Carbon Footprint Appraisal
for
Institute for Transportation and Development Policy

Assessment Period:
1st January 2022 – 31st December 2022

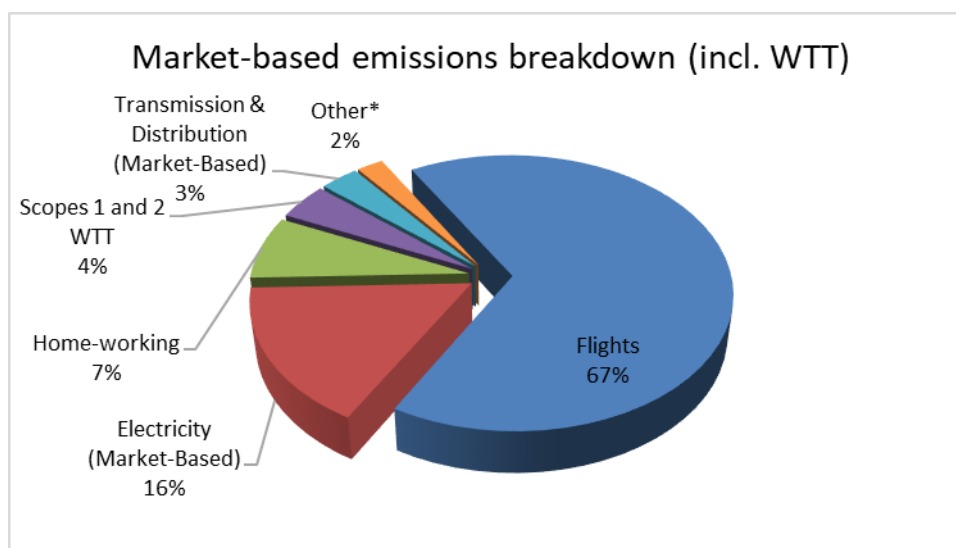# Executive Summary

Current Performance

→ Institute for Transportation and Development Policy (ITDP)'s total market-based emissions are 442.77 tCO₂e (with location-based emissions of 442.12 tCO₂e).

→ The most significant market-based emission source is flights, accounting for 67% of ITDP's market-based carbon footprint.

Recommendations

→ Cut back on all non-essential flights and consider switching short-haul flights to rail journeys where possible.

→ Switch your sites to renewable energy tariffs to reduce your market-based emissions.

→ Encourage all homeworkers to transition to 100% renewable tariffs to reduce market-based emissions.

→ Evaluate the effectiveness of using remote meetings, and re-define what your business classifies as "essential" travel going forwards.

→ **Carry out a target setting and supply chain screening to facilitate your reduction strategy and increase the scope of your assessment.**

Market-based emissions breakdown (incl. WTT)

- Transmission & Distribution (Market-Based) 3%
- Other* 2%
- Scopes 1 and 2 WTT 4%
- Home-working 7%
- Electricity (Market-Based) 16%
- Flights 67%

*Other=Computing, Rail, Bus, Taxi

Year/Element	Location-based	Market-based
Total number of employees	149	
Turnover in $ million	8.42	
Tonnes of CO₂e	442.12	442.77
Tonnes of CO₂e per employee	2.97	2.97
Tonnes of CO₂e per $ million turnover	52.53	52.61

Table of Contents

Quality Control

Report issue number:	2.0
Date:	06 September 2023
Calculations completed by:	Dan Loveless
Calculations reviewed by:	Zoe Rudge
Report produced by:	Dan Loveless
Report reviewed by:	Zoe Rudge
Director approval:	Dr. Wendy Buckley

1. Introduction

1.1.   Company Overview

ITDP is a non-profit organisation that promotes environmentally sustainable transportation policies and projects worldwide. In 2022 it had 149 full-time employees, operating at eight sites across North America, South America, Africa, and Asia.

