



GREENHOUSE GAS ACCOUNTING REPORT

South Pole Group

Reporting period: 01/01/2016 – 31/12/2016

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south pole group

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Acronyms and abbreviations

CHF	Swiss Franc
CH ₄	Methane
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DEFRA	Department for Environment, Food & Rural Affairs, UK
GHG	Greenhouse gas
GJ	Giga joule
GRI	Global Reporting Initiative
GWP	Global Warming Potential
HFCs	Hydrofluorocarbons
IPCC	Intergovernmental Panel on Climate Change
kg	Kilogram
MWh	Megawatt hour
N ₂ O	Nitrous oxide
pkm	Passenger-kilometre
t	tonne
WBCSD	World Business Council for Sustainable Development
WRI	World Resources Institute
UNFCCC	United Nations Framework Convention on Climate Change

Summary

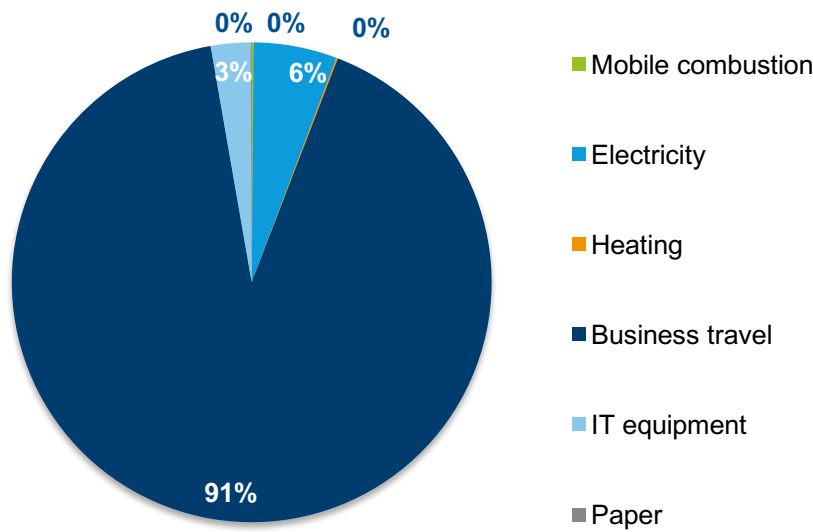


Figure 1: Sources of GHG emissions in 2016.

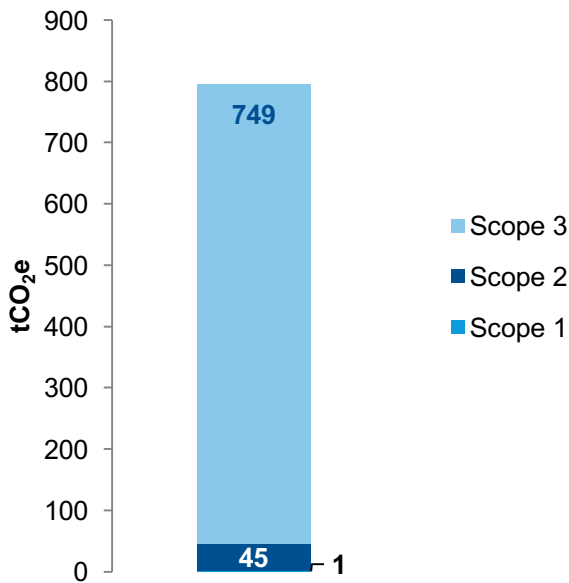


Figure 2: GHG by scope in 2016.

1 Introduction

This report provides a summary of the greenhouse gas (GHG) emissions from South Pole Group's operations in 2016. South Pole Group (SPG) is a leading sustainability solution provider. Initially focused on the development of premium carbon emission reduction projects, the company now offers a wide spectrum of sustainability services, including climate policy and strategy advisory. Its expertise covers the areas of climate change, forests and land use, water, sustainable cities and buildings, as well as renewable energy and energy efficiency. The company is determined to help its clients grow their business with ground-breaking solutions, which positively impact the environment and the needs of society.

