Carbon Footprint Appraisal
for
Cognicent Limited

Assessment Period:
1st January 2023 – 31st December 2023

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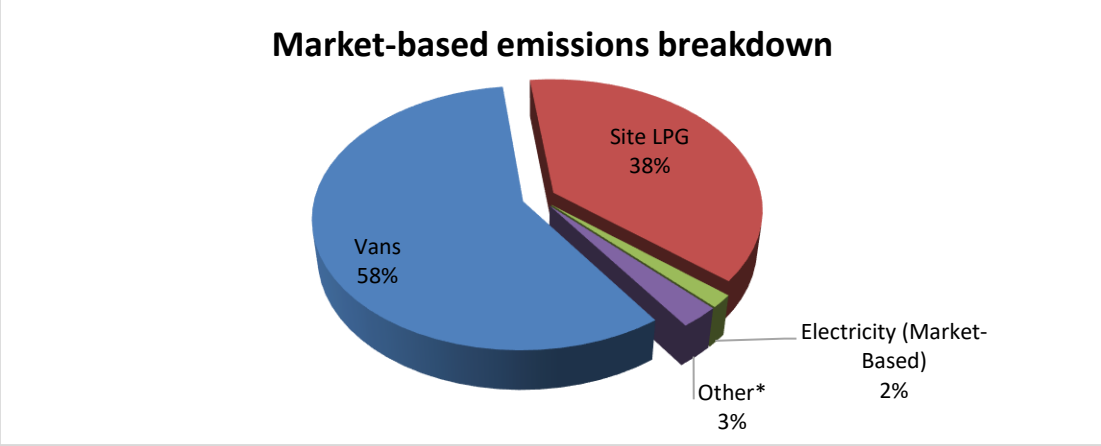
Executive Summary

Current Performance

- Cognicent's total market-based emissions are 1,660.05 tCO_2e (with a location-based emissions of 1,806.19 tCO_2e).
- The most significant market-based emission source is van use, accounting for 58% of the business's carbon footprint.
- Liquid Petroleum Gas (LPG) use remains a significant contributor to Cognicent's GHG emissions, accounting for 38% of the market-based carbon footprint. This is expected due to the nature of the business.

Recommendations

- Carry out a detailed transport audit focussing on driver behaviour, the potential for route optimisation, trip consolidation and whether fleet size can be reduced.
- When leasing/purchasing new vehicles, consider transitioning to electric vehicles (EV) and installing charging points on-site to encourage staff to switch too. The adoption of an alternative fuel source such as HVO (hydrotreated vegetable oil) or bio-diesel to power vehicles with the largest emissions may also be possible.
- Continue to switch to renewable energy tariffs across sites to reduce emissions associated with electricity use.
- Continue to monitor new technologies over the coming years to ensure low-carbon intensity processes for cremation are adopted where feasible.
- Ensure that cremators are regularly serviced and maintained to ensure peak operational efficiency.



*Other: Natural Gas, Company Vehicles, Home-working, Flights, T&D, Lorry, Refrigerants, Rail, Site Diesel, Ferry, Taxi.

Year/Element	Location-based	Market-based
Total number of employees	257	
Turnover in £ million	47.05	
Tonnes of CO_2e	**1,806.19**	**1,660.05**
Tonnes of CO_2e per employee	**7.03**	**6.46**
Tonnes of CO_2e per £ million turnover	**38.39**	**35.28**
Tonnes of CO_2e per cremation	**0.13**	**0.12**

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Quality Control

Report issue number:	1.0
Date:	22 April 2024
Calculations completed by:	Stephen Laurent & Zoe Booth
Calculations reviewed by:	Alex Pell
Report produced by:	Stephen Laurent & Zoe Booth
Report reviewed by:	Alex Pell
Director approval:	Dr. Wendy Buckley

1. Introduction

1.1. Company Overview

Cognicent Limited (henceforth referred to as Cognicent) is the UK's largest direct cremation specialist. They have over 30 years of experience providing services for the bereaved. The company owns and runs Charlton Park Crematorium in Andover, and lease further office sites in Scotland, Andover, Amesbury and Knutsford. Overall, the organisation consists of:

- 6 sites
- 257 employees
- 70 logistics vehicles (69 vans, 1 lorry)
- 1 company car

1.2. Data supplied for the Carbon Footprint Appraisal

A summary of the data supplied by Cognicent for the appraisal can be provided on request.