1.2.   Data supplied for the Carbon Footprint Appraisal

A summary of the data supplied by ITDP 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

|	
AC	Air Conditioning
CO_2e	Carbon Dioxide Equivalent
Defra	Department for Environment, Food and Rural Affairs
GHG	Greenhouse Gas
kWh	Kilowatt Hours
T&D	Transmission & Distribution
WTT	Well-To-Tank

2. Calculation Scope and Accuracy

2.1.   Scope of this work

Carbon Footprint has assessed the GHG emissions from 1st January 2022 to 31st December 2022 resulting from the energy consumption at ITDP's facilities and its business transport activities.

This report will set the base year for all further reporting emissions to be compared against.

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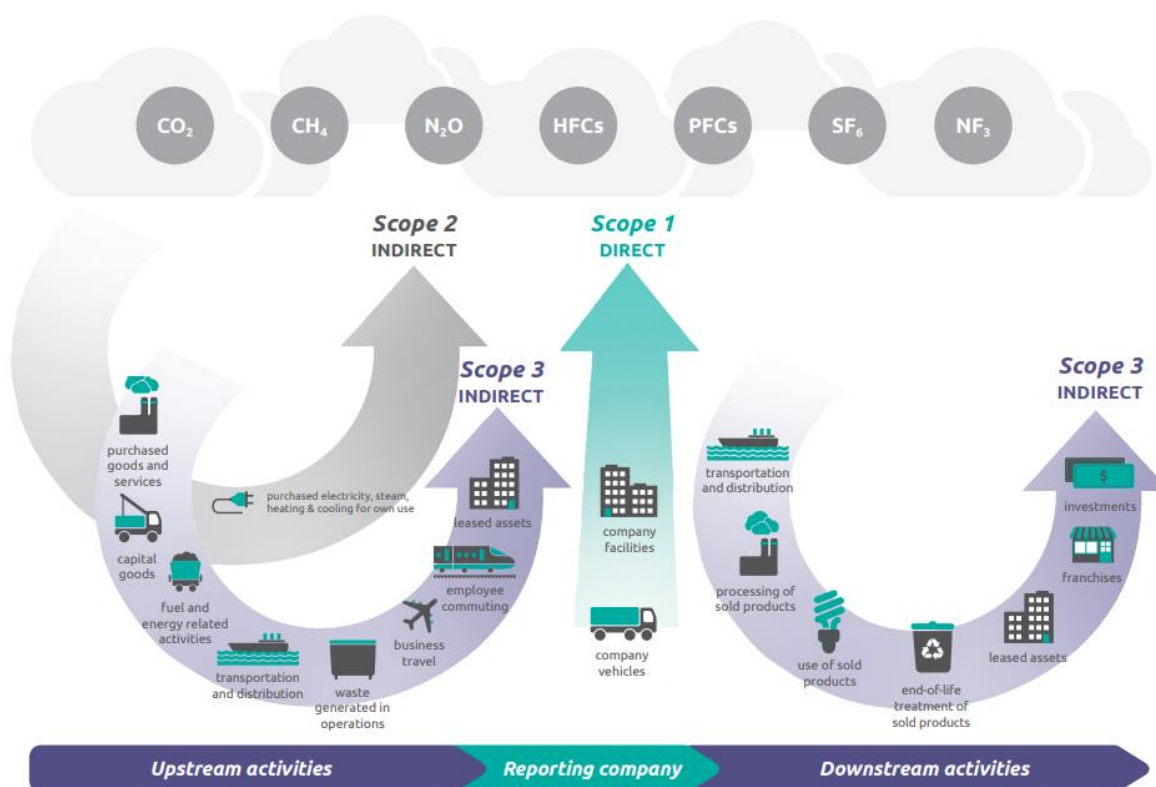
Figure 1: Overview of emissions scopes (GHG Protocol - Scope 3 Calculation Guidance v1.0 - 2013)