Table 1: Company information

Company information	
Website:	www.thesouthpolegroup.com
Business area:	Consultancy services
Reporting period:	2016
Number of employees:	157

1.1 System boundaries

1.1.1 Organisational boundaries

System boundaries were defined by the control approach, i.e. covering all entities where South Pole Group has operational control. The 2016 accounting included the offices in Bangkok, Beijing, Medellin, Addis Ababa, New Delhi, Jakarta, Mexico City, Zurich¹, London, Australia² and Stockholm.

The GHG accounting covers direct emissions from mobile and stationary combustion (Scope 1), indirect emissions from purchased electricity, heat and cooling (Scope 2) and other indirect emissions from business travel, IT-equipment and paper consumption (Scope 3).

1.1.2 Operational boundaries

The GHG accounting covers direct emissions from stationary and mobile combustion and leakage of refrigerants (Scope 1), indirect emissions from purchased electricity, heat and cooling (Scope 2) and other indirect emissions from business travel, IT equipment and paper (Scope 3).

The GHG accounting and reporting procedure is based on *the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard Revised edition (GHG Protocol)*, the most widely used international accounting tool for government and business leaders to understand, quantify, and manage greenhouse gas emissions. It was developed in a partnership between the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD) in 2004.

According to the GHG Protocol emissions are divided into direct and indirect emissions. Direct emissions are emissions originating from owned or controlled sources by the reporting entity. Indirect emissions are generated as a consequence of the reporting entity's activities, yet they occur at sources owned or controlled by another entity. The direct and indirect emissions are:

- Scope 1: All direct GHG emissions, such as combustion of fuels in stationary and mobile sources.

¹ The Zurich office additionally includes employees based in San Francisco, Sao Paulo, Hong Kong, Bogota, Madrid, Berlin and Amsterdam

² The Australian office includes Sydney and Melbourne

- Scope 2: Indirect GHG emissions from the generation of purchased electricity, heat or cooling consumed by the company.
- Scope 3: Other indirect emissions, such as business travels and commuter travels. Reporting Scope 3 emissions is optional.

1.2 Data inventory

South Pole Group has provided data on purchased electricity, heating, business travel, IT equipment and paper consumption. The choice of assumptions and emission factors has followed a conservative approach.

Unless other is specified, all emissions in this report are given in tonnes.

2 Results

Table 2: Key figures according to the Global Reporting Initiative (GRI)

GRI G4	GRI Standards	Topic	Quantity	Unit
G4-EN3	302-1	Direct energy consumption by primary source Diesel ³ Petrol ⁴	17.0 11.1 5.9	GJ GJ GJ
G4-EN3	302-1	Indirect energy consumption by primary source Renewable electricity Grid electricity District heating	323.0 43.6 226.4 53.0	GJ GJ GJ GJ
G4-EN15	305-1	Direct GHG emissions (Scope 1)	1.1	tCO ₂ e
G4-EN16	305-2	Energy indirect GHG emissions (Scope 2)	45.4	tCO ₂ e
G4-EN17	305-3	Other indirect GHG emissions (Scope 3)	748.5	tCO ₂ e
G4-EN18	305-4	GHG emission per employee	5.1	tCO ₂ e per employee

Table 3: GHG emissions by scope 2016

Scope	Emissions (tCO ₂ e)	% of total
Scope 1: Direct GHG emissions	1.1	0.1%
Scope 2: Indirect GHG emissions from purchased electricity, heat and cooling	45.4	5.7%
<i>Gross emissions without contractual instruments</i>	49.4	
<i>Avoided emissions from contractual instruments⁵</i>	-4.0	
Scope 3: Other indirect GHG emissions	748.5	94.1%
Total GHG emissions	795.0	100%

³ Fuel of company car in Bangkok

⁴ Fuel of company car in Bangkok

⁵ SPG has three offices that procure renewable energy: 1) Medellin office which procures hydropower (100% of its annual consumption), 2) Stockholm office which procures Green Power, and 3) Melbourne which procures a renewable power mix from Australian Green Power. In addition, our Sydney office procures the electricity consisting of the conventional grid mix, but it is offsetting 2 MWh with help of Green Power (<http://www.greenpower.gov.au/>).

