



Carbon Footprint Appraisal
for
OrangeTek Limited

Assessment Period:
1st January 2024 – 31st December 2024

Executive Summary

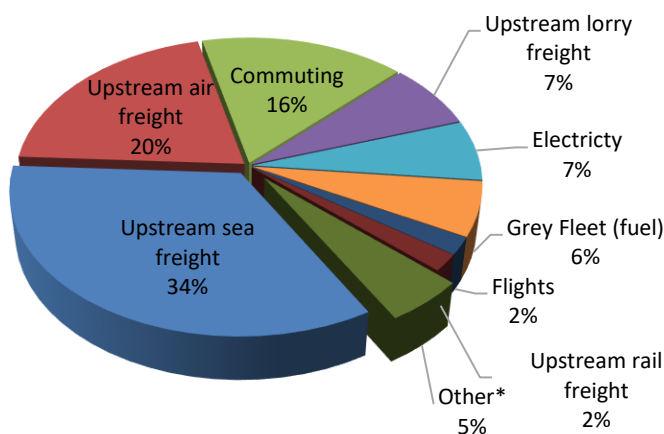
Current Performance

- OrangeTek’s total market-based emissions are 93.11 tCO₂e (with a location-based emissions of 87.17 tCO₂e).
- The most significant location-based emission source is upstream sea freight, accounting for 34.16% of the business’s carbon footprint.
- OrangeTek’s total location-based emissions have reduced 43% relative to the baseline year.

Recommendations

- Optimise your order and diary management to allow sufficient lead time for goods to be transported by via sea freight
- Implement a salary sacrifice scheme to encourage employees to use more sustainable transport such electric vehicles and/or a cycle-to-work initiative.
- Consider switching short-haul flights to rail journeys.
- Investigate with freight couriers what their long-term plans are to reduce emissions and improve sustainability.
- Offset the calculated footprint by supporting climate change solutions around the world to become a ‘Carbon Neutral Organisation’.
- Carry out a target setting and supply chain screening to facilitate your reduction strategy and increase the scope of your assessment.

Location-based emissions breakdown (incl. WTT)



*Other= Scopes 1 and 2 WTT, Homeworking, Transmission & Distribution, Hotel Stays, Rail, Ferry, Taxi, Paper, Waste, Refrigerants.

Year/Element	Location based	Market based
Total number of employees	10	
Turnover in £ million	2.06	
Tonnes of CO₂e	87.17	93.11
Tonnes of CO₂e per employee	8.72	9.31
Tonnes of CO₂e per £ million turnover	42.23	45.11



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Quality Control

Report issue number: 1.0
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Calculations completed by: Tom Vaughan
Calculations reviewed by: Myles Howard

Report produced by: Tom Vaughan
Report reviewed by: Stuart Fowler

Director approval: Dr. Wendy Buckley

1. Introduction

1.1. Company Overview

OrangeTek is a supplier of exterior LED lighting products, operating from a UK office and warehouse.

1.2. Data supplied for the Carbon Footprint Appraisal

A summary of the data supplied by OrangeTek 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](https://www.carbonfootprint.com/docs/carbon_footprint_appraisal_methodology_document.pdf)

1.4. Abbreviations

AC	Air Conditioning
CO ₂ e	Carbon Dioxide Equivalent
Defra	Department for Environment, Food and Rural Affairs
EV	Electric Vehicle
GHG	Greenhouse Gas
ISO	International Standards Organisation
IWA	International Workshop Agreement
km	Kilometres
kWh	Kilowatt Hours
T&D	Transmission & Distribution
TTW	Tank-To-Wheel
WTT	Well-To-Tank
WTW	Well-To-Wheel

2. Calculation Scope and Accuracy

2.1. Scope of this work

Carbon Footprint has assessed the GHG emissions from 1st January 2024 to 31st December 2024 resulting from the energy consumption at OrangeTek’s facilities and its business transport activities.

OrangeTek's baseline year data and emissions can be found in the 2017 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 financial control. This assessment covers the reporting boundaries shown in Table 1, in line with the Greenhouse Gas Protocol Accounting and Reporting Corporate Standard.