1.3. Methodology for the Carbon Footprint Appraisal

The methodology document can be downloaded using this link,
https://www.carbonfootprint.com/docs/carbon_footprint_appraisal_-_methodology_document.pdf

1.4. Abbreviations

CO_2e	Carbon Dioxide Equivalent
Defra	Department for Environment, Food and Rural Affairs
EV	Electric Vehicle
GHG	Greenhouse Gas
HVO	Hydrotreated Vegetable Oil
ISO	International Standards Organisation
IWA	International Workshop Agreement
km	Kilometres
kWh	Kilowatt Hours
LPG	Liquid Petroleum Gas
T&D	Transmission & Distribution

2. Calculation Scope and Accuracy

2.1. Scope of this work

Carbon Footprint has assessed the GHG emissions from 1st January 2023 to 31st December 2023 resulting from the energy consumption at Cognicent's facilities and its business transport activities.

Cognicent's baseline year data and emissions can be found in the 2019 report.

2.2. Organisational & reporting boundaries

Figure 1 shows the full boundaries of the *Greenhouse Gas Protocol Corporate and Value Chain Standards*. The organisation has accounted for all quantified GHG emissions and/or removals from facilities over which it has operational control. This assessment covers the reporting boundaries shown in Table 1, in line with the Greenhouse Gas Protocol Accounting and Reporting Corporate Standard.

