



CARBON ASSESSMENT REPORT

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CARBON ASSESSMENT REPORT

FOR

SMS TECHNOLOGY LTD.



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Nomenclature

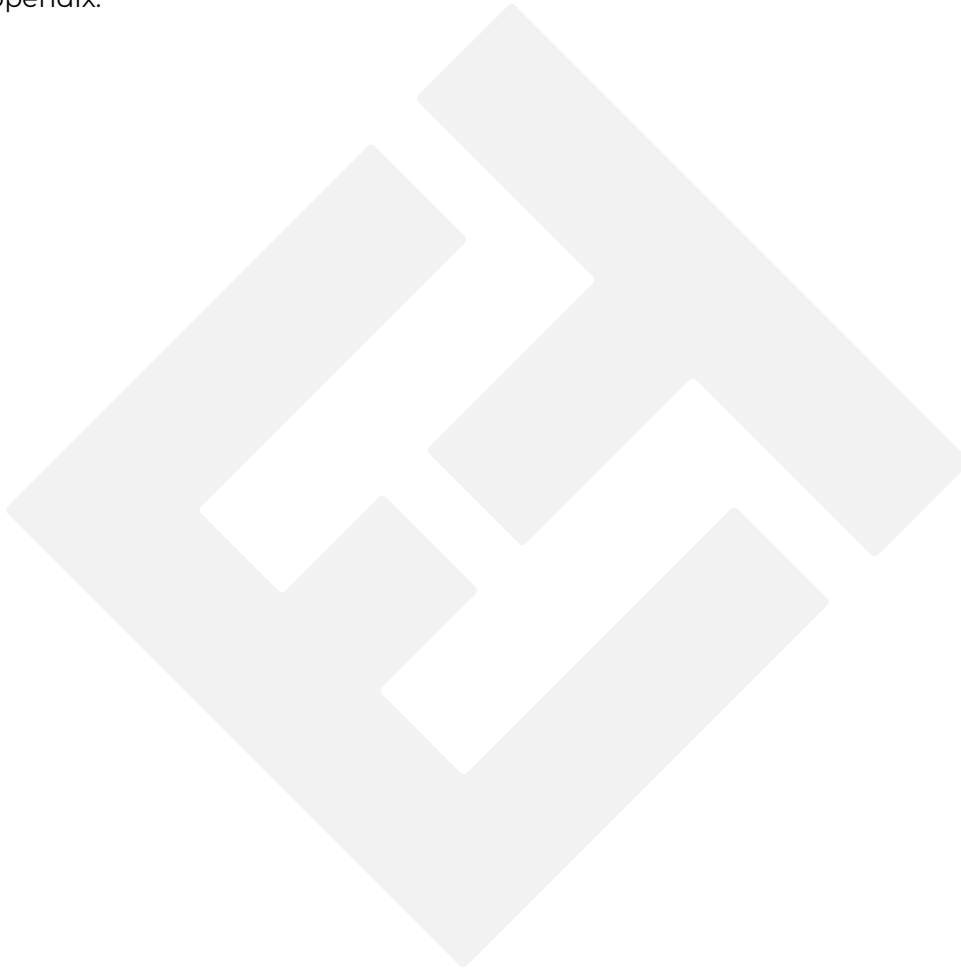
Nomenclature	Description
GHG	Greenhouse Gases, gases that trap heat in our atmosphere. GHG include Carbon dioxide, methane, nitrous oxides, and fluorinated gases.
Embodied Carbon	The total GHG emissions generated to produce a product; It includes those from extraction, manufacture, processing, transportation, and assembly in every component.
Carbon Equivalent	The effect on global warming of a greenhouse gas (GHG) relative to that of CO ₂ .
Zero Carbon	The absence of GHG emissions
Greenhouse Gas Protocol	The GHG Protocol Corporate Accounting and Reporting Standard which provides requirements and guidance to prepare a corporate-level GHG emissions inventory.
Net Zero Carbon (NZC)	The sum effect of combining actions to reduce GHG emissions with actions to off-set them.
Carbon Offsetting	A reduction in emissions of GHG to compensate for unavoidable emissions.
Global Warming Potential (GWP)	The heat adsorbed by any GHG as a multiple of the equivalent in carbon dioxide.
IPCC	The Intergovernmental Panel on Climate Change. It provides regular scientific assessment on climate change to policy makers.
AR6	The sixth assessment report of the IPCC. The most recent assessment report is 2021.
tCO ₂ e	Notation for tonnes of carbon dioxide equivalent emissions.
kgCO ₂ e	Notation for kilograms of carbon dioxide equivalent emissions.
ICE	The Inventory of Carbon and Energy.
Scope 1	Direct GHG emissions are those that occur from sources that are owned or controlled by the company such as emissions from combustion in owned or controlled boilers, furnaces, vehicles, etc., emissions from chemical production in owned or controlled process equipment.
Scope 2	Indirect GHG emissions account for GHG emissions from the generation of imported energy such as purchased electricity consumed by the company. Purchased electricity is defined as electricity that is purchased or otherwise brought into the organisational boundary of the company. Scope 2 emissions physically occur at the facility where electricity is generated.
Scope 3	Other indirect GHG emissions. The GHG Protocol Corporate Accounting and Reporting Standard defines Scope 3 as an optional reporting category that allows for the treatment of all other indirect emissions. Scope 3 emissions are a consequence of the activities of the company but occur from sources not owned or controlled by the company. Some examples of scope 3 activities are extraction and production of purchased materials; transportation of purchased fuels; and use of sold products and services. BS EN ISO 14064 separates out Scope 3 emissions into categories 3 to 6 covering indirect emissions from transportation, products used, use of products from the business and other sources respectively.