Table 1: ITDP's GHG Assessment boundary based on the Greenhouse Gas Protocol 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
1	On-site fuel use		Not relevant	Not applicable
1	Company owned vehicles		Not relevant	Not applicable
1	Fugitive emissions (incl. Refrigerant gases and AC)	Activity Data	Complete	No refrigerant gas top-ups during the assessment period
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*
3	2. Capital goods	Activity Data	Partial	Only purchased computing assessed (as standard for appraisals)
3	3. Fuel- and energy related activities (not included in scope 1 or scope 2)	Activity Data	Complete	
3	4. Upstream transportation and distribution		Not relevant	Emissions thought to be negligible
3	5. Waste generated in operation		Excluded	Relevant and intending to include in future assessments
3	6. Business travel (not included in scope 1 or scope 2)	Activity Data	Complete	
3	7. Employee commuting	Activity Data	Partial	Only homeworking assessed
3	8. Upstream leased assets		Not relevant	Not applicable
3	9. Downstream transportation and distribution		Not relevant	Not applicable
3	10. Processing of sold products		Not relevant	Not applicable
3	11. Use of sold products		Not relevant	Not applicable
3	12. End-of-life treatment of sold products		Not relevant	Not applicable
3	13. Downstream leased assets		Not relevant	Not applicable
3	14. Franchises		Not relevant	Not applicable
3	15. Investments		Not relevant	Not applicable

*Paper and water were unintentionally excluded due to a mistake from Carbon Footprint in the data collection.

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)
Electricity (Market-Based)	Data obtained from internal records. An average kWh of electricity used per month was provided for each site and extrapolated to cover the full year, excluding Nairobi, which had an estimated annual kWh usage given by their landlord.	High (20-40%)	50%	52.43
Home-working	Data obtained from employee surveys, with a 100% response rate. No data on whether homeworkers were single or multi-occupancy when working from home, so a split was estimated (67% single occupancy, 33% multi-occupancy), based on historical data.	Medium (5-20%)	50%	16.40
Flights	Data obtained from internal records. Number of passenger trips, cabin class, destination and departure airports, additional airport legs, and return details provided.	Very High (>40%)	1%	2.95
Computing	Data obtained from internal records. Type of item (all laptops) and quantities were supplied. Most laptops had the precise model specified, and an average was used for those that did not.	Low (1-5%)	10%	0.81
Rail	Data obtained from internal records. Train type, number of trips, departure and destination stations, and distance of each journey provided.	Very Low (<1%)	1%	0.01
Bus	Data obtained from internal records. Type of bus, number of trips, departure and destination locations, and return details provided.	Very Low (<1%)	1%	0.01
Taxi	Data obtained from internal records. Type of taxi, number of journeys, departure and destination, and distances provided.	Very Low (<1%)	1%	<0.01
Total			**16%**	**72.61**

Commercial in Confidence
Issue 1.0
06 September 2023

3. Carbon Footprint Results

3.1. Summary of results

**The total location-based carbon footprint for ITDP for the period ending 31st December 2022 is
442.12 tonnes CO₂e, and the market-based total is 442.77 tonnes CO₂e.**

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

Scope	Emission Source	Location-Based (tCO₂e)	Market-Based (tCO₂e)
Scope 1 Total		**-**	**-**
2	Electricity	71.49	72.14
Scope 2 Total		**71.49**	**72.14**
3.2	Computing	8.12	8.12
3.3	Scopes 1 and 2 WTT	18.81	18.81
	Transmission & Distribution	13.91	13.91
3.6	Flights	295.20	295.20
	Rail	0.73	0.73
	Bus	0.65	0.65
	Taxi	0.41	0.41
3.7	Home-working	32.80	32.80
Scope 3 Total		**370.63**	**370.63**
Tonnes of CO₂e		**442.12**	**442.77**
Tonnes of CO₂e per employee		**2.97**	**2.97**
Tonnes of CO₂e per $ million turnover		**52.53**	**52.61**