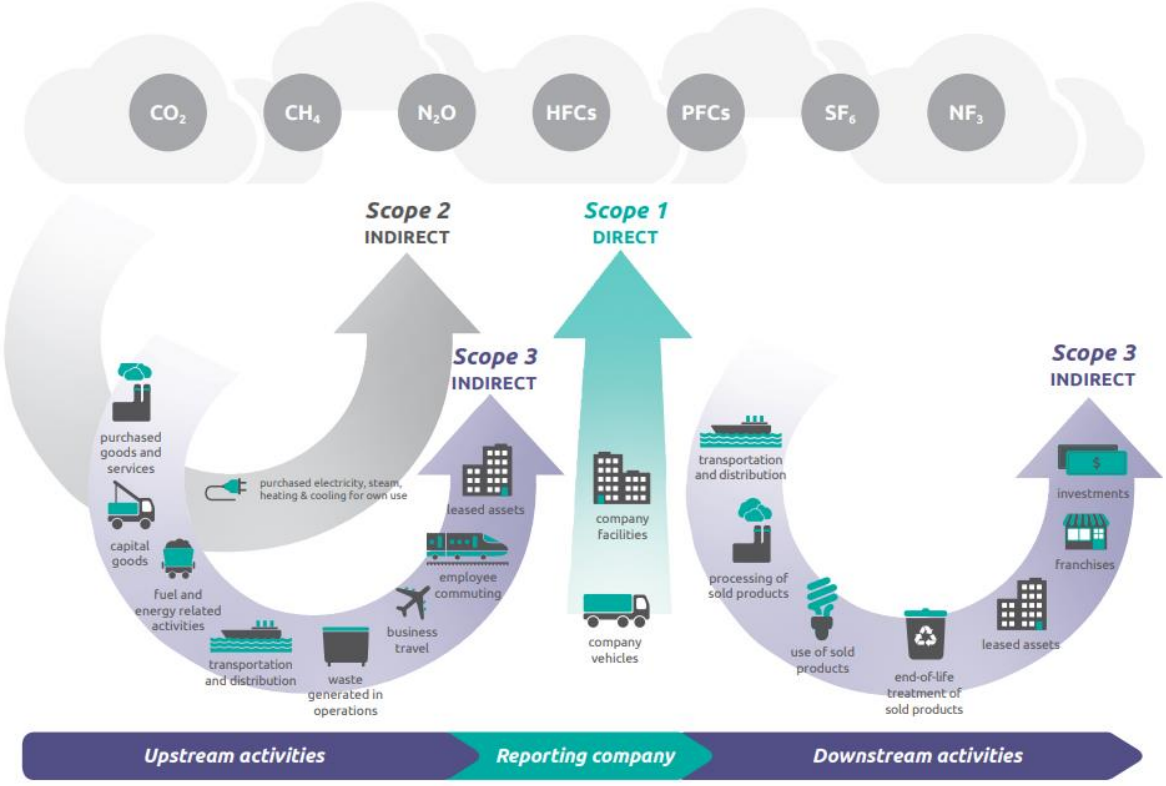


Figure 1: Overview of emissions scopes (GHG Protocol - Scope 3 Calculation Guidance v1.0 - 2013)

Table 1: Cognicent's GHG Assessment boundary based on the Greenhouse Gas Protocol Accounting and Reporting Corporate Standard

(All green rows have been included in this assessment; all grey rows are not applicable; orange rows have been excluded)

Scope	Activity	Calculation Type	Completion Status	Justification
1	Electricity, heat or steam generated on-site		Not relevant	Not applicable
	On-site fuel use	Activity Data	Complete	
	Company owned vehicles	Activity Data	Complete	
	Fugitive emissions (incl. Refrigerant gases and AC)	Activity Data	Complete	
2	On-site Consumption of purchased electricity, heat steam and cooling	Activity Data	Complete	
3	1. Purchased goods and services		Excluded	Relevant and intending to include in future assessments
	2. Capital goods		Excluded	Relevant and intending to include in future assessments
	3. Fuel- and energy related activities (not included in scope 1 or scope 2)	Activity Data	Partial	Transmission and distribution emissions are included. To complete this category, include Well-to-Tank.
	4. Upstream transportation and distribution		Excluded	Relevant and intending to include in future assessments
	5. Waste generated in operation		Excluded	Relevant and intending to include in future assessments
	6. Business travel (not included in scope 1 or scope 2)	Activity Data	Complete	
	7. Employee commuting		Partial	Emissions from homeworking are included. To complete this category, include emissions from commuting.
	8. Upstream leased assets		Not relevant	Not applicable
	9. Downstream transportation and distribution		Excluded	Relevance unknown due to lack of resources - intending to determine
	10. Processing of sold products		Not relevant	Not applicable
	11. Use of sold products		Not relevant	Not applicable
	12. End-of-life treatment of sold products		Not relevant	Not applicable
	13.Downstream leased assets		Not relevant	Not applicable
	14. Franchises		Not relevant	Not applicable
	15. Investments		Excluded	Relevance unknown due to lack of resources - intending to determine

2.3. Calculation uncertainty assessment & materiality

The result of a carbon footprint calculation varies in accuracy depending on the data set provided. The more accurate the data supplied, the more accurate the final result. Materiality is determined by the percentage contribution of each element to the overall footprint. Based on the accuracy of the data provided (Table 2), a simple uncertainty analysis has been used to estimate the potential error margin for the appraisal results.

Table 2: Assessment accuracy, materiality and simple error analysis

Emission Source	Data source / comments	Materiality	Uncertainty	Market-based Error Margin (tCO_2e)
Vans	Van data was provided from Webfleet vehicle tracking software, showing mileage or litres of fuel associated with each vehicle by registration plate. Internal records were cross checked against the Webfleet data and vehicles not included within Webfleet report were then accounted for, to reduce the risk of double counting.	Very High (>40%)	5%	48.00
Site LPG	Total litres of LPG purchased were entered from purchase invoices covering the whole assessment period.	High (20-40%)	1%	6.29
Home-working	Homeworking information was provided on hours worked per day, days per week, and weeks per year, alongside occupancy status.	Very Low (<1%)	50%	3.85
Electricity (Market-based)	Electricity consumption for each site was provided based on internal records. For market-based calculations, the tariff specific emission factors were not available for 2023 and was based on the 2022 supplier specific figures.	Low (1-5%)	10%	2.91
Natural Gas	Gas consumption for Eagle House was provided from internal records. All other sites do not consume natural gas.	Very Low (<1%)	5%	0.74
Company car	Registration plate and vehicle details were provided with total annual mileage from internal records. This vehicle was originally missing from the Webfleet data and provided separately.	Very Low (<1%)	5%	0.44
Refrigerants	The majority of sites had no top-ups during the assessment period, with the exception of Knutsford, for which volume (kg) topped up and type of gas was provided.	Very Low (<1%)	10%	0.10