Table 4: GHG emissions by scope and activity 2016

Activity	Consumption	Unit	Emissions (tCO ₂ e)	Percentage of total (%)
Scope 1: Direct GHG emissions			1.1	0.1%
Diesel	289	L	0.8	0.1%
Petrol	171	L	0.4	<0.1%
Scope 2: Indirect GHG emissions from purchased electricity and heat			45.4	5.7%
Electricity	75.0	MWh	44.5	5.6%
Grid	62.9	MWh	44.5	5.6%
Renewable	12.1	MWh	0.0	0.0%
Heat	14.7	MWh	0.9	0.1%
District heating ⁶	14.7	MWh	0.9	0.1%
Scope 3: Other indirect GHG emissions			748.5	94.1%
Business travel			726.6	91.4%
Flights	2,992,149.4	pkm	655.4	82.4%
<463 km	83,132.0	pkm	26.1	3.3%
463-3,700 km	1,073,893.0	pkm	210.6	26.5%
>3,700 km	1,835,124.4	pkm	375.6	47.2%
Directly reported ⁷			43.1	5.4%
Car, directly reported ⁸			0.1	<0.0%
Car	154,783.6	km	39.9	5.0%
Local travel, directly reported ⁹			11.8	1.5%
Taxi	62,329.8	pkm	14.6	1.8%
Train	49,696.0	pkm	0.7	0.1%
Subway	14,898.0	pkm	1.0	0.1%
Tram	756.7	pkm	0.1	<0.0%
Bus	21,010.0	pkm	3.0	0.4%
Ferry	5,921.0	pkm	0.1	<0.0%
IT equipment	313.0	Number of devices	21.3	2.7%
Desktops	2.0	Number of devices	0.1	<0.0%
Laptops	163.0	Number of devices	17.7	2.3%
Servers	14.0	Number of devices	0.5	0.1%
Printers	3.0	Number of devices	0.1	<0.0%
Projectors	1.0	Number of devices	<0.0	<0.0%

⁶ 0.1 tCO₂e has been offset by the district heating provider Fortum. Total net emissions from district heating are 0.8 tCO₂e.

⁷ Emissions via the Cornercard Climate Credit Card. All emissions of 43.1 tCO₂e are offset through the credit card provider.

⁸ Emissions via the Cornercard Climate Credit Card. All emissions of 0.1 tCO₂e are offset through the credit card provider.

⁹ Emissions via the Cornercard Climate Credit Card. All emissions of 11.8 tCO₂e are offset through the credit card provider.

Activity	Consumption	Unit	Emissions (tCO ₂ e)	Percentage of total (%)
Monitors	85.0	Number of devices	1.3	0.2%
Mobile Phones	45.0	Number of devices	1.1	0.1%
Paper	156,530.0	Number of sheets	0.5	0.1%
Paper, unspecified	93,810.0	Number of sheets	0.5	0.1%
Paper, recycled	62,720.0	Number of sheets	<0.0	<0.0%
Total GHG emissions			795.0	100.0%
Offsets by suppliers (see footnotes)			55.1	
Total net GHG emissions			739.9	

Table 5: GHG emissions over time 2015-2016

Activity	2015 (tCO ₂ e)	2016 (tCO ₂ e)	Difference 2015-16 (%)
Scope 1: Direct GHG emissions	0.5	1.1	+126.09%
Diesel	0.5	0.8	+50.95%
Petrol	0	0.4	-
Scope 2: Indirect GHG emissions from purchased electricity, heat and cooling	48.8	45.4	-6.92%
Electricity	42.7	44.5	+4.22%
Grid	39.6	44.5	+12.38
Renewable	0	0.0	0.00%
Heat	3.1	0.9	-70.37%
District heating	1.5	0.9	-38.76%
Natural gas	1.6	0.00	-100.00%
Scope 3: Other indirect GHG emissions	526.1	748.5	+42.27%
Business travel	508.2	726.6	+42.97%
Flights ¹⁰	481.1	655.4	+36.23%
Short haul	16.50	26.1	+58.12%
Medium haul	48.00	210.6	+338.75%
Long haul	382.2	375.6	-1.73%
Directly reported	34.3	43.1	+25.71%
Car, directly reported	0	0.1	-
Car	12.8	39.8	+211.03%
Local travel, directly reported	11.8	11.8	+0.27%
Taxi	11.6	14.6	+26.21%
Train	0.9	0.7	-22.92%
Subway	0	1.0	-

¹⁰ In 2016 the flight distance intervals were changed from <500 km, 500-1200 km and >1,200 km to <463 km, 463-3,700 km and >3,700 km.