Methodology and Quantification Standards

The Business Carbon Assessments was completed using methodology consistent with the international standards BS EN ISO 14064-1 and The GHG Protocol. Quantification of carbon dioxide equivalent emissions arising from business activities were completed in accordance with the emission factors of Greenhouse gas reporting: conversion factors published by DEFRA, the UK government Department for Business, Energy, and Industrial Strategy for 2023. Additionally, The Inventory of Carbon and Energy has provided carbon equivalent data conversions for complex materials.

Global Warming Potentials are stated from IPCC Sixth Assessment Report, 2021 (AR6).

Information on data sources and assumptions made to support this analysis are provided in the Appendix.



Executive Summary

Climate change poses a significant challenge to the environment, necessitating mitigation measures at international, national, and local levels. It impacts businesses, natural systems, and communities. This is caused by global warming, as a result of an increase in greenhouse gas (GHG) emissions, known as carbon emissions.

SMS Technology Ltd. (hereafter referred to as SMS Technology) would like to report on the carbon emissions for the reporting year between 23rd of November 2022 and 22nd of November 2023. Quantifying the business carbon emissions puts SMS Technology in a position to demonstrate sustainability and environmental responsibility to their customers and the wider public. It shows how a measurable change can be made to climate change emissions and facilitate the achievement of Net-Zero Carbon (NZC). SMS Technology and Tunley Environmental have collaborated to identify emission sources and collect data.

Tunley Environmental has conducted an independent assessment to quantify carbon emissions due to business activities conducted by SMS Technology, based on the data provided by the company. The evaluation herein reported includes two components of emission quantifications for:

- The company's business activities in 2023. This first component evaluates carbon emissions from their emissions in Scopes 1, 2 and 3,
- A roadmap to Net-Zero Carbon (NZC) based on data of the baseline year. This will act as a guidance for SMS Technology to minimise their carbon footprint resulting from their business activities.

This assessment demonstrates SMS Technology commitment to showing how carbon emissions can be reduced. It also provides SMS Technology with a clear evaluation of carbon emissions associated with these business practices and aligns with SMS Technology ambition for achieving carbon neutrality.

Total carbon emissions in tonnes of carbon dioxide equivalents (tCO₂e per annum) are 3.48 tCO₂e (Figure 1).