Emission Source	Data source / comments	Materiality	Uncertainty	Market-based Error Margin (tCO_2e)
Flights	Departure and destination airports were provided along with cabin class, number of passengers and return details for each flight.	Very Low (<1%)	1%	0.06
Site Diesel	Total litres purchased during the assessment period provided.	Very Low (<1%)	5%	0.04
Lorry freight (owned)	Registration plate, number of trips, annual distance and cargo weight were provided from internal records.	Very Low (<1%)	1%	0.02
Rail	Departure and destination stations provided, with number of passengers and return details from internal expense records.	Very Low (<1%)	1%	0.01
Taxi	Departure and destination locations for the majority of trips (34 of 36) were provided with cost used to model distance where this was not available.	Very Low (<1%)	1%	< 0.01
Ferry	Departure and destination ports provided with ferry type, number of passengers and return details from internal expense records.	Very Low (<1%)	1%	< 0.01
Total			**3.76%**	**+/- 62.45**

3. Carbon Footprint Results

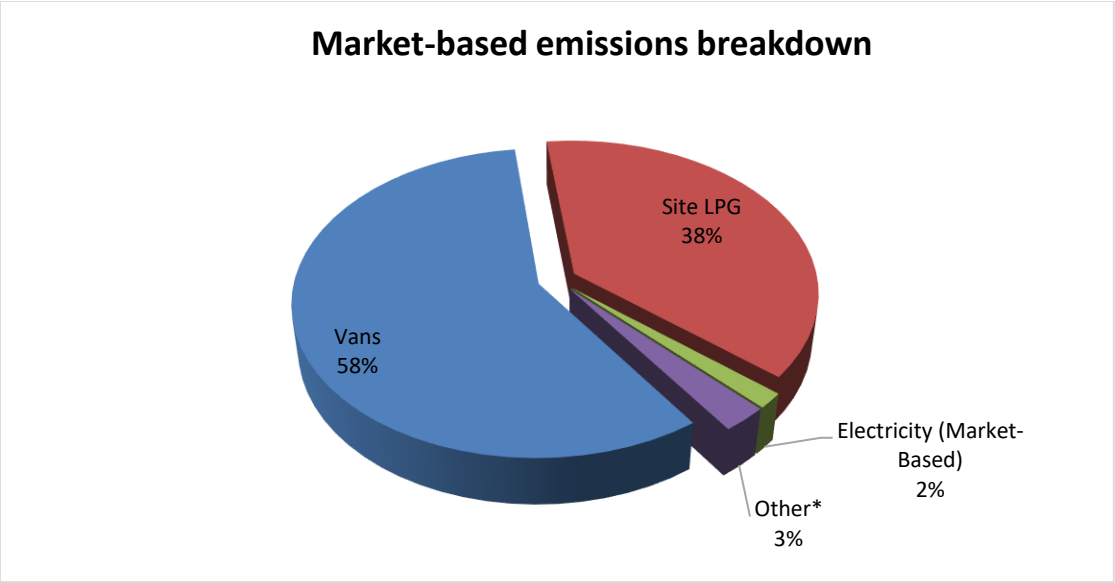
3.1. Summary of results

The total location-based carbon footprint for Cognicent for the period ending 31st December 2023 is 1,806.19 tonnes CO_2e, and the market-based total is 1,660.05 tonnes CO_2e.

