



Carbon Footprint Appraisal
for
TT International Asset Management Limited

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

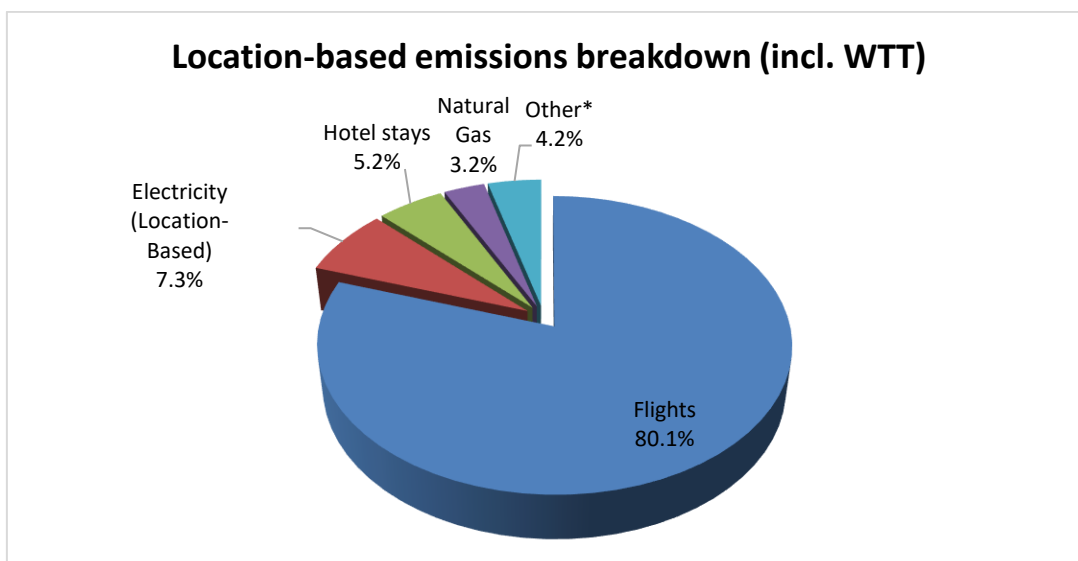
Executive Summary

Current Performance

- TT International’s total location-based emissions are 968.31 tCO₂e (with a market-based emissions of 970.32 tCO₂e).
- The most significant location-based emission source is flights, accounting for 80.1% of TT International’s location-based carbon footprint.
- The majority of location-based emissions at 72% arise from UK operations.

Recommendations

- Offset the GHG emissions created within this data period to maintain your carbon neutrality.
- Cut back on all non-essential flights. When air travel is required, economy class tickets should be purchased. During 2023 if all business class flights were booked in economy instead, emissions from air travel would have reduced by 411 tonnes CO₂e.
- Evaluate the effectiveness of using remote meetings and re-define what your business classifies as “essential” travel going forwards.
- Switch sites to renewable energy tariffs to reduce your market-based emissions.
- Expand the scope of the assessment to include all relevant scope 3 categories.
- **Carry out a target setting and supply chain screening to facilitate your reduction strategy and increase the scope of your assessment.**



*Other= Scopes 1 And 2 WTT, Transmission & Distribution, Taxi, Rail, Wastewater, Water.

1 st January 2023 – 31 st December 2023	Location-Based (tCO ₂ e)	Market-Based (tCO ₂ e)
Tonnes of CO₂e	968.31	970.32
Tonnes of CO₂e per employee	9.40	9.42
Tonnes of CO₂e per £ million turnover	32.28	32.34



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Quality Control

Report issue number: 1.0
Date: 12 February 2024

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1. Introduction

1.1. Company Overview

TT International is a global asset management organisation with three offices (London, New York & Hong Kong).

1.2. Data supplied for the Carbon Footprint Appraisal

A summary of the data supplied by TT International 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

A/C	Air Conditioning
BEIS	Department for Business Energy & Industrial Strategy
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
Defra	Department for Environment, Food and Rural Affairs
GHG	Greenhouse Gas
ISO	International Standards Organisation
IWA	International Workshop Agreement
km	Kilometres
PR	Public Relations
TTW	Tank-To-Wheel
T&D	Transmission & Distribution
UN	United Nations
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 2023 to 31st December 2023 resulting from the energy consumption at TT International’s facilities and its business transport activities.

