



Polytrade Paper Corporation Limited
Carbon Neutrality Report - 2012

AUGUST 2013

Appointed by Polytrade Paper Corporation Limited as the technical consultant of its carbon neutrality project, RESET Carbon Limited has prepared this report on its behalf.



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Foreword from the Managing Director

Two years have passed since Polytrade has committed to being carbon neutral in compliance with the challenging PAS 2060 Standard in 2010. This year, we are exhilarated to see continued improvement of our performance and the increasing support coming from our staff and clients in our sustainability journey.

For our third application period of carbon neutrality, and the second consecutive year where Polytrade has to demonstrate quantifiable carbon reductions, we are proud to announce that the company has successfully reduced its absolute carbon emissions by 21%, and its carbon intensity (emissions per full time employee) by 19% against 2010 baseline levels, well ahead of our corporate carbon target.

We could not have achieved this feat without the passionate support from our employees, who have contributed their time, energy, creativity and technical expertise into this cause. Their commitment to Polytrade's core values helped initiate new environmental projects such as lighting retrofits, upgrading of office equipment to more energy efficient model and recycling of waste paper.

This carbon neutrality report presents the information which substantiates Polytrade's compliance with the PAS 2060 standard for the third year.

Dedicated to be one of the powerhouses behind the paper industry's sustainability revolution, we have put in place a robust carbon footprint management plan since 2010. As Hong Kong's leading provider of FSC and low carbon paper, we remain vigilant to fulfil our carbon target, and continue to seek creative operational and hardware improvements to further enhance the company's sustainability performance.



Michael Chan

Managing Director

Polytrade Paper Corporation Limited

30 August 2013

1 Background

Established in 1977, Polytrade Paper Corporation Limited (“Polytrade”, hereafter) is a market leader in quality premium paper trading. Being environmentally responsible has been incorporated in Polytrade’s business strategies. Polytrade has not only brought environmental conscience in its operations by being the first importer of Forestry Stewardship Council (FSC) certified paper in Hong Kong, but also measured the company’s climate impact. It has measured its corporate carbon footprint of 2008 and 2009 and purchased carbon credits to offset its carbon footprint for 2009.

In 2010, Polytrade adopted internationally recognized standard, PAS 2060:2010, in achieving carbon neutrality for the corporate carbon footprint of 2010 with third party validation. The company has also set a Carbon Footprint Management Plan (“The Plan”, hereafter) to commit on continuously reducing its corporate GHG emissions. Polytrade walked the talk by implementing the Plan and successfully delivered carbon reductions for 2 consecutive years (2011 and 2012) through energy efficiency measures and staff behavior change. The company is working towards its carbon target to reduce its corporate GHG emissions per full time employee by 5% from 2010 levels by 2013.

This report includes the information which substantiates the declaration of Polytrade’s carbon reductions in 2012 through Carbon Management Plan implementation, as well as achievement and commitment on carbon neutrality in compliance with PAS 2060:2010 standard for third application period (1 January – 31 December 2012).

2 Organisation Profile

Polytrade Paper Corporation Limited is a private limited company. Registered address is Room 501-505, 5/F, Tower A, Southmark, 11 Yip Hing Street, Wong Chuk Hang, Hong Kong. The main business activities of Polytrade are purchase, repacking and sale of premium papers servicing Hong Kong market.

3 Carbon Footprint Management Plan

3.1 Statement of commitment to voluntary emission reduction and carbon neutrality

Polytrade is committed to achieving and maintaining carbon neutrality of its operations. This is achieved through implementation of carbon footprint management plan to proactively reduce carbon emissions internally and carbon offset strategy.

3.2 Carbon management policies

Polytrade acknowledges the challenges facing the society due to climate change and the emission of greenhouse gases. In order to address this issue proactively, we are committed to measuring, reporting and reducing carbon emissions of the operations of Polytrade Paper Corporation Ltd. by means of improving energy efficiency, carbon management and operation optimization. In order to achieve this goal, we shall perform the following actions:

- measure and report Polytrade's carbon emissions on annual basis in accordance with the requirements in the Carbon Footprint Management Plan;
- establish carbon reduction plan with target based on the financial savings and aggressive return on investment (ROI) analyzed from an energy efficiency and carbon reduction assessment; and
- build internal team to implement GHG management and be accountable for carbon emissions across Polytrade's operations



Michael Chan
Managing Director
Polytrade Paper Corporation Limited
1 February 2011

3.3 GHG Management Team

The GHG management team leads the GHG inventory management, reduction and carbon neutrality efforts in Polytrade. Corporate GHG reporting is an exercise that summarizes organizational performance associated with energy direct and indirect activities, which requires

efforts of GHG management team in performing the following actions in order to accomplish the reporting goal repeatedly:

- Collation of data;
- Preparation of report; and
- Maintenance of GHG inventory.

The GHG management team may decide to prepare the GHG inventory internally and externally. The team shall ensure the existence, quality and retention of documentation so as to create an audit trail of how the GHG inventory is compiled. All relevant historical records to support the base year data should be maintained. In addition, Polytrade shall fully document the evidence used to substantiate the declarations contained within PAS 2060:2010 standard and retain it for the period that the status of carbon neutrality is valid, and for a period of six years thereafter¹. The process of documentation maintenance is elaborated in Annex 4.

The team should become the sole contact point for any enquiry and question on the GHG report.