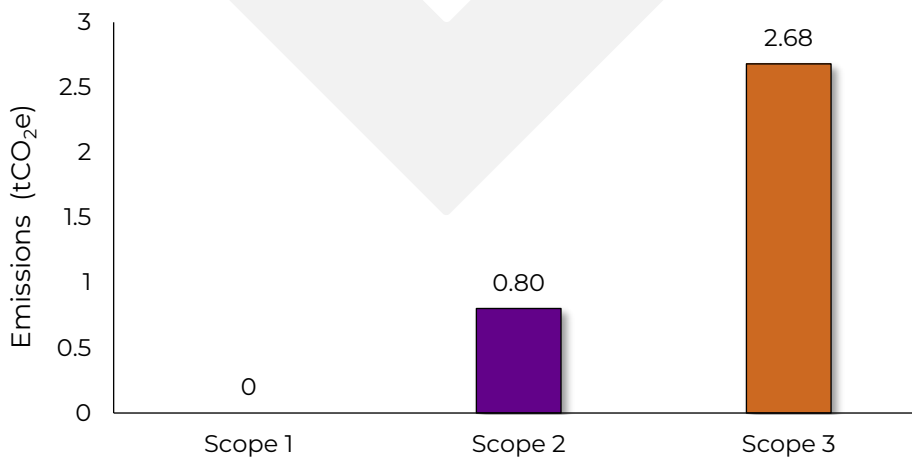


Figure 1 Greenhouse gas emissions for Scopes 1, 2 and 3.

Tunley Environmental recommend taking steps to reduce emissions and become NZC by using renewable electricity and purchasing an additional EV. By implementing the emission reduction initiatives suggested in this report, SMS Technology will be able to reduce their emissions by 32% by 2025.

Introduction

Tunley Environmental conducted this assessment using the standard protocols stated above and data provided by SMS Technology for their business activities, based on data in the reporting year between 23rd of November 2022 and 22nd of November 2023.

This assessment is based on data categorised into three scopes, as defined by the Greenhouse Gas Protocol. For each year, the assessment provides detailed quantification of GHG emissions due to:

- i) Scope 1: Direct emissions such as those arising from gas heating and consumption of diesel for driving company vehicles. For SMS Technology, Scope 1 only includes driving their electric car as they do not use gas for heating,
- ii) Scope 2: Indirect emissions from purchased electricity. Emissions from electricity generation were quantified using both location-based and market-based emission factors,
- iii) Scope 3: Other indirect emissions from water consumption, work from home, clothing, water treatment, business travel using employees' vehicles and by train, and hotel stays.

Appreciating the importance of determining major contributors to the emissions, Tunley Environmental provides SMS Technology with detailed analysis and discussion on the contributions from different emission sources considered; this will support SMS Technology with their decision-making processes to reduce their carbon emissions. Where information and data were limited, we made reasonable assumptions based on our expertise and external sources of data. This report is completed to internationally recognised [standards](#) mentioned previously.

Emission data

SMS Technology had no Scope 1 emissions (Table 1, Figure 2). The total Scope 2 emissions were 0.80 tCO₂e (27%) using location-based emission factor for electricity generation. Scope 3 contributed 73% to the carbon footprint, totalling 2.68 tCO₂e.

Table 1 Emission data for SMS Technology broken down in categories.

Item	Scope	Emissions (tCO ₂ e)
An electric car	1	-
Electricity (location-based)	2	0.80
Electricity (market-based)	2	0.50
Water supply	3	0.01
Water treatment	3	0.01
Clothes	3	0.10
Employee commuting	3	0.83
Working from home	3	0.84
Business travel - the EV	3	0.78
Business travel - train	3	0.09
Hotel stays	3	0.02
Total (using location-based electricity emission factor)		3.48