A full breakdown of emissions by source has been provided in Annex A.
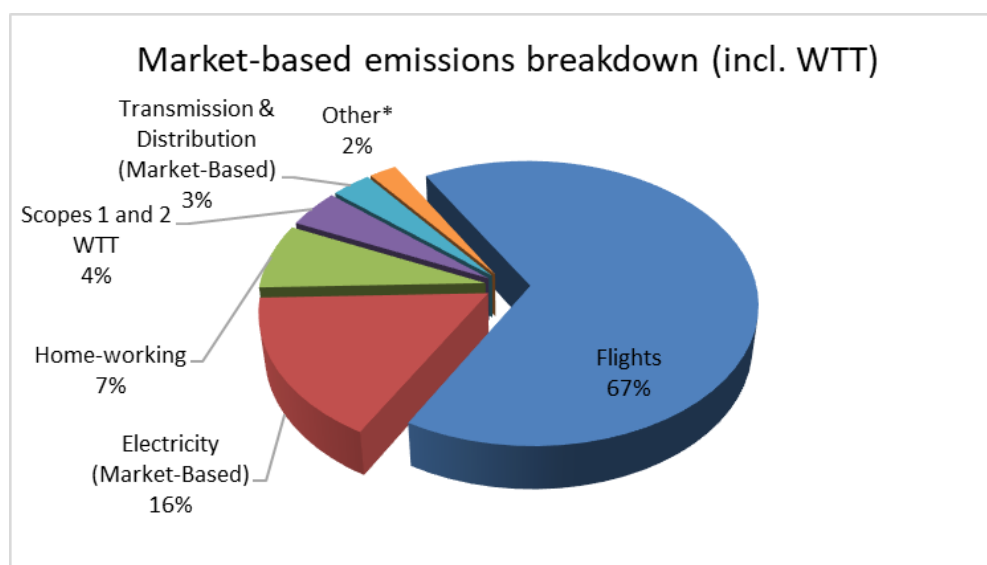
*Other=Computing, Rail, Bus, Taxi

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

3.1. Emissions from business travel

Emissions from business travel make 67% of ITDP's total market-based footprint (including WTT). Almost all of these emissions (99.4%) are attributed to flights, which is shown in Table 4.

Table 4: CO_2e emissions associated with business travel

Type of business travel	Total tCO_2e
Flights	295.20
Rail	0.73
Bus	0.65
Taxi	0.41
Total	**296.99**

Of the 426 flights taken by ITDP in 2022, all but two were in economy class, which is the least emissions-intensive ticket class. However, while many of ITDP's flights were long-haul, 173 of them (41% of the total) were over distances of less than 1000km, suggesting that the number of flights taken could be significantly reduced by switching journeys to more sustainable transport, such as rail, where possible.

3.2. Emissions from energy usage at site facilities

Site electricity is ITDP's second most material emission source, making up 23% of its total market-based footprint (including T&D and WTT). This is broken down in Table 5 and Figure 3.

Table 5: CO_2e emissions as a result of site energy consumption

Name of Site	kWh consumption	Location-based Electricity tCO_2e	Market-based Electricity tCO_2e
Jakarta	43,932	38.06	38.06
Chennai	22,764	20.89	20.89
Guangzhou	20,610	12.49	12.49
Beijing	6,048	3.66	3.66
Nairobi	14,000*	2.57	2.57
Mexico City	6,816	2.54	2.54
New York City	6,636	1.32	1.98
Rio de Janeiro	11,736	1.65	1.65
Total	**132,542**	**83.18**	**83.84**