3.4 Team structure and function

The GHG management team serves a function to collate activity data, prepare GHG report and maintain the inventory by implementing the specifications in this plan. To facilitate the process, the GHG management team should consist of the following members:

a) A Chairperson

Reporting to the Managing Director, the chairperson of the GHG management team is the team leader who is responsible for achieving the goal(s) and objective(s) given by Polytrade. He/She should be the primary contact point for any enquiry on the GHG report and inventory internally and externally. He/She should have adequate competence to manage the GHG inventory. Examples of desired aspects of competence are:

- knowledge on GHG accounting and management;
- willingness to pursue additional GHG knowledge or training continuously;
- ability to communicate GHG and climate change Issues on behalf of the company

b) Team members

Reporting to the chairperson, the team members are personnel supporting all GHG management activities related to data collation, inventory maintenance, data verification, reporting and reduction programme. There is no limit on the number of team member but all members shall be adequately trained for their roles.

¹ If the company has changed its base year, it shall still retain the evidence used to substantiate PAS 2060 declaration for a period of 6 years after the carbon neutrality status is achieved

The GHG management team shall meet at least quarterly in order to report and discuss on the company's GHG performance. The team organization chart is presented in Annex 3.

3.5 Timescales and methodology for maintaining carbon neutrality

The baseline date is 1 January 2010 and the first quantification date is 31 December 2010. The first application period is from 1 January to 31 December 2010 in which carbon neutrality is achieved by 100% offset (Model 3 provided by PAS 2060:2010). This report covers the third application period, from 1 January to 31 December 2012 and the third quantification date is 31 December 2012. The company has delivered carbon reductions. With carbon reductions, it also offset 100% of its carbon footprint.

Polytrade also commits to maintain carbon neutrality in the third application period (year 2012) by implementing the Plan and carbon reduction measures to reduce its footprint against the base year (2010), as well as offsetting the remaining carbon emissions. Polytrade will continue to improve the GHG performance in order to achieve its reduction targets.

3.6 GHG reduction target

Polytrade has set a target for GHG emissions reduction with a specific timeframe of commitment. The target shall be reviewed every 12 months.

During the latest review on the reduction target in April 2012, there was no update in the target reduction level and achievement date. Please see Annex 2 for the current GHG reduction target.

3.7 Measures of achieving and maintaining GHG reductions

Polytrade aims at continuously reducing GHG emissions from its operations. In October 2010 the company has conducted energy assessment to identify reduction opportunities. As the first phase of GHG reduction implementation in 2011, Polytrade has replaced all 60W MR16 downlights by 4W LED lamps in headquarter office. A total of 117 pieces of LED lamps were installed. In addition, the Company has switched nine T8 light tubes to T5 light tubes at head office. In 2012, the company replaced 68 pieces of T8 and T12 light tubes with T5 tubes in its warehouse in 3/F Union.

Polytrade GHG Management Team is responsible to lead on the GHG reduction initiatives. In March 2011, the Team set up "Polytrade Green Guideline" which provides staff with guidance on saving measures. The guideline focuses on 3 major aspects: energy consumption, paper consumption & recycling, and air conditioning. Hardcopies of the guideline are posted in accessible areas in office pantry and printing room to remind staff of the green office practices. Please refer to Annex 5 for full guideline.

More details on Polytrade's GHG reduction measures carried out in 2012 could be referred to Annex 6.

3.8 Periodic assessments of performance against the Plan & corrective actions

Periodic assessments of performance against the Carbon Management Plan shall be commensurate with the timescale for achieving carbon neutrality and at least every 6 months. This shall be assessed in both quantitative and qualitative means.

Quantitative: In order to track performance against carbon reduction target, Polytrade shall report emissions and any reductions in a consistent, complete and transparent manner. This is achieved by:

- Carrying out regular performance check: The team shall review the GHG performance of Polytrade at least every 6 months. This includes comparison of the GHG inventory with the target and analyses of year-to-year performance of different emission sources. The team shall also revisit the reduction target every 12 months to check if it is realistic compared to the GHG performance
- Reporting information in relation to the target: The following information shall be included when setting and reporting progress in relation to the target:
 - Description of the reduction target
 - Information on emissions and performance in relation to the target

Qualitative: Polytrade shall assess company's performance in implementing the Plan including carbon management policy, GHG Management Team, reduction timeframe and carbon reduction measures. This could be assessed through, but not limited to, assessment checklist and employee survey.

In cases where the internal reductions are not able to reach the reduction target, GHG Management Team shall identify the root causes and decide how further internal reductions could be achieved during the next assessment period.

The performance assessment on the Plan was conducted in March 2013. Major assessment activities are described below:

Quantitative:

Polytrade has calculated the 2012 corporate carbon footprint and assessed the performance against target and analysis year-to-year performance to identify emission sources that have major contributions to the reductions. Although reductions in both absolute emissions and intensity are delivered in 2012 (compared against 2011 and base year footprint), the Team has decided to keep the original carbon reduction target level because unforeseeable events, such as changes in full time employee number and overseas business air travels, could have significant impact on the absolute carbon footprint and carbon intensity in 2013 and affect the ability to achieve the target.

Section 7 of this report provides more details on the GHG emissions performance.

Qualitative:

In March 2013 the Team carried out performance review on the implementation of the Plan to identified measures that have contributed to carbon reductions and improvement opportunities.

Due to time limitations, the Team was not able to conduct half-year assessment on the Plan in 2012.

3.9 Offset strategy

Polytrade shall maintain carbon neutrality by offsetting 100% of carbon footprint calculated. Polytrade shall purchase carbon offsets from Gold Standard certified projects, which is identified by PAS 2060:2010 standard as appropriate for providing carbon offsets meeting the principles of that PAS.