TT International'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.

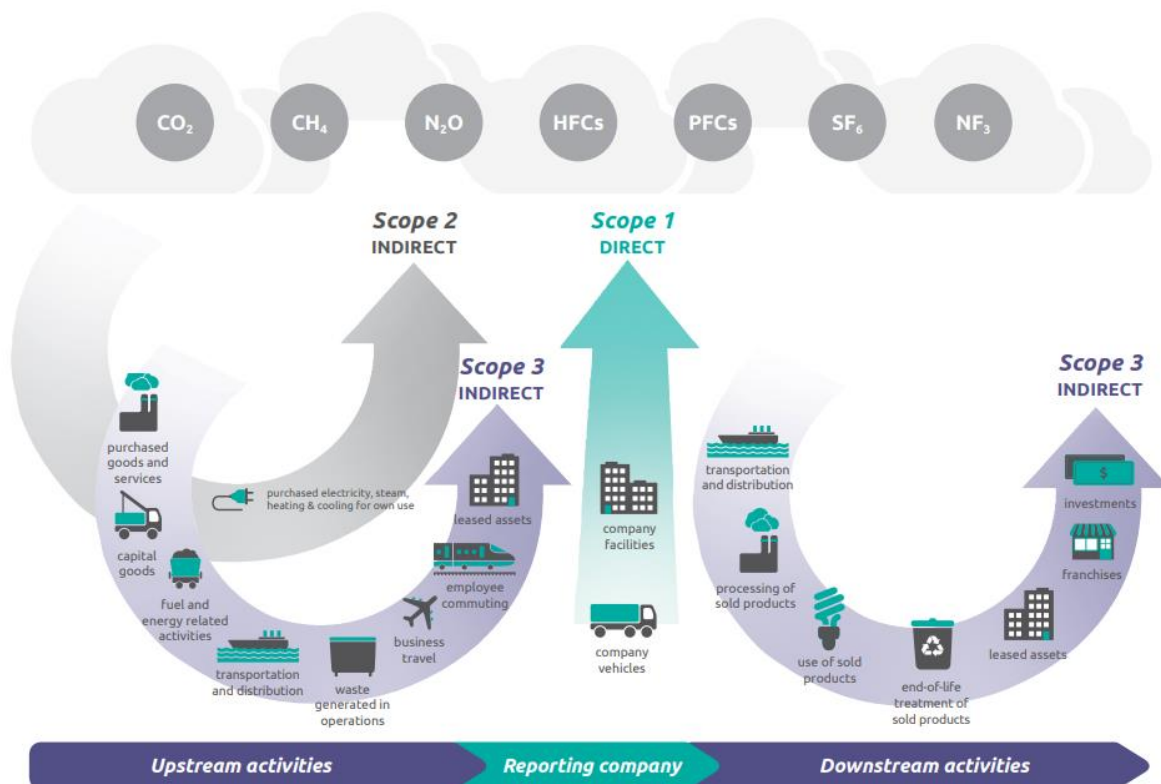


Figure 1: Overview of emissions scopes (GHG Protocol - Scope 3 Calculation Guidance v1.0 - 2013)



Table 1: TT International’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	
1	On-site fuel use		Complete	
1	Company owned vehicles		Not relevant	
1	Fugitive emissions (incl. Refrigerant gases and AC)		Complete	No top-ups recorded during the assessment period
2	On-site Consumption of purchased electricity, heat steam and cooling		Complete	
3	1. Purchased goods and services		Partial	Water (and wastewater) included.
3	2. Capital goods		Excluded	Relevant and recommended to include in future assessments.
3	3. Fuel- and energy related activities (not included in scope 1 or scope 2)		Complete	
3	4. Upstream transportation and distribution		Excluded	Relevant and recommended to include in future assessments.
3	5. Waste generated in operation		Excluded	Relevant and recommended to include in future assessments.
3	6. Business travel (not included in scope 1 or scope 2)		Complete	
3	7. Employee commuting		Excluded	Relevant and recommended to include in future assessments.
3	8. Upstream leased assets		Not relevant	
3	9. Downstream transportation and distribution		Not relevant	
3	10. Processing of sold products		Not relevant	
3	11. Use of sold products		Not relevant	
3	12. End-of-life treatment of sold products		Not relevant	
3	13. Downstream leased assets		Not relevant	
3	14. Franchises		Not relevant	
3	15. Investments		Excluded	Relevant and recommended to include in future assessments.