Activity	2015 (tCO ₂ e)	2016 (tCO ₂ e)	Difference 2015-16 (%)
Tram	0	0.1	-
Bus	1.6	3.0	+85.79%
Ferry	0.1	0.14	+40.03%
IT equipment	17.5	21.3	+21.97%
Desktops	1.4	0.1	-95.43%
Laptops	14.4	18.6	+28.89%
Servers	0.4	1.1	+165.37%
Printers	0.2	0.2	-0.44%
Projectors	0	0.0	0.00%
Monitors	0	1.3	-
Mobile Phones	1.1	1.1	-1.82%
Paper	0.5	0.5	+6.13%
Paper consumption, unspecified	0.5	0.5	0.00%
Paper consumption, recycled	0.1	0.0	-83.14%
Total GHG emissions	569.30	795.0	+37.50%

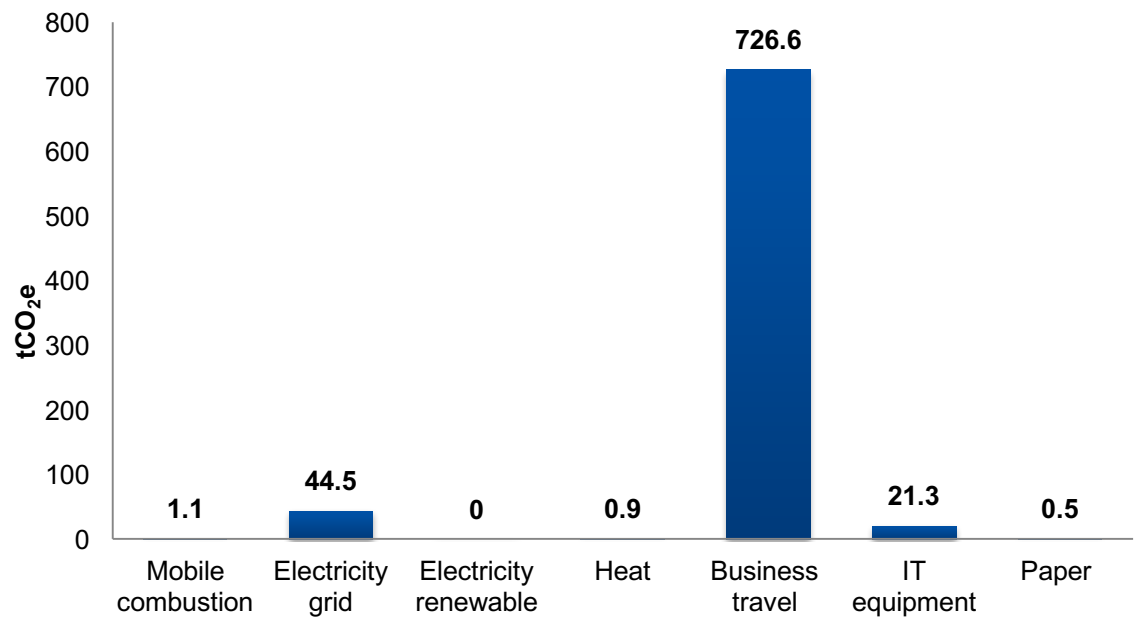


Figure 3: Sources of GHG emissions in 2016.