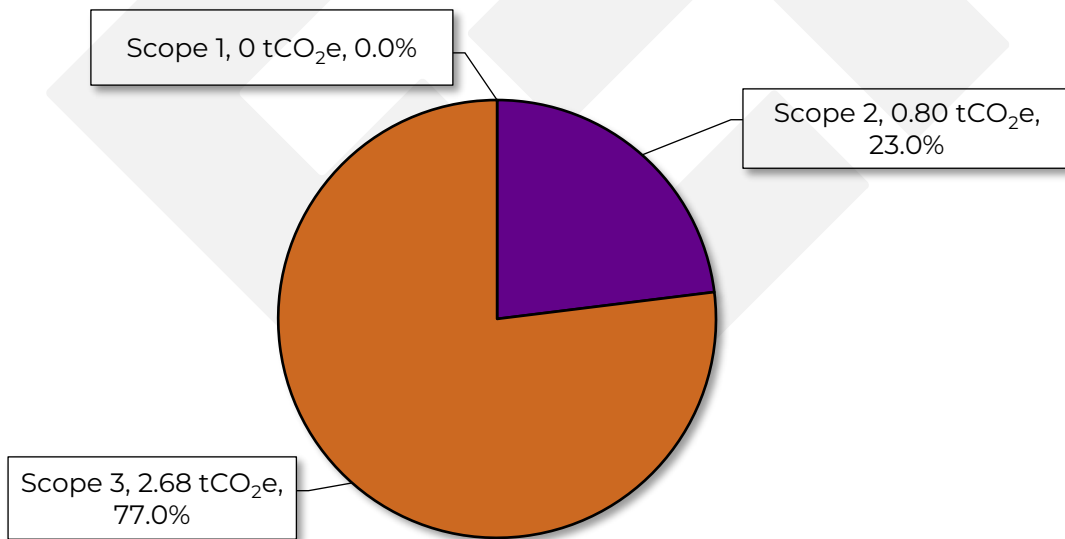


Figure 2 Percentage contributions of three scopes.

As shown in Table 1, SMS Technology do not use gas for heating, the electric car is the only Scope 1 component. The employee in possession of the car uses it for their commuting to work and business travel. As the car is charged using chargers owned by third parties, emissions from driving the car are considered as Scope 3.

SMS Technology purchase electricity from British Gas, their latest information on fuel mix for 2022-2023 shows an emission factor of 0.129 kgCO₂/kWh (assuming kgCO₂e/kWh). Market-based electricity emissions are 0.50 tCO₂e.

In Scope 3, emissions were identified from purchased goods and services, fuel and energy related activities such as distribution, upstream transport, waste generated in operations, business travel, remote working, and employee commuting. Figure 3 shows the percentage contributions for each of these categories and identifies business travel and working from home as the greatest contributors to Scope 3 emissions at 30.8% and 31.4%, respectively.