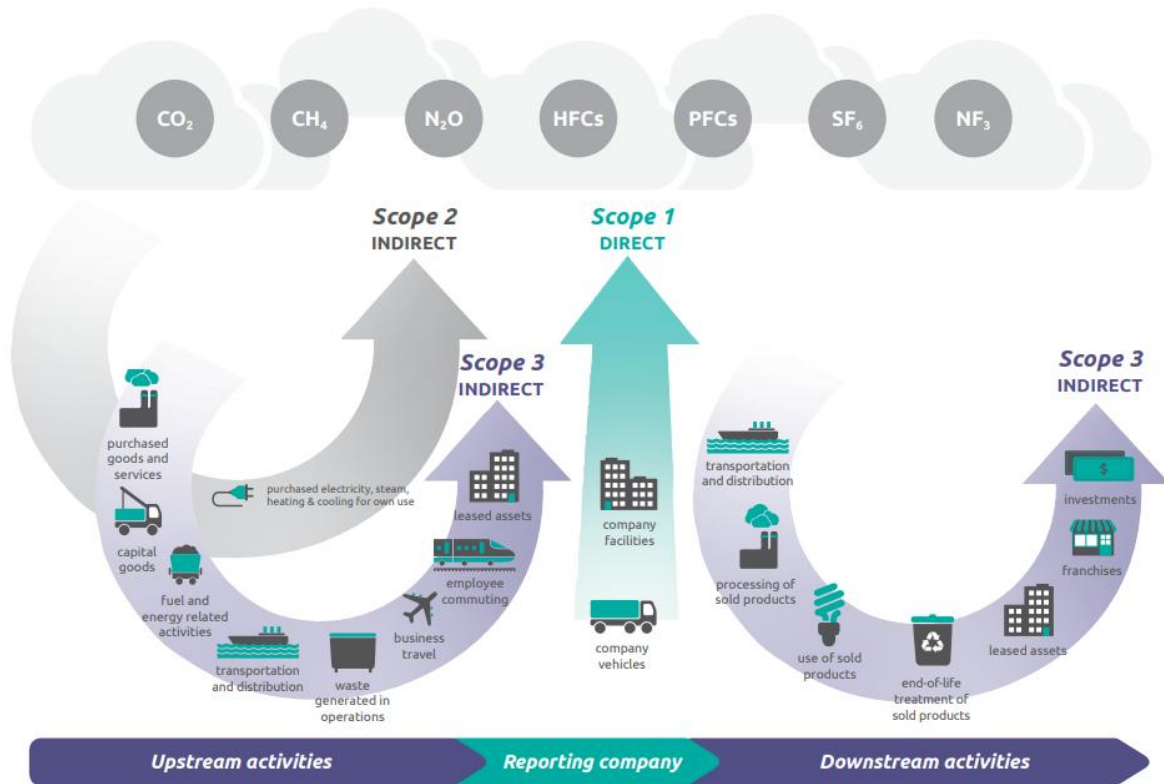


Figure 1: Overview of emissions scopes (GHG Protocol - Scope 3 Calculation Guidance v1.0 - 2013)



Table 1: OrangeTek’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	Completion Status	Justification
1	Electricity, heat or steam generated on-site	Not relevant	Not applicable
	On-site fuel use	Not relevant	Not applicable
	Company owned vehicles	Not relevant	Not applicable
	Fugitive emissions (incl. Refrigerant gases and AC)	Complete	
2	On-site Consumption of purchased electricity, heat steam and cooling	Complete	
3	1. Purchased goods and services	Partial	The minimum boundary has not met under the GHG protocol
	2. Capital goods	Excluded	Relevant and recommended to include in future assessments
	3. Fuel- and energy related activities (not included in scope 1 or scope 2)	Complete	
	4. Upstream transportation and distribution	Complete	
	5. Waste generated in operation	Complete	
	6. Business travel (not included in scope 1 or scope 2)	Complete	
	7. Employee commuting	Complete	
	8. Upstream leased assets	Not relevant	Not applicable
	9. Downstream transportation and distribution	Complete	
	10. Processing of sold products	Not relevant	Not applicable
	11. Use of sold products	Excluded	Relevant and recommended to include in future assessments
	12. End-of-life treatment of sold products	Excluded	Relevant and recommended to include in future assessments
	13. Downstream leased assets	Not relevant	Not applicable
	14. Franchises	Not relevant	Not applicable
	15. Investments	Not relevant	Not applicable