* Estimated by the site landlord
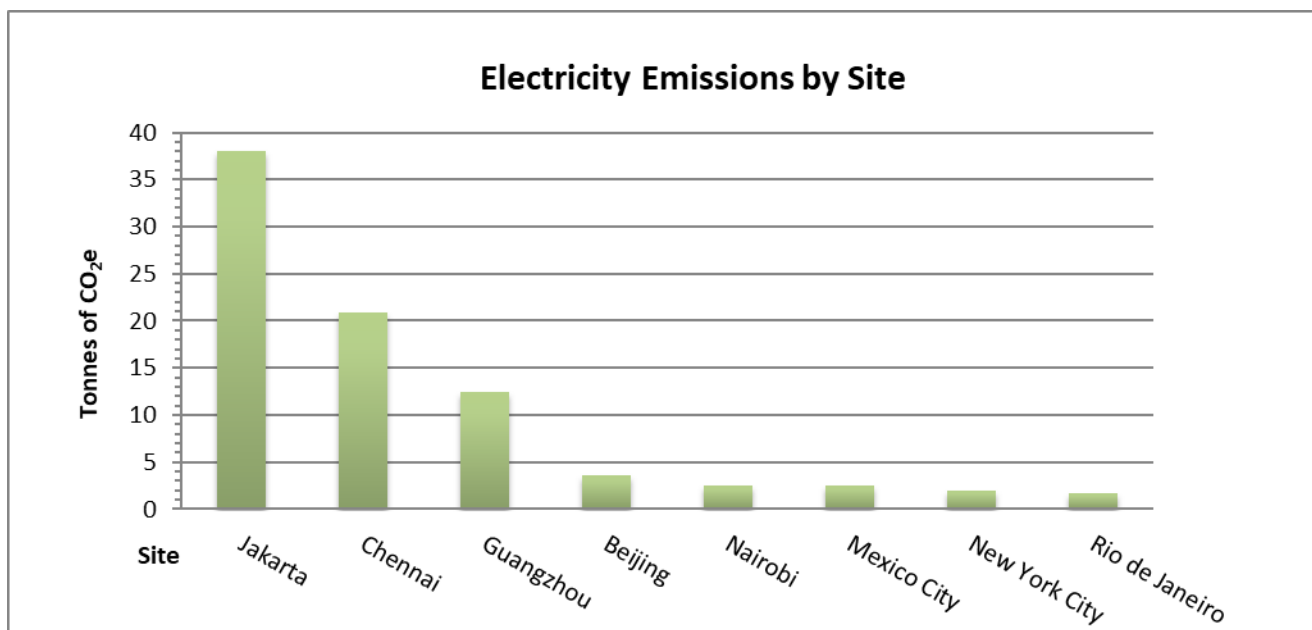
Figure 3: CO₂e emissions on a per site and fuel basis
Totals include emissions from generation and transmission and distribution

Jakarta accounts for 45% of the total electricity emissions, and also has the highest total kWh usage. The Chennai and Guangzhou sites also make up significant proportions of the total electricity emissions.

No data was available on the electricity tariffs used by ITDP's sites. To work out market-based emissions, the country's residual mix factor was used where this factor was available (New York only) and the remaining sites used the country's production mix factor. ITDP should investigate whether electricity tariff details can be obtained for its sites in the future, to increase the accuracy of its market-based emissions.

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. **ITDP can reduce these emissions by reducing fuel and energy usage.**

Table 6: Well-To-Tank CO₂e Emissions breakdown

Emission Source	Market-Based (tCO₂e)
Flights	29.14
Electricity	18.81
Transmission & Distribution	2.28
Rail	0.15
Bus	0.12
Taxi	0.08

4.   Comparison and Benchmarking

A summary of the carbon footprint results can be seen in section 3.1. This will set the base year for all future reports to be compared against.

Carbon Footprint recommends that organisations use the base-year GHG inventory as a benchmark to measure against. When using the base-year GHG inventory as a benchmark, organisations can set realistic reduction targets and measure their progress year on year. This can also provide excellent marketing opportunities, where real figures can demonstrate your commitment towards helping fight climate change.