Table 3: Results of Cognicent's carbon footprint assessment by scope and GHG Protocol emission categories

Scope	Emission Source	Location-based (tCO_2e)	Market-based (tCO_2e)
1	Owned vans	959.91	959.91
	Site LPG	628.86	628.86
	Natural Gas	14.82	14.82
	Company vehicles	8.81	8.81
	Lorry freight (owned)	1.93	1.93
	Refrigerants	0.97	0.97
	Site Diesel	0.75	0.75
Scope 1 Total		**1,616.04**	**1,616.04**
2	Electricity	161.28	26.88
Scope 2 Total		**161.28**	**26.88**
3.3	Transmission & Distribution	13.95	2.21
3.6	Flights	5.73	5.73
	Rail	0.95	0.95
	Ferry	0.36	0.36
	Taxi	0.18	0.18
3.7	Home-working	7.70	7.70
Scope 3 Total		**28.87**	**17.13**
Tonnes of CO_2e		**1,806.19**	**1,660.05**
Tonnes of CO_2e per employee		**7.03**	**6.46**
Tonnes of CO_2e per £ million turnover		**38.39**	**35.28**
Tonnes of CO_2e per cremation		**0.13**	**0.12**

A full breakdown of emissions by source has been provided in Annex A.



*Other: Natural Gas, Company Vehicles, Home-working, Flights, T&D, Lorry, Refrigerants, Rail, Site Diesel, Ferry, Taxi

Figure 2: Percentage contribution of each element of Cognicent's market-based carbon footprint

3.2. Emissions from Business Travel

Emissions from company owned vans are the most significant individual source for Cognicent, accounting for 58% of the total market-based emissions. Overall, business travel contributes 59% to the market-based total, with company car travel the second highest contributor (Table 4).

Table 4: Breakdown of emissions associated with business travel

GHG Protocol Emission Category	Emission Source	Tonnes of CO_2e
Company owned vehicles	Vans	959.91
	Lorry freight (owned)	1.93
	Company vehicles	8.81
Subtotal: Company owned vehicles		**970.64**
6. Business travel (not included in scope 1 or scope 2)	Taxi	0.18
	Rail	0.95
	Flights	5.73
	Ferry	0.36
Subtotal: 6. Business travel (not included in scope 1 or scope 2)		**7.22**
Total		**977.86**

To reduce GHG emissions in future, we recommend focusing on company van use and carrying out a transport audit to determine whether all travel is necessary, and whether there is opportunity for route optimisation and/or consolidation of trips. This can be analysed using telematics to plan out routes depending on jobs/van size and specific requirements to reduce the total distance covered, reducing emissions and running costs for the organisation.

3.3. Emissions from site fuel usage and energy consumption

LPG combustion on site is the second highest contributor to the overall market-based emissions, accounting for 38% of the total market-based emissions. Overall, site energy and fuel usage accounts for 41% of the market-based total; Table 5 provides a breakdown.

Table 5: Breakdown of emissions associated with fuel and energy consumption on site

Name of Site	Electricity[1]		Natural Gas	LPG	Diesel (retail)	Total Market-based tCO_2e
	Location-based	Market-based				
Charlton Park Crematorium	124.88	0.00	-	628.86	0.75	629.61
Eagle House	16.32	9.72	14.82	-	-	24.54
Knutsford	11.36	19.34	-	-	-	19.34
Amesbury	0.08	0.04	-	-	-	0.04
West Way	16.72	0.00	-	-	-	0.00
Scotland	5.87	0.00	-	-	-	0.00
Total	**175.23**	**29.10**	**14.82**	**628.86**	**0.75**	**673.53**

[1]Totals include emissions from transmission and distribution.

High LPG use is expected due to the operation of cremators on site. Due to the nature of the business, it is not possible to eradicate this entirely with current technology available. However, **we recommend that new technologies are monitored in the coming years to ensure low-carbon intensity processes are used wherever possible,** with consideration of operational capacity and costs (both capital and operational). We also **recommend that cremators are regularly serviced and maintained to ensure peak operational efficiency**.