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	Location-based Error Margin (tCO ₂ e)
Flights	Travel reports provided flight path and cabin class. For flights booked from the UK team, any amendments to flights were shown as a new ticket and have therefore been excluded to avoid double-counting.	Very High (>40%)	25%	193.84
Hotel stays	Total spend was provided from expenses/booking records. Currency was converted into GBP from USD using an average exchange rate of 1.24 and from HKD to GBP using 9.73 ¹ .	Medium (5-20%)	50%	25.37
Electricity (Location-Based)	London: consumption provided for the entire building; this was apportioned to TT International based on floor area occupied. Hong Kong & New York: building management provided consumption.	Medium (5-20%)	10%	9.74
Natural Gas	Monthly consumption was provided for the entire building, this was apportioned to TT International based on floor area occupied.	Low (1-5%)	10%	3.61
Taxi	Expense and booking records provided total cost. Currency was converted into GBP from USD using an average exchange rate of 1.24 and from HKD to GBP using 9.73 ¹ .	Very Low (<1%)	5%	0.34
Water	Consumption was unable to be sourced and therefore it was estimated based on staff numbers and an average use of 50 litres per employee, per weekday ² .	Very Low (<1%)	90%	0.20
Rail	Expense and booking records provided total cost. Currency was converted into GBP from USD using an average exchange rate of 1.24 and from HKD to GBP using 9.73 ¹ .	Very Low (<1%)	5%	0.08
Total				233.18

¹ Average exchange rates to December 2023: https://www.trade-tariff.service.gov.uk/exchange_rates/view/2023-12?type=average.

² Average water consumption in office, water use in your business, south-staffs-water.co.uk/media/1509/waterusebusiness.pdf



3. Carbon Footprint Results

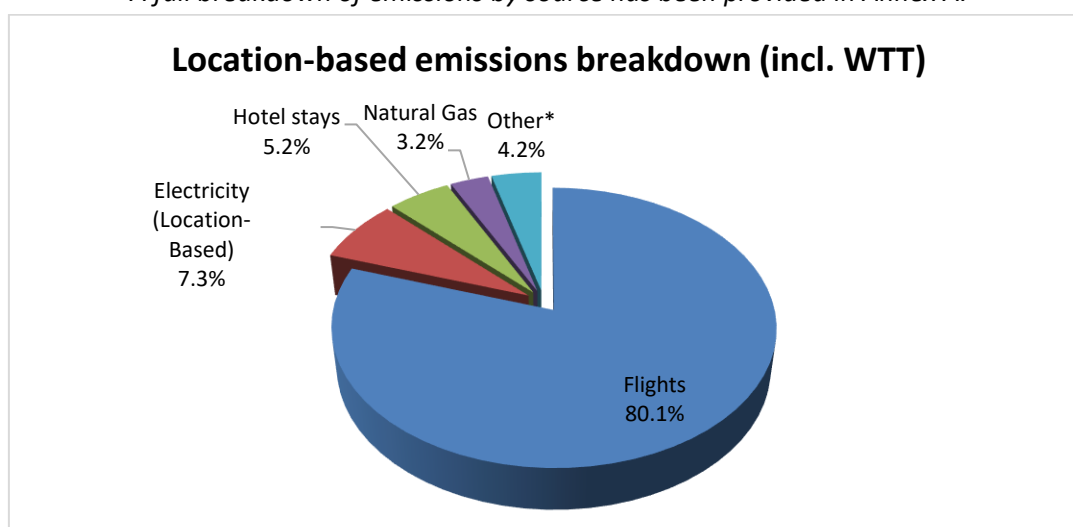
3.1. Summary of results

The total location-based carbon footprint for TT International for the period ending 31st December 2023 is 968.31 tonnes CO₂e, and the market-based total is 970.32 tonnes CO₂e.