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 ₂ e)
Commuting	Data obtained from employee survey, included annual mileage and car type.	Medium (5-20%)	5%	0.71
Electricity (Market-Based)	Data obtained from meter readings and kWh provided. Tariff specific emissions could not be provided therefore residual mix used to calculate market-based emissions.	Medium (5-20%)	5%	0.69
Homeworking	Data obtained from employee survey, included total annual homeworking hours and home occupancy.	Low (1-5%)	50%	0.64
Upstream sea freight	Data obtained from logistics provider, included postcodes and cargo weight (kg)	High (20-40%)	1%	0.30
Upstream air freight	Data included airport codes, cargo weights (kg) and number of shipments.	Medium (5-20%)	1%	0.18
Upstream lorry freight	Data included cargo weight (kg) and distance (km) obtained from logistics provider.	Medium (5-20%)	1%	0.06
Grey Fleet (fuel)	Data included vehicle model/make and annual mileage.	Medium (5-20%)	1%	0.05
Flights	Data included airport codes, cabin class and return journeys obtained from expense report.	Low (1-5%)	1%	0.02
Upstream rail freight	Data included rail type, cargo weight (kg) and departure/destination stations.	Low (1-5%)	1%	0.02
Hotel Stays	Data included total guest nights and hotel location.	Very Low (<1%)	1%	0.01
Rail	Departure/Destination, return trips and train type provided from expense report.	Very Low (<1%)	1%	<0.01



Ferry	Data included departure/destination ports, km distance and ferry type.	Very Low (<1%)	1%	<0.01
Waste	Data included disposal route, waste quantity (tonnes) and waste type.	Very Low (<1%)	5%	<0.01
Taxi	Data obtained from internal expense report, includes annual mileage, reg plate	Very Low (<1%)	1%	<0.01
Paper	Data obtained from expense report and included paper type, and number of sheets.	Very Low (<1%)	1%	<0.01
Refrigerants	Refrigerant logbook checked and no top ups required this year.	Very Low (<1%)	1%	<0.01
Total			+/-2.88%	+/-2.68



3. Carbon Footprint Results

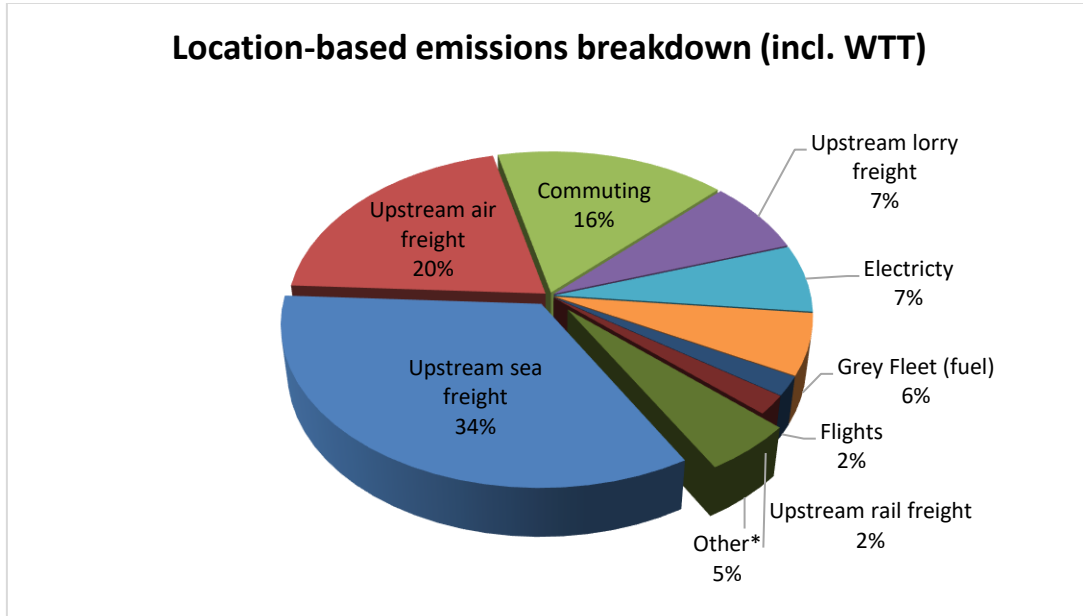
3.1. Summary of results

The total location-based carbon footprint for OrangeTek for the period ending 31st December 2024 is 87.2 tonnes CO₂e, and the market-based total is 93.1 tonnes CO₂e.