The company shall assess carefully the quality and credibility of offsets used and specify the origin and nature of the offsets when reporting. The information required for reporting shall include:

- Creditability of the certification and standard employed to qualify the projects
- Quantity of carbon offset
- Type and nature of offsets purchased
- Environmental and social benefits associated with the project implementation
- Description of the project
- Geographic and organizational origin
- Information regarding the retirement of carbon offset credits

3.10 Renewal of declaration of commitment to carbon neutrality

Polytrade shall report the number of times that the declaration of commitment to carbon neutrality has been renewed without declaration of achievement.

During the third application period, there was no renewal on the declaration of commitment to carbon neutrality.

4 Standard Basis and Methodology of Polytrade Carbon Neutrality

4.1 Specification used for carbon neutrality declaration

Polytrade has adopted the PAS 2060:2010 standard as the basis for committing on and achieving carbon neutrality since the first application period. It is selected because of its credibility and global recognition. It is applicable in terms of entity and subject in which Polytrade as an organization finds suitable.

4.2 Subject selection

Polytrade Paper Corporation Limited is the subject for carbon neutrality. The main business activities of Polytrade are purchase, repacking and sale of premium papers. The subject selected covers all business activities of the organization (Polytrade) with office and warehouse setup.

During the reporting period, the definition of the subject remains unchanged. In the event that material change to the subject occurs in the future, the process of determination and substantiation of the subject and associated GHG emissions shall be re-started on the basis of a newly defined subject.

4.3 Carbon neutrality methodology

Polytrade applied Model 3 carbon neutrality methodology provided by the PAS 2060:2010, i.e. demonstration of carbon neutrality was based on first year offsetting concession to achieve carbon neutrality for the first application period. Polytrade has achieved carbon neutrality status during the first application period (1 January – 31 December 2010) and second application period (1 January – 31 December 2011). During the third application period (1 January – 31 December 2012), Polytrade has implemented the Carbon Footprint Management Plan, delivered reductions, determined the reduced footprint and achieved carbon neutrality status based reduction and offset.

Evidence used to substantiate declarations contained within PAS 2060:2010 are fully documented in electronic format and maintained by Polytrade. Polytrade has retained the documentation for the period that the status of carbon neutrality is valid (i.e. 1 January – 31 December 2012) and will retain it for a period of six years thereafter. The process of documentation maintenance by Polytrade is elaborated in Annex 4.

5 Carbon Footprint Inventory Process

5.1 Carbon footprint and carbon reduction quantification methodology

The *Greenhouse Gas Protocol Corporate Accounting and Reporting Standard, Revised Edition* (GHG Protocol Corporate Standard) developed by the World Resources Institute and World Business Council for Sustainable Development is used for defining the subject, the GHG emissions

associated with that subject and the calculation of the carbon footprint for the defined subject. The standard is selected because it is relevant for organizational GHG emissions calculations and widely accepted. The standard is identified by PAS 2060:2010 standards as appropriate for use in the quantification of GHG emissions. In addition, *Working 9 to 5 on Climate Change: An Office Guide, December 2002 Edition*, is used as reference for identifying scope 3 emissions because the guideline is relevant to office-based organizations. Sources of emissions factors used for emissions calculations are presented in Annex 6.

Six types of greenhouse gases (GHG) included in the Kyoto Protocol to the United Nations Framework Convention on Climate Change are required for reporting under the GHG Protocol Corporate Standard, viz carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF₆), were covered in the calculations. The total gross emissions are measured in tonnes (metric tons) of carbon dioxide equivalent (tCO₂e).

GHG Protocol Corporate Standard describes the most widely accepted approach, which is to identify and categorise emissions-releasing activities into three groups (known as scopes):

- Scope 1: Direct emission from sources that are owned or controlled by the company
- Scope 2: Indirect emissions from the generation of purchased electricity consumed by the company
- Scope 3: All other indirect emissions as a consequence of the activities of the company that occur from sources not owned or controlled by the company

For consistency and compatibility reasons, carbon footprints for the 3 application periods (2010, 2011 and 2012) are quantified using the same standard and methodology. The 2012 footprint is compared against the footprint of 2011 and base year (2010) in order to identify any reductions achieved.

Chapter 7 provides details on the carbon reductions analysis.

5.2 Organizational boundary, scope and key emission sources

5.2.1 Organizational boundary and time period

The organizational boundary of the corporate carbon footprint was based on operational control approach in accordance with the GHG Protocol Corporate Standard. The inventory accounts for 100% of GHG emissions of business activities and operations in which Polytrade has direct operational control and the full authority to introduce and implement its operating policies. Polytrade's corporate carbon footprint thus accounts for the carbon emissions of its office and warehouse facilities in Hong Kong for the time period of 1 January – 31 December 2012.

One warehouse was excluded from the carbon footprint because there is no separate electricity meter record available to track its electricity consumption. The scope 2 indirect emissions from that warehouse are estimated to less than 1% of total carbon footprint.

Polytrade has distribution agents. Since the company does not have operational or financial control over the operations of their agents, they are not included under the boundary of Polytrade’s carbon footprint.

5.2.2 Operational boundaries

Scope 1, 2 and significant scope 3 emissions were measured. The emission sources within operational boundaries are finalized and listed in Chart 1. Based on Polytrade’s corporate carbon footprint quantified (Section 7), emissions from purchased electricity contributes more than 70% of the total emissions. According to PAS 2060:2010 standard, Polytrade shall account for no less than 95% of the remaining sources of emissions. Based on materiality analysis of the excluded emissions sources (Chart 2), it is confirmed that the 95% threshold is met.