4.1.   External benchmarking

Companies often find it useful to benchmark themselves against similar organisation in their sector. Carbon Footprint Ltd has an online tool you can use to find publicly available information on other organisations that have reported their emission.

The Carbon Benchmarking Tool is free to use and can be found online at:
https://www.carbonfootprint.com/carbon_benchmark.html

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: ITDP's benchmarked GHG emissions

Year/Element	Location-based	Market-based
Total number of employees	149	
Turnover in $ million	8.42	
Tonnes of CO_2e	442.12	442.77
Tonnes of CO_2e per employee	2.97	2.97
Tonnes of CO_2e per $ million turnover	52.53	52.61
Scope 1 & 2 Emissions		
Tonnes of CO_2e	71.49	72.14
Tonnes of CO_2e per employee	0.48	0.48
Tonnes of CO_2e per $ million turnover	8.49	8.57

5. Conclusion

ITDP, in conjunction with Carbon Footprint Ltd, has assessed its carbon footprint.

By achieving this ITDP 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

ITDP 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 the Science Based Target initiative. Typical targets cover mid term and longer terms goals such as:
-    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 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 elements would likely be employee commuting and purchased goods and services, due to the size of the business, so we recommend you focus on capturing data for these ready for next year's appraisal.

6.1.3. Improving the accuracy of future carbon footprint assessments

The estimated overall error margin is +/- 72.61 tCO_2e, which accounts for 16% of the total market-based footprint.

To improve the accuracy of future assessments, we recommend the following:
-    Obtain annual electricity data for all sites, rather than monthly averages, and have clear evidence available for this data.
-    Investigate the electricity tariffs used at each site, to more accurately calculate market-based emissions.

6.2.   Reducing emissions

To reduce GHG emissions, we recommend the following:

- Offset the calculated footprint by supporting climate change solutions around the world to become a 'Carbon Neutral Organisation'.
- Cut back on all non-essential flights. 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
- Consider switching short-haul flights to rail transport where possible.
- Switch your sites to renewable energy tariffs to reduce your market-based emissions. Many "green" electricity tariffs are now the same price as the traditional brown tariffs.
- Encourage all homeworkers to transition to 100% renewable tariffs to reduce market-based emissions and increase the sustainability of their homes.
- Evaluate the effectiveness of using remote meetings and limited travel, and re-define what your business classifies as "essential" travel going forwards.

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. We note that Science Based Targets supports this as what they call Beyond Value Chain Mitigation (BVCM) and that it provides an urgently needed way for companies to cut emissions outside of their value chains in line with societal net-zero (see link - Net-Zero: Urgent Beyond Value Chain Mitigation Is Essential - Science Based Targets).

We can provide both UK-based and international projects for you to support. 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

Avoided Deforestation in the Brazilian Amazon

Clean Water in Rwanda

Annex A

A full breakdown of ITDP'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)
Scope 1 Total			**-**	**-**
2	On-site Consumption of purchased electricity, heat steam and cooling	Electricity	71.49	72.14
Scope 2 Total			**71.49**	**72.14**
3.2	2. Capital goods	Computing	8.12	8.12
3.3	3. Fuel- and energy related activities (not included in scope 1 or scope 2)	Scopes 1 and 2 WTT	18.81	18.81
		Transmission & Distribution	13.91	13.91
3.6	6. Business travel (not included in scope 1 or scope 2)	Flights	295.20	295.20
		Rail	0.73	0.73
		Bus	0.65	0.65
		Taxi	0.41	0.41
3.7	7. Employee commuting	Home-working	32.80	32.80
Scope 3 Total			**370.63**	**370.63**
Tonnes of CO$_2$e			**442.12**	**442.77**
Tonnes of CO$_2$e per employee			**2.97**	**2.97**
Tonnes of CO$_2$e per $ million turnover			**52.53**	**52.61**

Commercial in Confidence