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

Scope	Emission Source	Location-Based (tCO ₂ e)	Market-Based (tCO ₂ e)
1	Refrigerants	0.00	0.00
1	Scope 1 Total	0.00	0.00
2	Electricity	5.88	11.83
2	Scope 2 Total	5.88	11.83
3.1	Paper	0.03	0.03
3.3	Scopes 1 and 2 WTT	1.30	1.30
	Transmission & Distribution	0.63	0.63
3.4	Upstream sea freight	29.77	29.77
	Upstream air freight	17.83	17.83
	Upstream lorry freight	6.38	6.38
	Upstream rail freight	1.68	1.68
3.5	Waste	0.02	0.02
3.6	Grey Fleet (fuel)	5.34	5.34
	Flights	1.68	1.68
	Hotel Stays	0.61	0.61
	Rail	0.37	0.37
	Ferry	0.11	0.11
	Taxi	0.06	0.06
3.7	Commuting	14.19	14.19
	Homeworking	1.28	1.28
3	Scope 3 Total	81.29	81.29
All	Tonnes of CO₂e	87.17	93.11
	Tonnes of CO₂e per employee	8.72	9.31
	Tonnes of CO₂e per £ million turnover	42.23	45.11

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



*Other= Scopes 1 and 2 WTT, Homeworking, Transmission & Distribution, Hotel Stays, Rail, Ferry, Taxi, Paper, Waste, Refrigerants

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

3.2. Emissions from Freight

Emissions associated with freight account for 50% of OrangeTek's total market-based emissions. Whilst sea freight contributes the most overall emissions (53%), it is the least carbon intensive, however, air freight emissions contribute 32% to overall freight emissions and is the most carbon intensive form of transport.

Table 4: CO₂e emissions associated with freight

Emission Source	Well-to-Tank (tCO ₂ e)	Tank-to-Wheel (tCO ₂ e)	Well-to-Wheel (Total) (tCO ₂ e)
Sea Freight	5.50	24.28	29.77
Rail Freight	0.33	1.34	1.68
Lorry Freight	1.24	5.14	6.38
Air Freight	1.95	15.88	17.83
Total	9.03	46.64	55.66

- Well-to-Tank (WTT): refers to the upstream emissions of getting the fuel/energy to the point of use (extraction, refining and distribution to a fuel station)
- Tank-to-Wheel (TTW): emissions generated during operation (while fuel/energy is being used)
- Well-to-Wheel: full lifecycle combined emissions from source to consumption (WTT and TTW combined)

3.3. Emissions from Well to Tank

Well-to-tank emissions relate to the upstream emissions of fuel and energy; accounting for extraction, processing, and transport of fuels/energy. **OrangeTek can reduce these emissions by reducing fuel and energy usage.**

Table 5: Well-To-Tank CO₂e Emissions breakdown

Emission Source	Emissions (tCO ₂ e)
Upstream sea freight	5.50
Commuting	2.98
Electricity	1.30
Upstream lorry freight	1.24
Upstream air freight	1.13
Grey Fleet (fuel)	1.02
Downstream air freight	0.82
Upstream rail freight	0.33
Flights	0.18
Transmission & Distribution	0.11
Rail	0.07
Ferry	0.02
Taxi	0.01
Total	14.73



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 CO₂e per employee and tonnes of CO₂e per £M turnover). Emissions have reduced by 90.6% relative to the baseline year, due to a significant decrease in air freight (-97.7%)