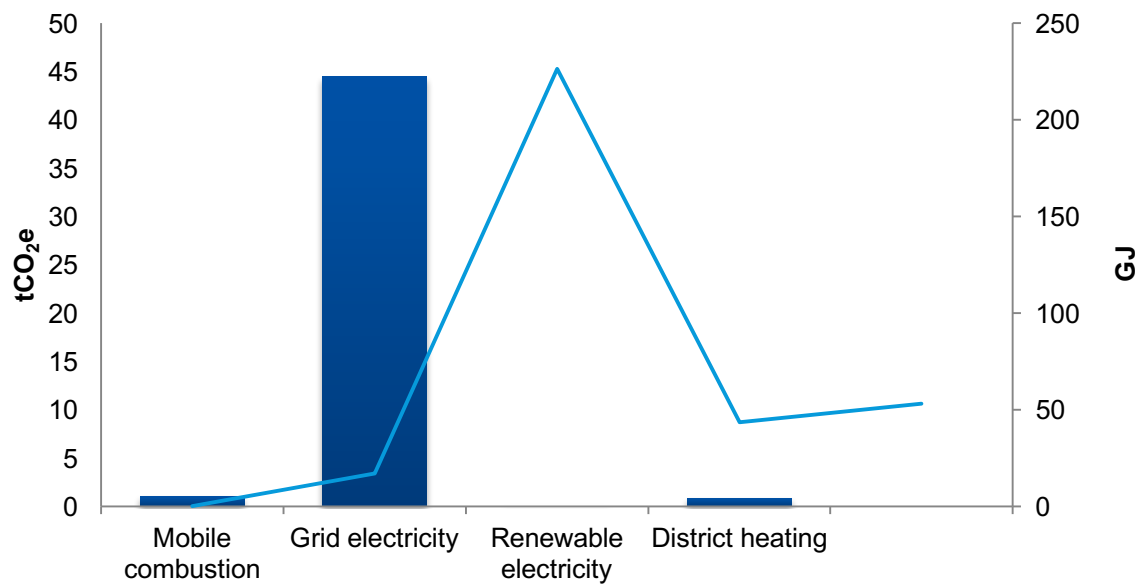


Figure 4: GHG emissions (blue bars) and energy consumption (blue line) in Scope 1 and 2.

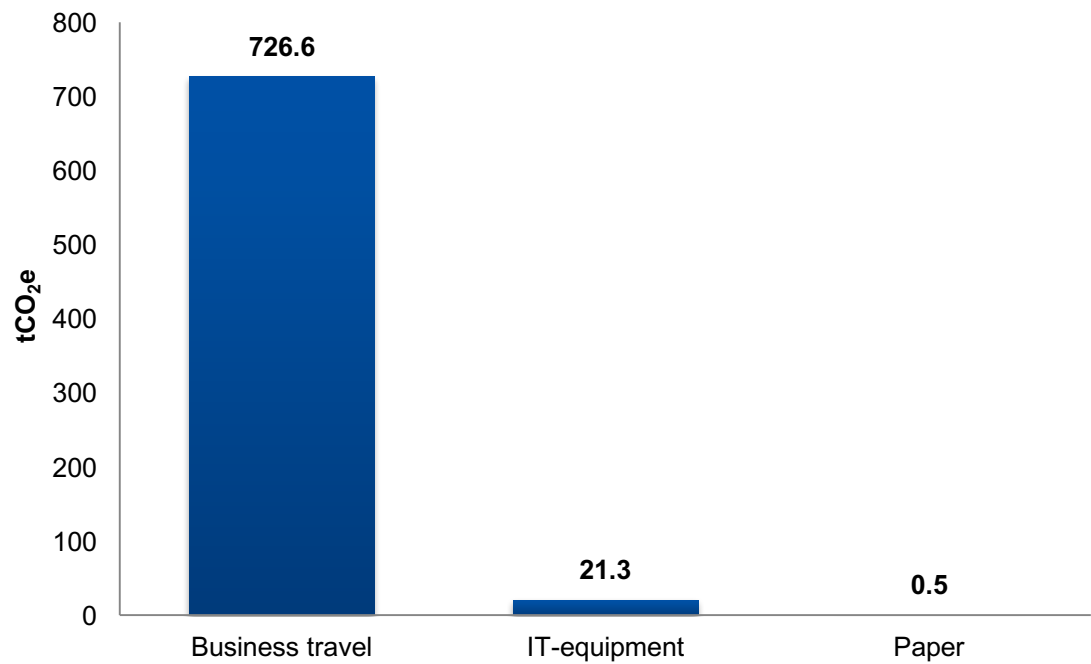


Figure 5: Sources of GHG emissions IT equipment (Scope 3).