4. Comparison, Publication, and Benchmarking

4.1. Comparison to base year emissions

The table below shows historical emissions per activity, as well as the total carbon footprint and carbon intensity metrics (tonnes of CO_2e per employee and tonnes of CO_2e per £M turnover).

Table 6: Cognicent's carbon footprint comparison and percentage change

Element	2019	2020	2021	2022	2023	% change on base year (2019)	% change on previous year
Owned Vans	175.72	277.86	545.16	525.27	959.91	446.3%▲	82.7%▲
Site LPG	193.10	172.43	170.21	589.24	628.86	225.7%▲	6.7%▲
Site electricity (Market-based)	0.00	1.32	2.89	13.73	29.09	n/a	111.9%▲
Site gas	0.00	47.19	29.41	22.10	14.82	n/a	-32.9%▼
Company car travel	3.56	9.10	8.35	0.12	8.81	147.4%▲	7,241.7%▲
Home-workers	0.00	1.12	2.84	32.22	7.70	n/a	-76.1%▼
Flights	6.03	1.79	0.84	0.11	5.73	-5.0%▼	5,109.1%▲
Lorry freight (owned)	0.00	0.03	4.50	4.30	1.93	n/a	-55.1%▼
Refrigerants	0.00	0.00	0.00	0.00	0.97	n/a	n/a
Rail travel	1.57	0.00	0.48	0.02	0.95	-39.5%▼	4,650.0%▲
Site Diesel (retail)	0.00	0.00	0.00	0.67	0.75	n/a	11.9%▲
Ferry travel	0.05	0.02	0.20	0.04	0.36	620.0%▲	800.0%▲
Taxi travel	0.00	0.00	0.01	0.02	0.18	n/a	800.0%▲
Total Tonnes of CO_2e (Market-based)	**380.03**	**510.86**	**767.18**	**1,189.23**	**1,660.05**	**336.8%▲**	**39.6%▲**
- Tonnes of CO_2e per employee	**9.05**	**8.81**	**3.50**	**5.06**	**6.46**	**-28.6%▼**	**27.6%▲**
- Tonnes of CO_2e per £ M turnover	**32.44**	**28.96**	**13.69**	**23.22**	**35.28**	**8.8%▲**	**51.9%▲**
- Tonnes of CO_2e per cremation	**0.16**	**0.10**	**0.08**	**0.09**	**0.12**	**-25.0%▼**	**33.3%▲**

Cognicent's absolute market-based emissions have continued to increase each year, largely due to growth of the company, and particularly the expansion of the vehicle fleet.

Company owned van use has increased significantly since the previous year (+82.7%) and it is noted that the fleet size increased from 37 vans in 2021, to 39 vans in 2022 and 67 vans in 2023 based on the evidence provided. A slight increase is expected due to business growth, as well as a return to higher levels of travel following the Covid-19 pandemic. A transport audit, as recommended in Section 3.2, will enable Cognicent to determine whether a number of these vans could be replaced by low emission cars, electric vans, or whether a reduced fleet size would be sufficient to carry out operations as the business grows. This may be achieved by route optimisation, consolidation of trips and ensuring vehicles are the appropriate size for the job, though the possibility and extent of this would be determined by the audit.

An increase in the volume of LPG used on site each year also contributes to the overall increase. This is expected due to the increase in the number of cremations carried out within the data period. For example, in 2021 there were 9,594 cremations, with this increasing by 42% to 13,621 in 2023. This influence is normalised when comparing the total market-based tonnes of CO_2e per cremation, which shows a steadier trend over time compared to absolute emissions; though there are still opportunities for reductions as outlined in Section 6.

4.2. External Publication and Benchmarking of Your Carbon Footprint

We strongly encourage you now to **publish your carbon footprint results on Carbon Database Initiative (CaDI)** – our new global platform.

https://carbondi.com/

External publication demonstrates your commitment to carbon management and to responsible transparency. Your results will also be endorsed on CaDI as 'Verified' for additional peace of mind for you and viewers of the data.

Using CaDI, you can also search other organisations that have reported their emissions to benchmark your performance.