In 2013, 2 new emission sources, emissions from paper waste disposed at landfills and emissions associated with electricity used for processing sewage, was included in the inventory. As a result, the base year was recalculated to account for this emission source. In addition, the company started collecting waste paper for recycling by an external service provider. The avoided emissions due to paper recycling are report to demonstrate further commitment on environmental protection.

Chart 1 Polytrade operational boundaries

Operational boundaries	Emission sources
Direct GHG emissions (Scope 1)	<ul style="list-style-type: none"> • Mobile fuel combustion by company owned vehicle
Energy indirect GHG emissions (Scope 2)	<ul style="list-style-type: none"> • Purchased electricity consumption
Other indirect GHG emissions (Scope 3)	<ul style="list-style-type: none"> • Staff business air travel • Staff commuting • Local staff business travel • Copy paper purchase • GHG Emissions from paper waste disposed at landfills • Electricity for processing fresh water purchased • Electricity for processing sewage

Avoided GHG emissions (reported separately from Scope 1, Scope 2 and Scope 3):

Item	Sources
Avoided GHG emissions (reported separately from Scope 1, Scope 2 and Scope 3)	GHG avoided by recycling waste paper

Some GHG sources were excluded from reporting with consideration of the following justifications:

- a. GHG sources whose contribution to total carbon footprint is estimated to constitute less than 1%; or
- b. Whose quantification would not be technically feasible or cost effective

Chart 2 Excluded GHG emission sources

Scope	Emission sources	Reason for exclusion	Estimated emissions (tCO ₂ e)	Est. % of total carbon footprint
1	Fugitive emissions (HFCs) leakage from refrigerator	Polytrade headquarter office has one refrigerator (domestic type). However no refrigerant was refilled since the refrigerator was purchased. No information about refrigerant type	Estimated annual emissions from operation of refrigeration: 0.00078 tCO ₂ e (Assume refrigerant charge capacity is 0.2kg ² , annual leak rate proxy is 0.3% and assume HFC134a refrigerant with GWP of 1,300 is used)	<0.01%
1	Fugitive emissions (HFCs) leakage of mobile air conditioning	Polytrade has one company owned passenger car. The mobile air conditioning system uses HFC134a refrigerant. However no refrigerant was refilled during 1 Jan 2012 – 31 Dec 2012	Estimated annual emissions from operation of air conditioning: 0.0689 tCO ₂ e (assume annual leak rate proxy is 53g of HFC134a per annum ³ , and HFC134a refrigerant with GWP of 1,300 is used)	0.097%
3	Mobile fuel combustion of contractor	Fleet contractor refused to provide any vehicle fuel consumption details to	Not technically feasible for quantification	N/A

² http://www.ehow.com/info_12170824_freon-capacity-refrigerator.html

³ Annual weighted average “regular” leakage rate for a “second generation” mobile air conditioners is 53.0 grams per annum. (http://www.oekorecherche.de/english/berichte/zusammenfassungen/zuMAC_E.html)

	fleets	Polytrade due to confidentiality		
3	Central air-conditioning units and public electricity	Central air-conditioning units and public electricity in the building where the HQ is located in are owned and control by the landlord of the building. Polytrade has no control over the use of both systems and electricity consumption data is not available.	Not cost effective for quantification	N/A
3	Waste to landfill	There is no record on amount or types of waste produced	Not technically feasible for quantification	N/A
3	Bottled distilled water purchase	Not able to find documented emissions factor for bottled distilled water	Not cost effective for quantification	N/A
3	Carbonless copy paper (CCP) (5-ply) purchase ⁴	Emission factor for carbonless copy paper is not available	Not technically feasible for quantification	N/A
3	Outsource printing and design service	Not cost effective for quantification	Not cost effective for quantification	N/A
3	Overseas business travel (road travel)	Overseas road travel data is not available	Not technically feasible for quantification	N/A

5.2.3 Baseline

Polytrade's carbon inventory for 2010 is the first carbon footprint which is determined in accordance with this PAS 2060:2010. It is used as baseline for future reports, and base year for GHG emissions reduction target. The base year is set using fixed base year approach.

⁴ CCP is paper coated with special encapsulated chemicals that produce a duplicate copy without the use of carbon paper

There was recalculation on the base year emissions due to addition of two emission sources, emissions from paper waste disposed at landfills and emissions associated with electricity used for sewage processing. The emission source only contributes to about 1% of total footprint.

5.2.4 Data sources and data requirement

GHG emissions are calculated by applying published emission factors⁵ to known activity data from Polytrade's facilities.

5.3 Data collection process and quality control

Polytrade commissioned RESET to quantify Polytrade's corporate carbon footprint for 2012. Based on the organization and operational scopes that Polytrade identified during first and second application period, Polytrade made use of a carbon footprint calculation template (in excel format) for data entry. The data were collected and submitted to RESET by Charles Chan (GHG Management Team Chairperson) and Cindy Hung (GHG Management Team Member) for emissions calculations. Supporting documents such as scan copies of purchase invoices were maintained by Administration Department for data verifications. At the time of footprint calculations, RESET obtained invoices with randomly sampled months (at least 3 months in 1 year) to check against the input data for fuel, purchased electricity, fresh water purchase, and copy and computer paper purchase.

6 Internal Data Verification

Polytrade has commissioned RESET to conduct an internal verification on the carbon footprint. The verification activities are summarized as follows:

- Internal verification held during 13 May 2013
- The assurance level selected is limited level of assurance
- The materiality threshold for internal verification operation set for individual emissions activity is 2%, whereas aggregate threshold is 5%.