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

Element	2017	2022	2023	2024	% change on baseline year (2017)	% change on previous year
Outsourced Logistics - Sea	61.41	34.80	19.40	24.28	-60.5% ▼	25.1% ▲
Outsourced Logistics - Air	678.44	15.33	32.31	15.88	-97.7% ▼	-50.9% ▼
Well To Tank (Location-Based)	84.07 ¹	22.20	26.17	14.73	-82.5% ▼	-43.7% ▼
Commuting	*	*	38.31	11.21	n/a	-70.7% ▼
Site electricity (Location-based)	11.00	22.19	5.86	6.40	-41.9% ▼	9.3% ▲
Outsourced Logistics - Road	10.04	23.97	22.26	5.14	-48.8% ▼	-76.9% ▼
Employee-owned car travel (grey fleet)	17.90	2.41	4.17	4.33	-75.8% ▼	3.7% ▲
Flights	24.53	0.00	0.00	1.50	-93.9% ▼	1st year
Outsourced Logistics - Rail	24.45	2.24	0.01	1.34	-94.5% ▼	16064.4% ▲
Homeworking	*	0.11	3.00	1.28	n/a	-57.3% ▼
Hotel stays	*	0.00	0.00	0.61	n/a	1st year
Rail travel	0.01	0.04	0.04	0.29	2,144.6% ▲	653.7% ▲
Ferry travel	0.41	0.00	0.00	0.09	-78.9% ▼	1st year
Taxi travel	0.16	0.01	0.02	0.05	-72.1% ▼	113.0% ▲
Paper	*	0.00	0.03	0.03	n/a	-13.3% ▼
Waste	*	0.00	0.08	0.02	n/a	-76.7% ▼
Bus travel	0.00	0.00	0.00	0.00	n/a	-100.0% ▼
Van travel and distribution (Outsourced)	18.81	2.07	1.81	0.00	-100% ▼	-100% ▼
Total Tonnes of CO₂e (Location-based)	931.23	125.37	153.49	87.17	-90.6% ▼	-43.2% ▼
Tonnes of CO₂e per employee	65.17	15.67	13.95	8.72	-86.6% ▼	-37.5% ▼
Tonnes of CO₂e per £ M turnover	698.40	125.37	67.65	42.23	-94.0% ▼	-37.6% ▼
Kilograms of CO₂e per product output	21.18	6.27	13.79	5.24	-75.3% ▼	-62.0% ▼

*Not assessed

¹ Well to tank emissions have been retrospectively added for accurate benchmarking.

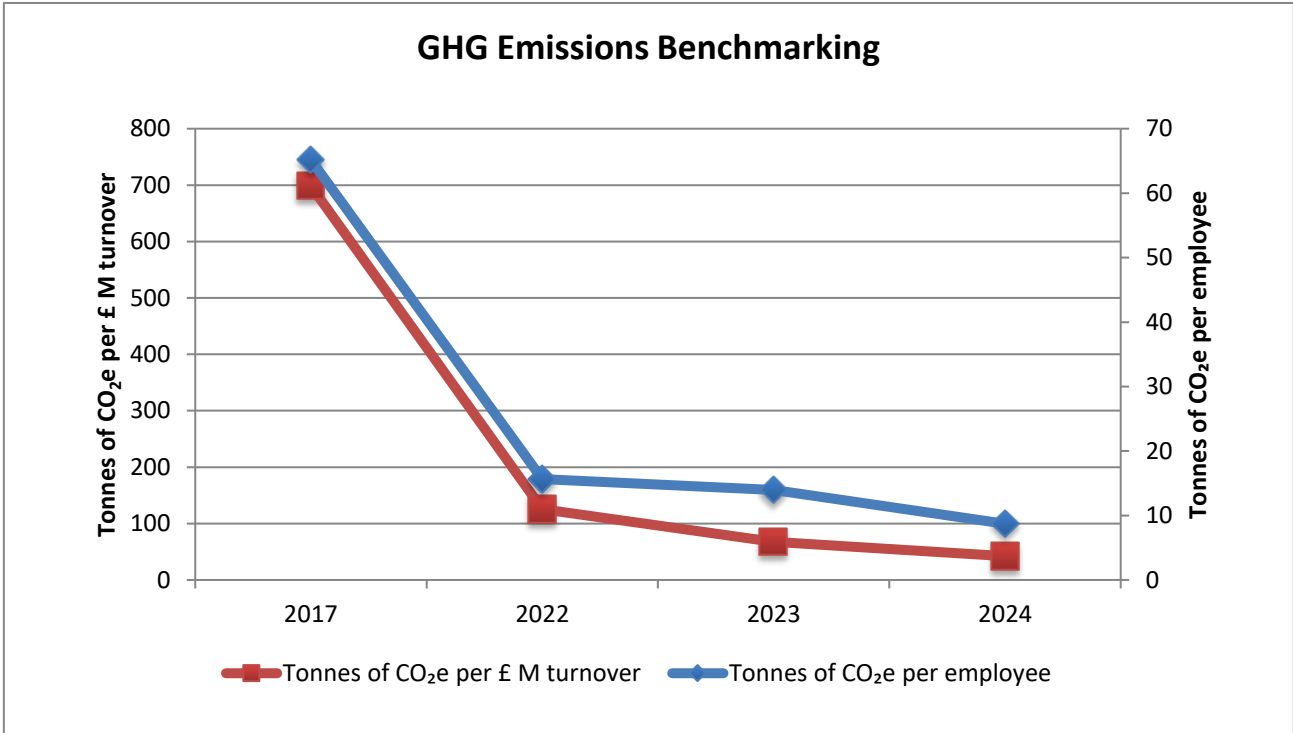


Figure 3: Carbon footprint of OrangeTek for internal benchmarks

4.2. 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. Follow [this link](https://carbondi.com/) to grant us permission to publish your results automatically.