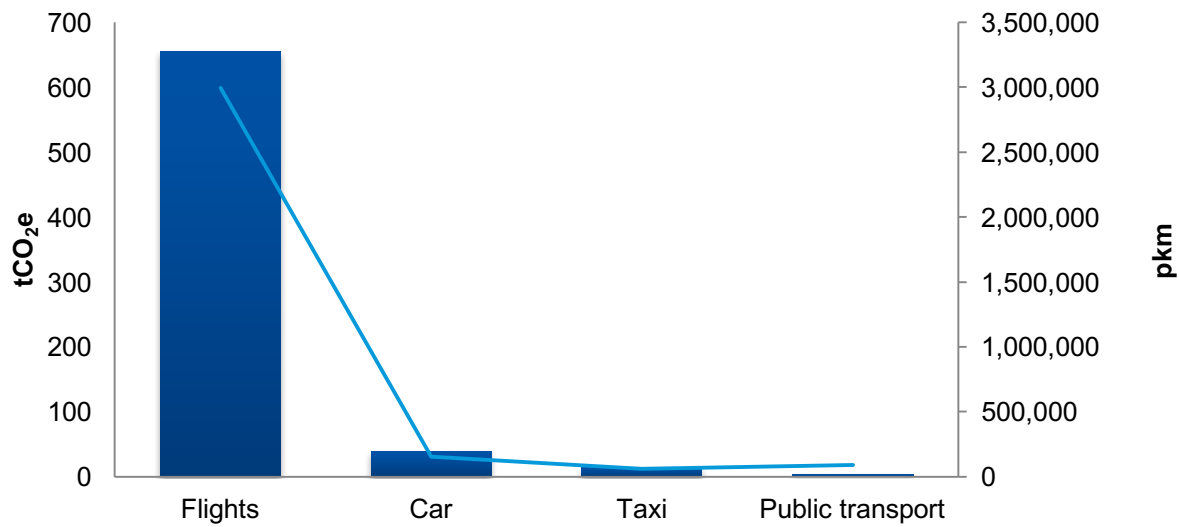


Figure 6: Sources of GHG emissions (blue bars) and travelled passenger kilometres (blue line) for business travel in Scope 3