As a Carbon Footprint client, your headline carbon footprint results will be automatically uploaded to your CaDI account for your ease – **though, rest assured, they will only be made public upon you choosing to publish them.**

Many companies report Scope 1 & 2 emissions for comparison against others as elements included in Scope 3 can vary greatly. Table 7 summarises the emissions across these Scopes, along with metrics showing emissions per unit turnover and per employee, to help your benchmarking.

Table 7: Cognicent's benchmarked GHG emissions

Year/Element	Location-based	Market-based
Total number of employees	257	
Turnover in £ million	47.05	
Tonnes of CO_2e	**1,806.19**	**1,660.05**
Tonnes of CO_2e per employee	**7.03**	**6.46**
Tonnes of CO_2e per £ million turnover	**38.39**	**35.28**
Tonnes of CO_2e per cremation	**0.13**	**0.12**
Scope 1 & 2 Emissions		
Tonnes of CO_2e	**1,777.32**	**1,642.92**
Tonnes of CO_2e per employee	**6.92**	**6.39**
Tonnes of CO_2e per £ million turnover	**37.78**	**34.92**
Tonnes of CO_2e per cremation	**0.13**	**0.12**

5. Conclusion

Cognicent Ltd, in conjunction with Carbon Footprint Ltd, has successfully assessed its carbon footprint. By achieving this Cognicent has qualified to use the Carbon Footprint Standard branding. This can be used on all marketing materials, including website and customer tender documents, to demonstrate your carbon management achievements.

6. Recommendations

6.1. Carbon & sustainability targets

6.1.1. Target setting for net zero

Cognicent should set targets based on relevant metrics (e.g. per employee, per £M turnover, per cremation) which will account for business growth. Many organisations are now setting targets based on typical mid-term and longer terms goals to reach net zero (ISO's International Workshop Agreement on Net Zero Guidance - IWA 42:2022[1]):

- A 50% reduction in emissions per £M turnover/employee/cremation by 2030.
- A 90% reduction in emissions per £M turnover/employee/cremation by 2045.

All targets set should be reviewed regularly and amended accordingly (i.e. target increased if it is met ahead of schedule). A clear roadmap for individual emissions sources should be in place. This will ensure the strategy for reducing CO_2e emissions and tracking toward a net zero target is appropriate for the business.

A hyperlink to Carbon Footprint Ltd's whitepaper on target setting can be found below:
https://www.carbonfootprint.com/docs/2021_12_cfp_practical_target_setting_-_white_paper_v10.pdf

6.1.2. Expand the Scope of the Assessment

We recommend that the scope of the assessment is expanded in future to include the aspects that are identified as excluded in Table 1.

The most material element would likely be, purchased goods and services and capital goods, due to the nature of your business, so we recommend you focus on capturing data for this ready for next year's appraisal.

Cognicent should also consider revising the base year to ensure that recent increases in Scope 1 business operations are accurately reflected over time. Where company owned vans are now used, if the same operations were previously carried out by a third-party (and therefore would have been Scope 3 and not previously assessed), expanding the base year scope to include a wider range of Scope 3 will enable more accurate reflection of the overall GHG emissions over time across all scopes.

[1] ISO - Net Zero Guidelines

6.1.3. Improving the accuracy of future carbon footprint assessments

The estimated overall error margin is +/- 3.76% (which represents +/- 62.45 tCO_2e of the total assessed emissions). To improve the accuracy of future assessments, we recommend the following:

- Consider collating data throughout the year to ensure ample time to carry out data checks prior to submission. Due to changes in human resource since 2021, data for the 2022 and 2023 years were collected with a quick turnaround. Whilst the majority of evidence for significant emission sources was provided during the audit process, a number of errors were identified prior to final calculation. This could be done through a shared online folder system, in which relevant staff can upload documents throughout the year with the lead then carrying out checks on missing data/anomalies towards the end of the year. Alternatively, you may wish to consider a software system (e.g. Carbon Footprint Ltd's SUSTRAX MX) which enables you to upload data and evidence throughout the year, providing you with your current GHG emissions calculation at regular intervals throughout the year.
- Carry out a survey to capture data on home-working and employee commuting, to reduce the need for estimation.
- Provide evidence of supplier tariffs for sites to ensure the most accurate market-based calculations.