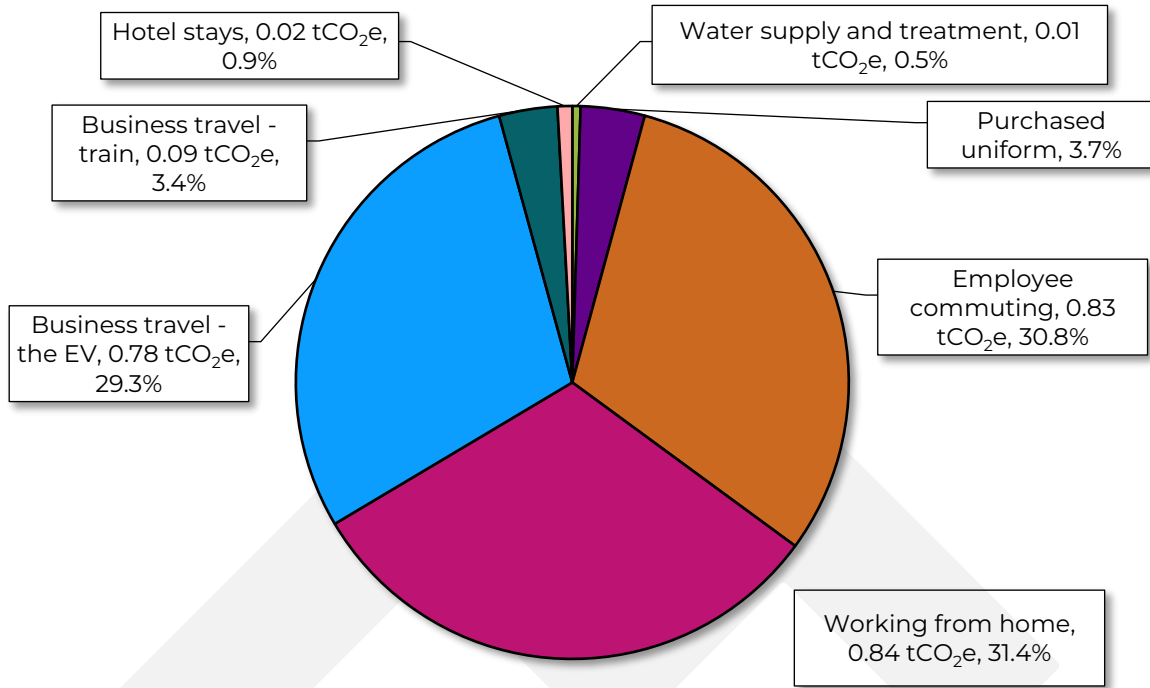


Figure 3 Percentage contributions of scope 3.

Strategic CO₂e Reduction Initiatives

Tunley Environmental recommend SMS Technology to implement a long-term approach on carbon reduction.

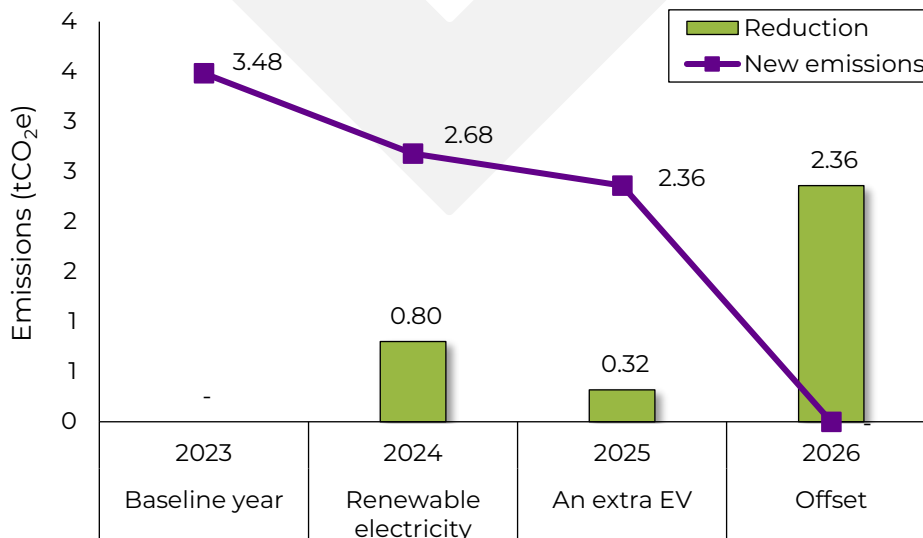


Figure 3 Roadmap to NZC.

GHG emissions can be reduced 32% through implementing reduction strategies that focus on emission sources of significant contributions by 2025. Once the initiatives have been considered and taken, any unavoidable, remaining emissions can be removed by carbon off-setting actions (by 2026) (Figure 3). This section provides SMS Technology with GHG reduction initiatives.

Using Renewable Electricity – 2024

SMS Technology can consider switch to use renewable electricity by opting for an Ofgem-certified green electricity tariff (Renewable Energy Guarantees of Origin, [REGO](#)); their current supplier – British Gas also offers green tariffs of zero emissions. Implementing a green electricity tariff will reduce emissions by 0.80 tCO₂e per year.

Implementing an Extra EV – 2025

One employee currently commutes to the office for 60% of his time. SMS Technology can consider an EV hiring scheme to reduce the current emissions from commuting. This can achieve a reduction of 0.32 tCO₂e.

Offsetting – 2026

Whilst reducing emissions is the ideal end goal in decarbonisation this is not always feasible with every source emission. In these instances, offsetting against the carbon emissions is necessary. Therefore, the remaining carbon emissions will have to be offset with bona fide suppliers. Consequently, Tunley recommends all offsets be purchased from One Tribe (<https://onetribe.global.com/>). The cost of carbon credits are £25 per tCO₂e. One Tribe's carbon credits are typically procured through one or more of the following regulatory bodies: Verra, Gold Standard, American Carbon Registry and Delta. OneTribe use their purchasing power to facilitate the very best pricing for their clients, however, it's important to note that these prices are subject to change based on market demand and other factors.

Carbon Offsetting in 2023

SMS Technology are committed to tackling climate change and plant one tree for every client working with them. As of November 2023, the company have planted 75 trees through a UK-based tree-planting partnership scheme.