Table 3: Results of TT International'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	Natural Gas	30.98	30.98
Scope 1 Total		30.98	30.98
2	Electricity	70.86	72.87
Scope 2 Total		70.86	72.87
	Water	0.22	0.22
3.3	Scopes 1 and 2 WTT	23.36	23.36
	Transmission & Distribution	8.26	8.26
3.5	Wastewater	0.25	0.25
3.6	Flights	775.34	775.34
	Hotel stays	50.75	50.75
	Taxi	6.71	6.71
	Rail	1.58	1.58
Scope 3 Total		866.46	866.46
All	Tonnes of CO₂e	968.31	970.32
	Tonnes of CO₂e per employee	9.40	9.42
	Tonnes of CO₂e per £ million turnover	32.28	32.34

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



*Other= Scopes 1 And 2 Wtt, Transmission & Distribution (Location-Based), Taxi, Rail, Wastewater, Water.

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

3.2. Emissions from business travel

Table 4 shows the GHG emissions arising from business travel.

- 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)

Please note: GHG emissions from flights may be under-estimated due to limitations within the flight report, which shows any change made to an original flight ticket as a new line entry with a new ticket number. To avoid double-counting, flights labelled 'changes' have been excluded.

Table 4: CO₂e emissions associated with business travel

GHG Protocol Emission Category	Emission Source	Well-to-Tank (tCO ₂ e)	Tank-to-Wheel (tCO ₂ e)	Well-to-Wheel Total (tCO ₂ e)
6. Business travel (not included in scope 1 or scope 2)	Flights	84.91	690.43	775.34
	Taxi	1.34	5.37	6.71
	Rail	0.32	1.26	1.58
Total		86.57	697.06	783.63

Flights account for 98.9% of total business travel emissions in 2023. As a result, a further breakdown of emissions is shown in Table 5. Table 5 shows the majority of emissions at 82.3% arise from business class tickets. During 2023, if all business class flights were booked in economy instead, emissions would have reduced from 637.84 tonnes CO₂e, to 226.35 tonnes CO₂e (an emissions saving of 411 tonnes CO₂e).

Table 5: GHG emissions from flights, split per cabin class

Cabin class	No. of trips	km travelled	Well-to-Tank (tCO ₂ e)	Tank-to-Wheel (tCO ₂ e)	Well-to-Wheel Total (tCO ₂ e)
Business	141	1,125,450	69.86	567.98	637.84
Economy	208	473,273	8.75	71.12	79.87
First	1	3,855	0.26	2.08	2.34
Premium economy	13	142,859	5.60	45.50	51.11
Unknown	7	15,743	0.46	3.75	4.21
Total	370	1,761,180	84.91	690.41	775.34

3.1. Emissions from energy usage at site facilities

Table 6 shows the GHG emissions arising from TT International’s offices.

Table 6: CO₂e emissions as a result of site energy consumption

Name of Site	Location-based Electricity ¹ tCO ₂ e	Natural Gas tCO ₂ e	Total tCO ₂ e	Total tCO ₂ e per employee
London	47.65	36.10	83.75	0.95
Hong Kong	40.91	0.00	40.91	3.41
New York	8.80	0.00	8.80	2.93
Total	97.36	36.10	133.46	2.43

Totals include emissions from WTT, Generation and Transmission & Distribution.

3.2. 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. **TT International can reduce these emissions by reducing fuel and energy usage.**

Table 7: Well-To-Tank CO₂e Emissions breakdown

Emission Source	Location-Based (tCO ₂ e)
Flights	84.91
Electricity	18.25
Natural Gas	5.12
Taxi	1.34
Transmission & Distribution	1.12
Rail	0.32
Total	111.05

3.3. GHG Emissions per location

Table 8 shows the GHG emissions split per location as well as the emissions per employee. The majority of emissions at 72% arise from the UK operations. When looking at the emissions per employee, Hong Kong has the highest emissions at 18.12 tCO₂e per employee.

Table 8: Location-based GHG emissions split per location

Element	UK tCO ₂ e	USA tCO ₂ e	Hong Kong tCO ₂ e
Flights	515.73	32.64	142.06
WTT	78.38	7.34	25.34
Site electricity	39.01	5.80	33.19
Site gas	30.98	-	-
Hotels	29.59	4.90	16.26
Taxi	3.78	1.01	0.58
Rail	0.96	0.30	-
Water	0.40	0.01	0.05
Total tCO₂e	698.83	52.00	217.49
Total tCO₂e per employee	7.94	17.33	18.12



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).