⁵ See Annex 6 for full list of documented emission factors

7 Polytrade Carbon Footprint

7.1 Carbon footprint for 2012

Polytrade's total GHG emissions in 2012 are **65.95 tonnes of CO₂e**. Scope 2 emissions contributed the majority of the footprint (76%) followed by Scope 3 and Scope 1 emissions. Emissions due to purchased electricity consumption dominated the carbon footprint (76%), followed by staff commuting (8%) and local business travel (7%). See Chart 3, 4 and 5.

In terms of emissions intensity, the emissions per full time employee in 2012 is 2.44 tCO₂e, where per square feet emissions is 1.83 kgCO₂e. See Chart 3.

7.2 GHG emissions reduction analysis

For 2 consecutive years since the implementation of the Carbon Footprint Management Plan in 2011, there has been a significant reduction in carbon emissions when compared with the base year (2010). Chart 4 and 5 illustrate the changes of absolute emissions and intensities, as well as changes of each of the emission sources and emission scopes. Absolute emissions reduced by 17.40 tCO₂e (21%) in 2012 against baseline levels, and 6.44 tCO₂e (9%) against 2011 levels. Since the full time employee number remained unchanged in 2012, the reductions in emissions per full time employee also dropped by 19% (0.56tCO₂e/FTE) against baseline levels and 7% (0.19tCO₂e/FTE) against 2011 levels. The emissions intensity reduction rate is greater than the economic growth rate in Hong Kong⁶.

Compared with year 2011, there are emission reductions for all emission sources except fresh water and sewage. Emissions associated with electricity use, local staff business travel, copy paper use and paper waste disposed to landfill are the major sources of reductions.

Although sub-metering is not available to identify which measures are main contributors to emissions reductions, the company has adopted several energy efficiency projects which may contribute to the reductions. For example, the lighting retrofit projects (T8 and T12 to T5 tube retrofits) for warehouse in 3/F Union Building led to 12.3% reductions in the electricity use of that location, and approx. 4% reductions in total footprint. In addition, the company upgraded its photo copier to a newer model with "energy star" certified and green labeling, it is expected that the new machine is more energy efficient compared with the old model.

There are 9% reductions in staff local business travel emissions. It is mainly due to reductions in number of ferry travel to Macao.

⁶ According to the preliminary figures, Gross Domestic Product (GDP) for 2012 increased by 1.5% in chained (2011 dollars) over a year earlier (Source: Table 030: Gross Domestic Product (GDP), implicit price deflator of GDP and per capita GDP:

http://www.censtatd.gov.hk/hong_kong_statistics/statistical_tables/index.jsp?tableID=030)

In 2012, the company no longer used 11"x15" size company paper as the company goes digital for the relevant process. Due to paper recycling, Polytrade has avoided 0.95 tCO₂e of GHG emissions as the paper waste was recycled instead of disposal at landfill.

For details about quantification methodologies, emissions factors and assumptions, please see Annex 6.

Chart 3 Polytrade corporate GHG emissions and avoided emissions in 2012, 2011 and 2010

Jan2012 to Dec2012					
Emissions by gas type (in tCO ₂ e)					
Description	Carbon dioxide (CO ₂)	Methane (CH ₄)	Nitrous oxide (N ₂ O)	Total	% share
Scope 1 Direct Emissions					
Mobile fuel combustion	2.88	0.01	0.42	3.31	5%
Sub total				3.31	
Scope 2 Energy Indirect Emissions					
Electricity purchased				50.12	76%
Sub total				50.12	
Scope 3 Other Indirect Emissions					
Staff commuting				5.02	8%
Staff business air travel	1.85	0.00	0.02	1.87	3%
Local staff business travel				4.58	7%
Copy paper purchase				0.38	0.58%
GHG Emissions from Paper Waste Disposed at Landfills				0.65	0.98%
Electricity for processing fresh water				0.018	0.03%
Electricity for processing sewage				0.007	0.01%
Sub total				12.53	
Total:				65.95	

Jan2011 to Dec2011		% Difference (2012/2011)	
Emissions (in tCO ₂ e)			
Total	% share	tCO ₂ e	
(a) 3.34	5%	0.03	-1%
3.34		0.03	-1%
(b) 54.64	75%	4.53	-8%
54.64		4.53	-8%
(c) 5.37	7%	0.35	-6%
(d) 1.94	3%	0.06	-3%
(e) 5.01	7%	0.43	-9%
(f) 0.74	1%	0.35	-48%
(g) 1.34	2%	0.69	-52%
(h) 0.016	0.02%	-0.002	14%
(i) 0.006	0.01%	-0.001	14%
14.41		1.88	-13%
72.39		6.44	-9%

Jan2010 to Dec2010		% Difference (2012/2010)	
Emissions (in tCO ₂ e)			
Total	% share	tCO ₂ e	
3.06	4%	0.25	8%
3.06		0.25	8%
67.90	81%	-17.78	-26%
67.90		-17.78	-26%
5.07	6%	-0.05	-1%
1.86	2%	0.01	0%
1.84	2%	2.74	149%
1.36	2%	-0.98	-72%
2.22	3%	-1.58	-71%
0.022	0.03%	-0.005	-20%
0.009	0.01%	-0.002	-18%
12.39		0.13	1%
83.35		-17.40	-21%

Number of full time employee (year end figure) (FTE)	27
GHG emissions by FTE (tCO ₂ e/FTE)	2.44
Total floor area (sq. ft.)	36,119
GHG emissions by total floor area (kgCO ₂ e/sq.ft)	1.83

