upstream	<1	<1	<1	<1	-	-	-	-	<1
Waste	<1	-	-	-	-	-	-	-	<1
Business Travel	24	20	<1	<1	-	-	-	-	4
Commuting	-	-	-	-	-	-	-	-	-
Capital Goods	1	1	<1	<1	<1	-	<1	<1	-
Downstream	35	<1	<1	<1	-	-	-	-	35
Transport Downstream	<1	<1	<1	<1	-	-	-	-	<1
Use of Product	35	-	-	-	-	-	-	-	35
End-of-life of Product	<1	-	-	-	-	-	-	-	<1
Total GHG emissions	85	35	4	1	<1	-	<1	<1	44

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THANK YOU

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