6.2. Reducing emissions

To reduce GHG emissions, we recommend the following:

- Carry out a detailed transport audit. This should consider reasons for travel, identify high mileage expense claimants, driver behaviours, existing assets, procurement policy for new transport assets and feasibility of transitioning to vehicles with lower carbon emissions. This can be used to determine whether there is scope to optimise travel routes, consolidate the number of trips or reduce the fleet size.
- When leasing/purchasing new vehicles, consider transitioning to electric vehicles (EV) and installing charging points on-site to encourage staff to switch too.
- Investigate adopting an alternative fuel source to power vehicles with the largest emissions. Vehicles such as owned HGVs could use HVO or bio-diesel, also known as FAME (Fatty Acid Methyl Esters) produced from vegetable oils. These fuel types can be used with no mechanical modification of vehicles and have a net emission saving of approximately 80 - 90% compared to standard petrol or diesel vehicles.
- Evaluate the effectiveness of using remote meetings and limited travel and re-define what your business classifies as "essential" travel going forwards.
- Investigate swapping owned sites from gas-powered heating to sustainable alternatives such as electric, hydrogen, solar thermal, and air-source heat pumps.
- Switch to a renewable energy tariff to reduce emissions associated with electricity use. Many "green" electricity tariffs are now the same price as the traditional brown tariffs. Once you have done this you will be able to report your market-based emissions alongside your location based.

- Continue to monitor new technologies over the coming years to ensure low-carbon intensity processes for cremation are used wherever possible, with consideration of operational capacity and costs (both capital and operational).
- Ensure that cremators are regularly serviced and maintained to ensure peak operational efficiency.

6.3. Carbon offsetting

Carbon offsetting is a pragmatic way to compensate for the emissions that you cannot reduce, by funding an equivalent carbon dioxide saving elsewhere.

The majority of projects focus on the development of renewable energy in developing countries, however there are others which have a greater focus on social benefits as well as environmental benefits. Further detail on the type and specific projects that we currently have in our portfolio can be provided on request or be found at: http://www.carbonfootprint.com/carbonoffsetprojects.html.

Example of Carbon Offsetting Projects:

Tree Planting in UK Schools

Wind Farm Power Project in Thailand

Reforestation of Degraded Land in India

Annex A

A full breakdown of Cognicent's emission sources is given below. This aligns with the GHG Protocol classification methodology and provides each associated emission source:

Scope	GHG Protocol Emission Category	Emission Source	Location-based (tCO_2e)	Market-based (tCO_2e)
1	On-site fuel use	Site LPG	628.86	628.86
		Natural Gas	14.82	14.82
		Site Diesel	0.75	0.75
	Company owned vehicles	Vans	959.91	959.91
		Company vehicles	8.81	8.81
		Downstream lorry freight	1.93	1.93
	Fugitive emissions (incl. Refrigerant gases and AC)	Refrigerants	0.97	0.97
Scope 1 Total			**1,616.04**	**1,616.04**
2	On-site Consumption of purchased electricity, heat steam and cooling	Electricity	161.28	26.88
Scope 2 Total			**161.28**	**26.88**
3.3	3. Fuel- and energy related activities (not included in scope 1 or scope 2)	Transmission & Distribution	13.95	2.21
3.6	6. Business travel (not included in scope 1 or scope 2)	Flights	5.73	5.73
		Rail	0.95	0.95
		Ferry	0.36	0.36
		Taxi	0.18	0.18
3.7	7. Employee commuting	Home-working	7.70	7.70
Scope 3 Total			**28.87**	**17.13**
All	**Tonnes of CO_2e**		**1,806.19**	**1,660.05**
	Tonnes of CO_2e per employee		**7.03**	**6.46**
	Tonnes of CO_2e per £ million turnover		**38.39**	**35.28**
	Tonnes of CO_2e per cremation		**0.13**	**0.12**