	27	0	0%
	2.63	-0.19	-7%
	38,959	-2840	-7%
	1.82	0.00	0%

	27	0	0%
	3.00	-0.56	-19%
	50,439	-14320	-28%
	1.61	0.22	14%

Other information (reported separately from Scope 1, Scope 2 and Scope 3)

Jan2012 to Dec2012					
Emissions by gas type (in tCO ₂ e)					
Description	Carbon dioxide (CO ₂)	Methane (CH ₄)	Nitrous oxide (N ₂ O)	Total	% share
GHG avoided by recycling waste paper				0.95	

Jan2011 to Dec2011		% Difference (2012/2011)	
Emissions (in tCO ₂ e)			
Total	% share	tCO ₂ e	
(j) N/A			

Jan2010 to Dec2010		% Difference (2012/2010)	
Emissions (in tCO ₂ e)			
Total	% share	tCO ₂ e	
N/A			

Chart 4 GHG emissions by scope in 2012

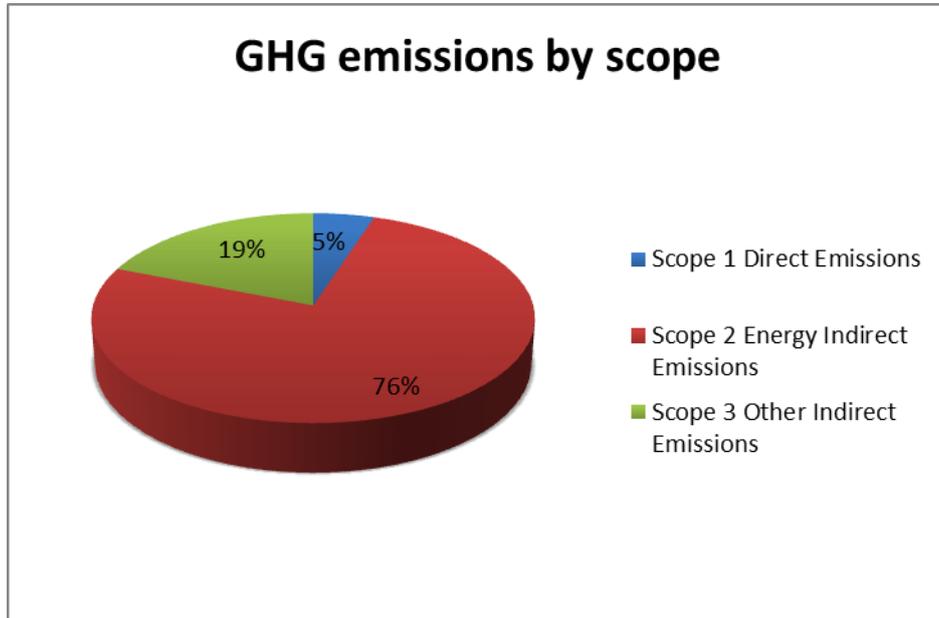
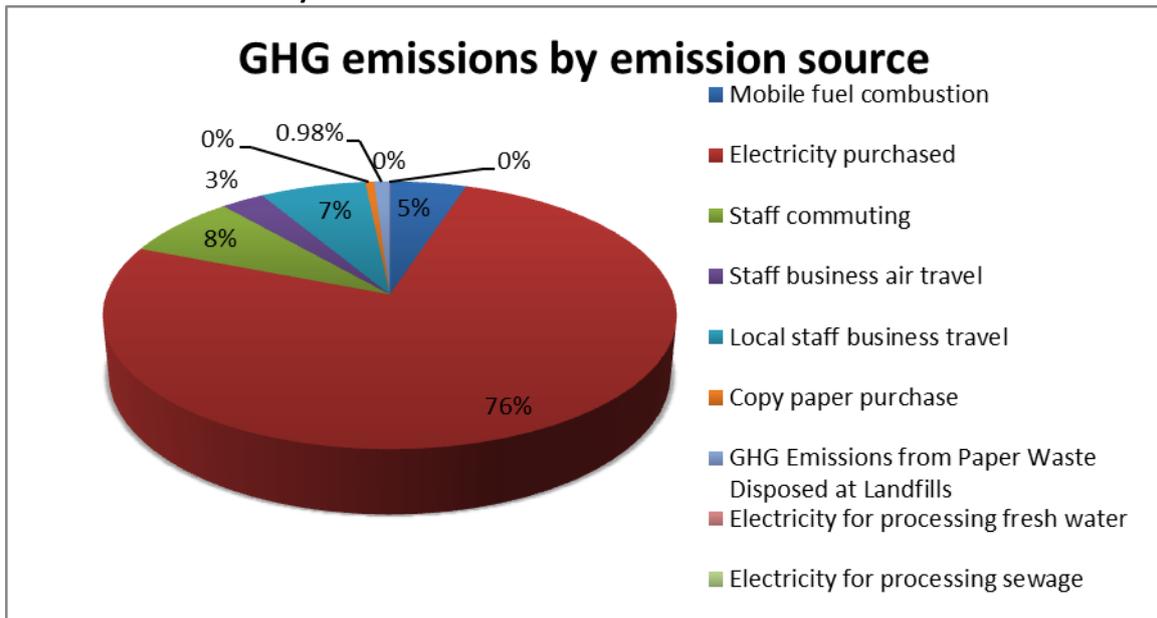


Chart 5 GHG emissions by emission source in 2012



8 Uncertainty Assessment

The current footprint is best estimate based on reasonable costs of evaluation. Description of data uncertainties are described in Chart 6. Since the materiality threshold set for individual emissions activity is 2% and aggregate emissions is 5%, the uncertainty item listed is considered as not material.