<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.

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: OrangeTek's benchmarked GHG emissions

Year/Element	Location based	Market based
Total number of employees	10	
Turnover in £ million	2.06	
Tonnes of CO ₂ e	87.17	93.11
Tonnes of CO ₂ e per employee	8.72	9.31
Tonnes of CO ₂ e per £ million turnover	42.23	45.11
Scope 1 & 2 Emissions		
Tonnes of CO ₂ e	5.88	11.83
Tonnes of CO ₂ e per employee	0.59	1.18
Tonnes of CO ₂ e per £ million turnover	2.85	5.73

5. Conclusion

OrangeTek, in conjunction with Carbon Footprint Ltd, has assessed its carbon footprint and 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. Improving the accuracy of future carbon footprint assessments

The estimated overall error margin is 2.9% (which represents +/- 2.56 tCO₂e of the total assessed emissions).

To improve the accuracy of future assessments, we recommend the following:

- Implement a monthly data and carbon tracking system, such as Carbon Footprint Ltd's Sustrax MX platform.

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, due to the nature of your business, so we recommend you focus on capturing data for this ready for next year's appraisal.

6.1.3 Target setting for net zero

OrangeTek should set targets based on per employee and/or per £M turnover, 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 42:2022²):

- A 50% reduction in emissions per £M turnover/employee by 2030.
- A 90% reduction in emissions per £M turnover/employee 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 CO₂e 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

² [ISO - Net Zero Guidelines](#)

6.2. Reducing emissions

To reduce GHG emissions, we recommend the following:

- Investigate the possibility of adjusting freight routes to incorporate as much sea freight transport as possible. Sea freight causes around 1% of the emissions of air freight, 17% of emissions compared to road and about half the emissions of rail freight, so whenever possible sea freight should be used instead of other options.
- Set up a salary sacrifice scheme for employees to purchase/lease electric vehicles, bicycles (e-bikes) and scooters. If possible, install charging points on-site to encourage staff to switch to electric vehicles.
- Consider switching short-haul flights to rail transport where possible (e.g. Glasgow to Bristol)
- Investigate with freight couriers what their long-term plans are to reduce emissions and increase sustainability. This could be achieved through the electrification of fleet vehicles (e.g. vans) and improving sustainability policies. In the long-term this might involve planning a switch to hydrogen or electric powered lorries.
- Offset the calculated footprint by supporting climate change solutions around the world to become a 'Carbon Neutral Organisation'.

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>.



Annex A

A full breakdown of OrangeTek'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 ₂ e)	Market-Based (tCO ₂ e)
1	Fugitive emissions (incl. Refrigerant gases and AC)	Refrigerants	0.00	0.00
Scope 1 Total			0.00	0.00
2	On-site Consumption of purchased electricity, heat steam and cooling	Electricity	5.88	11.83
Scope 2 Total			5.88	11.83
3.1	1. Purchased goods and services	Paper	0.03	0.03
3.3	3. Fuel- and energy related activities (not included in scope 1 or scope 2)	Scopes 1 and 2 WTT	1.30	1.30
		Transmission & Distribution	0.63	0.63
3.4	4. Upstream transportation and distribution	Upstream sea freight	29.77	29.77
		Upstream air freight	17.83	17.83
		Upstream lorry freight	6.38	6.38
		Upstream rail freight	1.68	1.68
3.5	5. Waste generated in operation	Waste	0.02	0.02
3.6	6. Business travel (not included in scope 1 or scope 2)	Grey Fleet (fuel)	5.34	5.34
		Flights	1.68	1.68
		Hotel Stays	0.61	0.61
		Rail	0.37	0.37
		Ferry	0.11	0.11
3.7	7. Employee commuting	Taxi	0.06	0.06
		Commuting	14.19	14.19
		Homeworking	1.28	1.28
Scope 3 Total			81.29	81.29
All	Tonnes of CO₂e		87.17	93.11
	Tonnes of CO₂e per employee		8.72	9.31
	Tonnes of CO₂e per £ million turnover		42.23	45.11