Table 9: TT International's carbon footprint comparison and percentage change

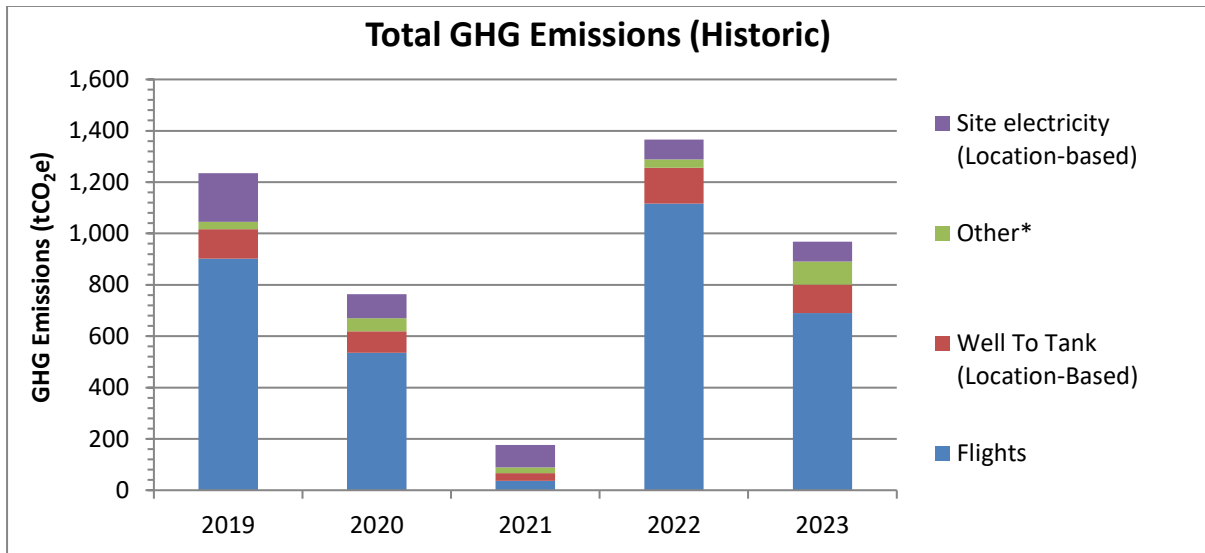
Element	Assessment year					% change on baseline year (2019)	% change on previous year
	2019	2020	2021	2022	2023		
Flights	901.44	535.25	36.94	1,115.85	690.43	-23.4% ▼	-38.1% ▼
Well To Tank (Location-Based)	115.39	83.73	29.26	140.62	111.05	-3.8% ▼	-21.0% ▼
Site electricity (Location-based)	188.85	93.36	87.10	76.77	78.00	-58.7% ▼	1.6% ▲
Hotel stays	*	1.06	1.06	0.00	50.75	n/a	n/a
Site gas	24.22	31.43	20.30	16.58	30.98	27.9% ▲	86.9% ▲
Taxi travel	2.37	0.00	1.69	2.71	5.37	126.6% ▲	98.3% ▲
Rail travel	2.25	0.00	0.06	0.91	1.26	-43.9% ▼	38.7% ▲
Water (and wastewater)	*	*	0.05	12.40	0.47	n/a	-96.2% ▼
Employee-owned car travel (grey fleet)	0.02	0.00	0.00	0.00	0.00	-100.0% ▼	n/a
Non-Controlled Site electricity	0.00	18.10	0.00	0.00	0.00	n/a	n/a
Location-based Total tCO₂e (Location-based)	1,234.54	762.93	176.46	1,365.84	968.31	-21.6% ▼	-29.1% ▼
tCO₂e per employee	14.52	8.03	1.80	11.57	9.40	-35.3% ▼	-18.8% ▼
tCO₂e per £ M turnover	23.68	655.06	2.17	21.34	32.28	36.3% ▲	51.2% ▲
Market-based Total Tonnes of CO₂e	1,234.54	710.57	184.24	1,374.07	970.32	-21.4% ▼	-29.4% ▼
tCO₂e per employee	14.52	7.48	1.88	11.64	9.42	-35.1% ▼	-19.1% ▼
tCO₂e per £ M turnover	23.68	610.10	2.27	21.47	32.34	36.6% ▲	50.6% ▲

*=Not assessed.

Please note: gas emissions for 2022 have been amended after an error was identified.

TT international has achieved a 21.6% reduction in location-based emissions since 2019 and a 29.4% reduction in emissions since 2022. GHG emissions have reduced across flights, well to tank and site electricity from 2019. It is worth investigating the reason for increased gas consumption at London.