Chart 6 Data uncertainty

Emission source	Issue	Materiality to total carbon footprint	Assumptions from sensitivity analysis
Staff commuting	Since it was not cost effective to measure the traveling for each staff in daily basis. The estimated usages were estimated based on the travel pattern of staff, their annual working day and leave days	N/A	N/A
Local business travel	A robust emissions factor of Star Ferry is not available. There is doubt regarding the methodology of the one calculated by Leung (2010) (1.478 kg CO ₂ -eq / HK\$) and emissions associated with Star Ferry travel was not calculated a more robust data is available.	0.05%	Assumed the emissions factor for Starr Ferry travel is 1.478 kg CO ₂ -eq / HK\$

9 Carbon Offsetting

After emission reduction has taken place, Polytrade offset its organizational GHG emissions of 2012 through carbon offsetting on 6 Jun 2013. The carbon offset details are described in Annex 7.

10 Declaration of Commitment & Achievement to Carbon Neutrality

Upon certification by independent third party certifier, Polytrade will declare the commitment and achievement to carbon neutrality in accordance with PAS 2060:2010. The declaration will be signed by Mr. Michael Chan, Managing Director of Polytrade. Please see Annex 8 for the content of the declaration statement.

11 Carbon Neutrality Declaration Validation

Polytrade appointed a third party certification body, British Standards Institution (BSI) Hong Kong, to act as an independent organization to conduct PAS 2060:2010 validation at Polytrade in May 2013. BSI is selected because it is able to demonstrate that it has applied the following standards and codes when undertaking validations against PAS 2060:2010:

- ISO 14065 (Greenhouse Gases – Requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition)
- BS EN ISO/IEC 17021 (Conformity assessment – requirements for bodies providing audit and certification of management systems)
- BS EN ISO 14064-3 (Specification with guidance for the validation and verification of greenhouse gas assertions)
- GHG Protocol (WBCSD/WRI GHG Protocol, Corporate Accounting and Reporting Standard)

The validation included 3 stages:

1. Document review
 - a. Certifier reviewed the Carbon Neutrality Report against PAS 2060:2010 requirements before proceeding to next validation stage
2. Stage 1 on-site validation
 - a. Certifier visited Polytrade to conduct on-site assessment and validate the information disclosed in the carbon neutrality report with site survey and management/staff interview on 20 May 2013
3. Stage 2 validation
 - a. Certifier and Polytrade personnel further confirmed all the findings in stage 1

12 Issuance and Management of Carbon Neutrality Report and QES

The Qualifying Explanatory Statements (QES) (i.e. this report) has been reviewed and signed by Managing Director of Polytrade (Please see Annex 10 for the QES checklist). Polytrade will make QES publicly available upon completion of PAS 2060:2010 validation process and confirmation of compliance. Polytrade will also provide a reference to any freely accessible information upon which substantiation depends via its websites upon approval by Managing Director.

Polytrade will update the QES to reflect changes and actions that could affect the validity of the declaration of commitment to carbon neutrality.

13 References

BSI (2010): PAS 2060:2010 Specification for the Demonstration of Carbon Neutrality (April 2010 Edition)

Department for Environment, Food and Rural Affairs (Defra) (2009): Guidance on How to Measure and Report your Greenhouse Gas Emissions.

<http://www.defra.gov.uk/environment/business/reporting/index.htm>

Department for Environment, Food and Rural Affairs (Defra) (2011): 2011 Guidelines to DEFRA/DECC's GHG Conversion Factors for Company Reporting.

<http://www.defra.gov.uk/environment/business/reporting/conversion-factors.htm>.

Gold Standard: <http://cdmgoldstandard.org/>

Hong Kong Environmental Protection Department (2010): Guidelines to Account for and Report on Greenhouse Gas Emissions and Removals for Buildings (Commercial, Residential or Institutional purposes) in Hong Kong. 2010 Edition.

http://www.epd.gov.hk/epd/english/climate_change/files/Guidelines_English_2010.pdf

Leung, K.H. (2010): Carbon emission factor for public transportation in metropolitan

World Resources Institute (WRI) (2002): Working 9 to 5 on Climate Change: An Office Guide. (December 2002).

http://pdf.wri.org/wri_co2guide.pdf

World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD) (2004): The Greenhouse Gas Protocol. A Corporate Accounting and Reporting Standard. Revised Edition.

<http://www.ghgprotocol.org/files/ghg-protocol-revised.pdf>

Annex 1: Contact Person for Evaluation and Provision of Carbon Neutrality Report

Officers responsible for the evaluation and provision of the Carbon Neutrality Report:

Mr. Charles Chan

Position: Business Strategy

Tel: (852) 2873 1977

Email: charles@polytrade-paper.com.hk

Ms. Venus Ng

Position: Marketing Manager

Tel: (852) 2552 1615

Email: venus@polytrade-paper.com.hk

Registered company address: Room 501-505, 5/F, Tower A, Southmark, 11 Yip Hing Street, Wong Chuk Hang, Hong Kong