In addition, SMS Technology purchased 10 tCO₂e of carbon credits to offset their baseline emissions of 3.5 tCO₂e (given the emission sources considered). The company is now carbon neutral (Figure 4Figure 1).

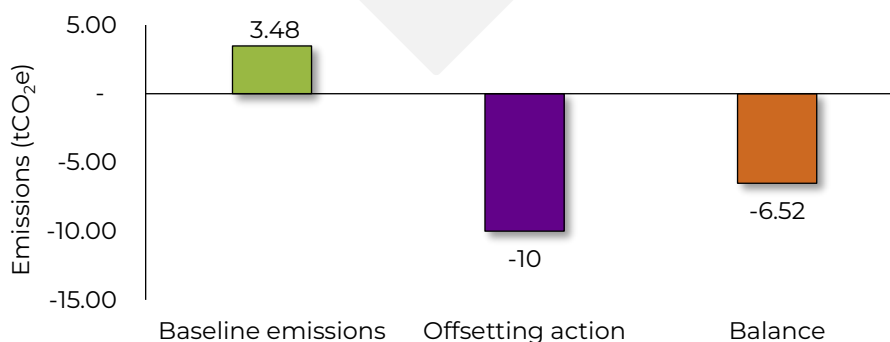


Figure 4 Carbon offsetting by SMS Technology.

Conclusion

Total GHG emissions for SMS Technology's business activities in the baseline year between 23rd of November 2022 and 22nd of November 2023 are 3.48 tCO₂e. The carbon footprint quantification presented in this report was conducted using data provided to Tunley Environmental by SMS Technology.

SMS Technology are now carbon neutral with an excess of 6.52 tCO₂e offsetting credits beyond their quantified emissions for this baseline carbon assessment

Tunley Environmental Report Emission Statement

Tunley Environmental GHG emissions from completing this assessment were 0.22 kgCO₂e.



Appendix

Data Sources and Assumptions

Below we provide all the data analysed with notes on sources provided and assumptions used in the calculation of emissions (Table A1). Additionally, the error score calculated as a factor of both data provided and emission factor used is displayed.

Table A1 Data sources and assumptions. Data accuracy assessment system utilised explained below.

Item	Data	Emission factor	Overall score
An electric car	Provided by the client - Band 2	Defra - Band 1	2
Electricity (location-based)	Pro rata - Band 2	Defra - Band 1	2
Electricity (market-based)	Pro rata - Band 2	Given on the supplier's website - Band 1	2
Water supply	Estimated by TE - Band 2	Defra - Band 1	2
Water treatment	Estimated by TE - Band 3	Defra - Band 1	3
Uniform	Estimated by TE - Band 3	Defra - Band 2	6
Employee commuting	Estimated by the client - Band 2	Defra - Band 1	2
Working from home	Provided by the client - Band 2	Defra - Band 1	2
Business travel - the EV	Estimated by the client - Band 2	Defra - Band 1	2
Business travel - train	Provided by the client - Band 1	Defra - Band 1	1
Hotel stays	Provided by the client - Band 1	Defra - Band 1	1

Data Accuracy Assessment

All the raw data provided to Tunley Environmental were broken down into accuracy levels reflective of the data sources provided (Table A2 & Table A3). This allows for inaccuracy and uncertainty to be accounted for in this assessment. Both activity data (e.g., quantities of material, usage of electricity, etc) and emission factors are scored using the same band-based system, with 1-6 corresponding to the highest & lowest levels of accuracy, respectively.

Emission factors are to be evaluated using the following five indicators:

- Technological relevance.
- Temporal coverage.
- Geographical coverage.
- Completeness.
- Reliability (e.g., peer-reviewed source, reproducible, low uncertainty in the information provided).

Table A2 Accuracy bands assigned to data, description of data assignment, adjustment factor provided increase to CO₂ emission calculations.