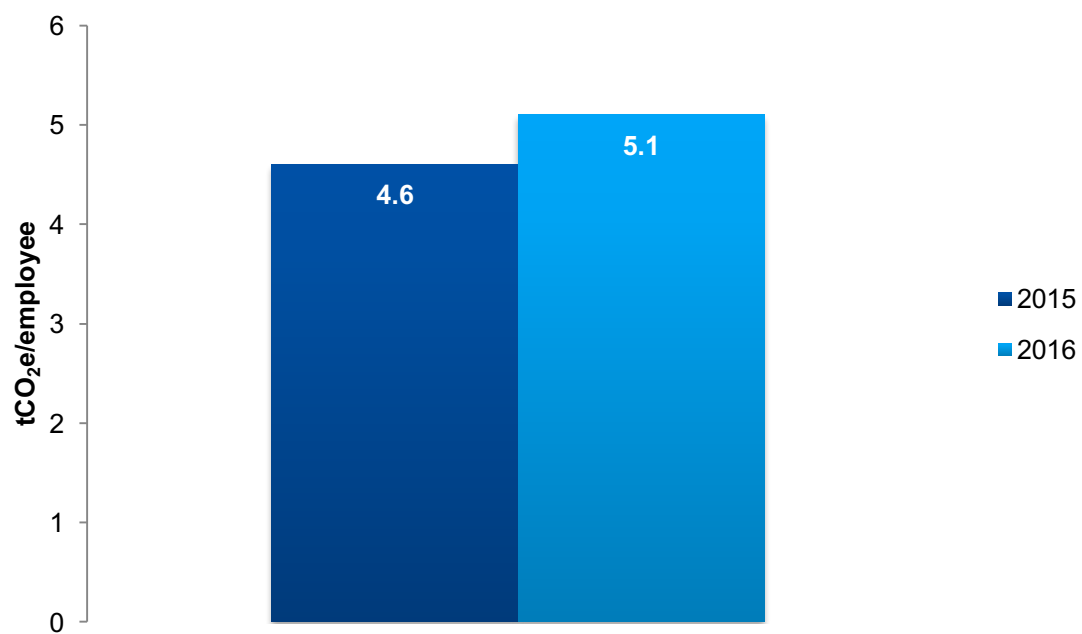


Figure 7: Emissions per employee in 2015 and 2016

South Pole Group: GHG emissions 2016 per office [tCO ₂ e]											
	Bangkok	Beijing	Jakarta	Medellin	Mexico	New Delhi	Zurich ¹¹	Stockholm	London	Australia	Addis Ababa
Scope 1	1.2	-	-	-	-	-	-	-	-	-	-
Diesel	0.8	-	-	-	-	-	-	-	-	-	-
Petrol	0.4										
Scope 2	17.3	6.3	6.9	0.0	0.7	3.5	1.9	0.2	0.0	8.5	0.0
Electricity - grid	17.3	6.3	6.9	-	0.7	3.5	1.2	-	0.0	8.5	0.0
Electricity – renewable	-	-	-	0.0	-	-	-	0.0	-	0.0	-
District heating	-	-	-	-	-	-	0.7	0.2	-	-	-
Scope 3	122.9	45.0	98.6	75.0	12.0	29.4	209.6	11.4	18.8	108.4	18.4
Air	117.8	43.5	89.9	71.4	9.99	27.1	181.0	10	17.7	68.9	7.8
Taxi	2.1	0.2	2.2	1.0	0.1	1.4	1.4	0.1	0.2	5.8	0.1
Car	1.1	0.2	3.4	0.9	0.3	0.0	2.1	0.4	0.0	31.3	0.0
Train	0.1	0.0	0.0	0.2	0.0	0.0	0.5	0.0	0.1	0.1	0.1
Tram	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subway	0.1	0.0	0.8	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Bus	0.0	0.1	0.0	0.2	0.0	0.0	2.5	0.1	0.1	0.0	0.0
Local transport	0.0	0.0	0.0	0.0	0.0	0.0	11.8	0.0	0.0	0.0	0.0
Ferry	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Paper	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0
IT	1.6	1.0	2.2	1.2	1.6	0.8	10.1	0.8	0.8	2.2	0.1
Total GHG emissions	140.9	51.4	105.5	75.0	12.8	32.9	211.5	11.6	18.8	116.9	18.4
No of employees	15	6	10	36	7	6	54	4	7	11	1
Emissions per employee (tCO₂e/employee)	9.4	8.6	10.6	2.1	1.8	5.5	3.9	2.9	2.7	10.6	18.4

¹¹ The Zurich office additionally includes employees based in San Francisco, Sao Paulo, Hong Kong, Bogota, Madrid, Berlin and Amsterdam

3 Accounting principles

The GHG accounting was based on the GHG Protocol's principles of:

- **Relevance:** An appropriate inventory boundary that reflects the GHG emissions of the company and serves decision-making needs of users.
- **Completeness:** Accounting all emission sources within the chosen inventory boundary. Any specific exclusion is disclosed and specified.
- **Consistency:** Meaningful comparison of information over time and transparently documented changes to the data.
- **Transparency:** Data inventory sufficiency and clarity, where relevant issues are addressed in a coherent manner.
- **Accuracy:** Minimised uncertainty and avoided systematic over or under quantification of greenhouse gas emissions.

4 Global warming potentials

Global warming potential (GWP) is a measure of the climate impact of a GHG compared to carbon dioxide over a time horizon. GHGs have different GWP values depending on their efficiency to absorb long wave radiation and the atmospheric lifetime of the gas.

Table 6: Applied global warming potentials

GHG	GWP (100 years)
CO ₂	1
CH ₄	25
N ₂ O	298

Source: IPCC Fourth Assessment Report (AR4) (2007)

Annex I

Emission factors

Activity	Emission factor reference ¹²
Fuel	DEFRA, 2016
Electricity	International Energy Agency, 2016
Heat	Fortum, 2016; Treeze ferwärmerechner, 2016
Business travel	DEFRA, 2016
IT equipment	IBM, 2015; Dell, 2010, 2011, 2013, 2014, 2015; LCA LED, 2015; Apple, 2012, 2013, 2015; Projector LCA, 2006; Lenovo, 2015
Paper	DEFRA, 2016

¹² South Pole Group derives its emission factors from reliable and credible sources. South Pole Group is not responsible for inaccuracies in emission factors provided by third parties.