Please note: GHG emissions from flights in 2023 may be under-estimated due to limitations within the flight report, which shows any change made to an original flight ticket as a new line entry with a new ticket number. To avoid double-counting, flights labelled 'changes' have been excluded. This has only been done for the 2023 GHG emissions, as a detailed flight report was not provided in previous year assessments.



**Other= site gas, grey fleet, taxi, rail, water, hotels & non-controlled site electricity.*

Figure 3: Detailed emissions comparison for the various aspects of TT International's emissions

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.



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 10 summarises the emissions across these Scopes, along with metrics showing emissions per unit turnover and per employee, to help your benchmarking.

Table 10: TT International’s benchmarked GHG emissions

Year/Element	Location based	Market based
Total number of employees	103	
Turnover in £ million	30	
Tonnes of CO ₂ e	968.31	970.32
Tonnes of CO ₂ e per employee	9.40	9.42
Tonnes of CO ₂ e per £ million turnover	32.28	32.34
Scope 1 & 2 Emissions		
Tonnes of CO₂e	101.84	103.85
Tonnes of CO₂e per employee	0.99	1.01
Tonnes of CO₂e per £ million turnover	3.39	3.46

5. Conclusion

TT International, in conjunction with Carbon Footprint Ltd, has assessed its carbon footprint and has achieved a 21.6% reduction in location-based emissions since 2019 and a 29% reduction in emissions since 2022.

By achieving this TT International 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

TT International 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 42:2022³):

- 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

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 materials and investments, 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. Improving the accuracy of future carbon footprint assessments

The estimated overall error margin is +/- 24% (which represents +/- 233.18 tCO₂e of the total assessed emissions).

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

- Provide travel reports for all flights taken during the assessment period, as well as identify any flights that are booked and changed at a later date (for example, using the same ticket number).
- Provide evidence of utility information.

³ [ISO - Net Zero Guidelines](#)

6.2. Reducing emissions

To reduce GHG emissions, we recommend the following:

- Offset the calculated footprint by supporting change solutions around the world to maintain the 'Carbon Neutral Organisation' certification.
- Cut back on all non-essential flights. When air travel is required, economy class tickets should be purchased as these cause on average a third of the emissions compared to business class. When booking unavoidable flights, consider selecting a specific airline based on their sustainability credentials and how modern their aircraft fleet is. Check out how different airlines compare on our sustainable flying webpage: https://www.carbonfootprint.com/sustainable_flying.html
- Evaluate the effectiveness of using remote meetings and limited travel, and re-define what your business classifies as "essential" travel going forwards. For occasions when flying is required, stipulate that all flights must be booked in 'economy' cabin class. Long-haul flights in the 'economy' cabin class are 65.5% less carbon intensive (per passenger-km) than those in 'business' class.
- Continue switching sites to renewable energy tariffs to reduce your market based emissions.
- Expand the scope of the assessment to align with the GHG Protocol Corporate Value Chain Standard and include all relevant scope 3 categories.
- Set carbon reduction targets based on intensity metrics (e.g. emissions per employee and/or per £ million turnover). These can be aligned to the Science Based Target Initiative as well.

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>.

The cost of offsetting has reduced considerably over recent times. This could be readily funded via the internal carbon pricing system.

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 TT International'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	On-site fuel use	Natural Gas	30.98	30.98
Scope 1 Total			30.98	30.98
2	On-site Consumption of purchased electricity, heat steam and cooling	Electricity	70.86	72.87
Scope 2 Total			70.86	72.87
3.1	Purchased goods & services	Water	0.22	0.22
3.3	Fuel- and energy related activities (not included in scope 1 or scope 2)	Scopes 1 and 2 WTT	23.36	23.36
		Transmission & Distribution	8.26	8.26
3.5	Waste generated in operation	Wastewater	0.25	0.25
3.6	Business travel (not included in scope 1 or scope 2)	Flights	775.34	775.34
		Hotel stays	50.75	50.75
		Taxi	6.71	6.71
		Rail	1.58	1.58
Scope 3 Total			866.46	866.46
All	Tonnes of CO₂e		968.31	970.32
	Tonnes of CO₂e per employee		9.40	9.42
	Tonnes of CO₂e per £ million turnover		32.28	32.34