Accuracy Score	Description
1	Activity data accurately measured, fully accounted for and/or reported. Emission factor satisfies all five indicators.
2	Activity data provided directly by company/organisation; some generalisations made. Emission factor satisfies four indicators.
3	Activity data produced based on information provided by company/organisation. Emission factor satisfies three indicators.
4	Activity data assumption based on similar product/event reports by the same company/organisation. Emission factor satisfies two indicators.
5	Activity data assumption based on product/event reports by a similar company/organisation. Emission factor satisfies one indicator.
6	Activity data assumption made based only on publicly available information. Emission factor is estimated using the data available for a broader data category to which the emission source belongs, the estimated emission factor does not meet the indicators' requirements.

Table A3 Overall error score matrix for accuracy assessment.

Error Score	Action
1 - 2	Use the data, no further action required.
3 - 4	Can use the data, recommended to improve data quality by e.g., i) checking raw data with client (assessing recollection need) and ii) sourcing different emission factors or averaging several data points, required to declare this in the report.
5 - 10	Strive to improve data as a priority and only use the data when no further improvements can be made (see above)
12 - 25	Required to improve data quality (see above).
30 - 36	Do not use the data , discuss with the client and the carbon team to improve data quality and/or to assess whether the data can be used and the approach to report this.

Table A4 Actions to improve data quality and reduce uncertainty.

Error Score		Emission Factor					
		Five indicators	Four indicators	Three indicators	Two indicators	One indicator	No indicators
Data	Excellent	1	2	3	4	5	6
	Very good	2	4	6	8	10	12
	Good	3	6	9	12	15	18
	Relevant	4	8	12	16	20	24
	Acceptable	5	10	15	20	25	30
	Poor	6	12	18	24	30	36

Scope 1 & 2 GHG Emissions

Where possible Scope 1 and Scope 2 emissions are separated into known greenhouse gas emissions. This enables further understanding for SMS Technology on their direct greenhouse gas emissions.

Table A5 Direct GHG emissions detailed separately for Scope 1 and Scope 2 showing CO₂, CH₄, N₂O emissions in tonnes of CO₂e.

Item	Data	Unit	Emissions (tCO ₂ e)			
			Total	CO ₂	CH ₄	N ₂ O
EV	12,500	miles	1.102	1.091	0.005	0.006
Electricity	3,876	kWh	0.803	0.794	0.003	0.005

Emission Data Report to ISO 14064-1

To encourage completeness, consistency, and readability ISO 14064-1 recommends that the GHG quantification should be reported using the full descriptive categories provided. Therefore, this is fully displayed and categorised in Table A1.

Table A6 Complete ISO14064-1 data categorisation table.

Category	Description	Emissions (tCO ₂ e)
1	Direct GHG emissions & removals in tCO₂e	
1.1	Direct emissions from stationary combustion	0.00
1.2	Direct emissions from mobile combustion	0.00
1.3	Direct process emissions and removals arising from industrial processes	0.00
1.4	Direct fugitive emissions arising from release of GHGs in anthropogenic systems	0.00
1.5	Direct emissions and removals from land use, land use change, and forestry	0.00
2	Indirect emissions in tCO₂e	
2.1	Indirect emissions from imported electricity	0.80
2.2	Indirect emissions from imported energy	0.00
3	Indirect GHG emissions from transportation	
3.1	Emissions from upstream transportation and distribution	0.00
3.2	Emissions from downstream transportation and distribution	0.00
3.3	Emissions from employee commuting & teleworking	1.67
3.4	Emissions from client and visitor transport	0.00
3.5	Emissions from business travel	0.90
4	Indirect GHG emissions from products used by the organisation	
4.1	Emissions from purchased goods	0.11
4.2	Emissions from capital goods	0.00
4.3	Emissions from the disposal of solid and liquid waste	0.01
4.4	Emissions from the use of assets	0.00
4.5	Emissions from the use of services that are not described in the above subcategories	0.00
5	Indirect GHG emissions associated with the use of products from the organisation	



5.1	Emissions or removals from the use stage of the product	0.00
5.2	Emissions from downstream leased assets	0.00
5.3	Emissions from end-of-life stage of product	0.00
5.4	Emissions from investments	0.00
6	Indirect GHG emissions from other sources not specified	0.00



Approval

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Revision History:	Change Description:	Changed by:	Date:	Approved by:	Date:
B					
C					
D					
E					
F					

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