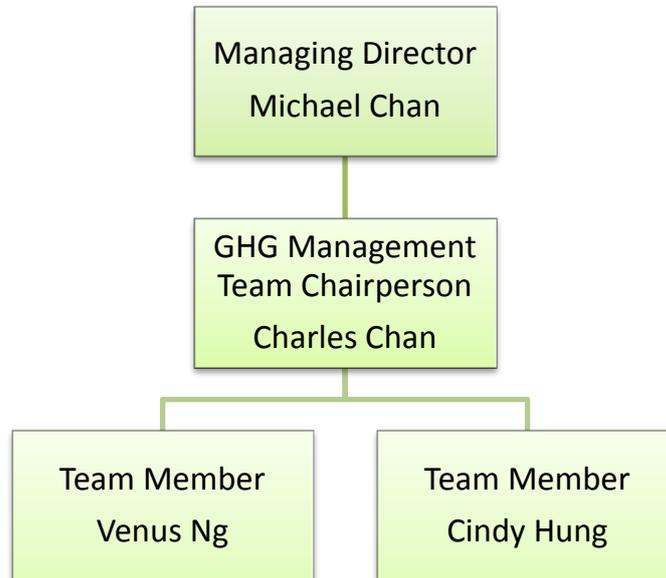
Annex 2: Polytrade GHG Emissions Reduction Target

Polytrade's GHG emissions reduction target is to reduce its corporate GHG emissions per full time employee by 5% from 2010 levels by 2013.

The target was last reviewed on 1 February 2011.

Annex 3: GHG Management Team Organizational Chart

Polytrade GHG Management Team Organizational Chart



Annex 4: GHG Emissions Documentation Process

Polytrade has set up a process of maintaining GHG emissions documentation including historical data to support base year data, and evidence used to substantiate declarations contained within PAS 2060:2010.

All relevant historical records to support the base year data should be maintained. In addition, Polytrade shall fully document the evidence used to substantiate the declarations contained within PAS 2060:2010 standard and retain it for the period that the status of carbon neutrality is valid, and for a period of six years thereafter.

Annex 5 Polytrade Green Guideline

《友邦綠色指引》

Energy Consumption

- Light off when not in use
- Light off during lunch hour
- Dim or turn off lightings when there is sufficient natural light
- Activate power saving functions for office machines

Paper Consumption & Recycling

- Double-sided printing/copying
- Collect waste paper for recycle
- Encourage the use of emails for internal communications
- Recycle and reduce use of disposable utensils
- Recycle aluminum cans and plastic bottles

Air conditioning

- Air conditioning setting at about 25.5 °C
- Turn off air-conditioners when not in use

用電量

- 關掉所有不需要使用的電燈
- 當員工出外用膳時，關掉不需要使用的電燈
- 打開窗簾盡量利用自然光，減低用電燈照明的需要
- 啟動電器和電腦的省電功能

用紙量和垃圾回收

- 雙面列印
- 提供收集箱以收集及再用單面紙
- 鼓勵使用電郵作內部通訊
- 循環使用或減少使用一次性餐具
- 回收鋁罐和膠樽

空調

- 保持空調氣溫於攝氏 25.5 度
- 關掉所有不需要使用的空調

Annex 6: Quantification Methodologies

- **Calculation Method**

The GHG emissions data from each Polytrade facilities are centralized by Polytrade and calculated by multiplying “activity data” with documented “emissions factor”. According to GHG Protocol Corporate Standard, company shall include emissions data for all six GHGs separately (CO₂, CH₄, N₂O, HFCs, PFCs, SF₆) in tonnes of carbon dioxide equivalent (CO₂e). For emission factors that are not in units of CO₂e, the factors are multiplied with their corresponding Global Warming Potential⁷ (GWP) and GHG emissions are expressed in tonnes of carbon dioxide equivalent:

$$\text{GHG (tonne CO}_2\text{e)} = \text{Activity data} \times \text{Emission factor} \times \text{GWP}$$

$$(\text{GWP}^8: \text{CO}_2=1, \text{CH}_4=21, \text{N}_2\text{O}=310)$$

The GHG emissions reported under Polytrade’s corporate GHG inventory include CO₂, CH₄ and N₂O. The quantification methodologies, emissions factors and assumptions applied for each emission sources are as follow:

Scope	Source	Activity data	Key calculation equation	Reference source of emissions factors
1	Mobile fuel combustion by company-owned vehicles	Unleaded petrol purchase bills	GHG = fuel amount purchased in L * fuel EF _{CO₂e}	HKCA: Hong Kong EPD (2010): Guideline to account for and report on greenhouse gas emissions and removals for buildings in Hong Kong - 2010 edition
2	Purchased electricity	Utility bills ⁹	GHG = electricity purchased in kWh*	Power Assets Holdings Ltd. Sustainability Report 2012 http://www.powerassets.com/pahweb/SR2012/EN/ebook.html

⁷ Global warming potential (GWP) is a measure of how much a given mass of greenhouse gas is estimated to contribute to global warming, compared against the same mass of global warming effect caused by CO₂

⁸ The inventories in 2012 carbon neutrality report are calculated with the GWP values released by IPCC Second Assessment Report, 1996

⁹ Consumption data in Jan 2012 and Jan 2013 invoices are normalized to reflect the consumption data within year 2012

			electricity EF_{CO2e}	
3	Employee commuting and local business travel (in non-company-owned vehicles)	Public transportation travel spent record (MTR, bus, mini-bus, taxi, airport express, tram)	$GHG = \text{transportation cost in HKD} * EF_{CO2e, \text{tran cost}}$	<ul style="list-style-type: none"> Leung, K.H. (2010): Carbon emission factor for public transportation in metropolitan MTR Annual Report 2009, Ten-Year Statistics MTR Sustainability Report 2009 Hong Kong Electrical and Mechanical Services Department (EMSD). Energy Consumption Indicator (Accessed on 25 Apr 2012) (http://ecib.emsd.gov.hk/en/indicator_trp.htm)
		Passenger car unleaded petrol usage details in L	$GHG = \text{fuel amount used in L} * \text{fuel } EF_{CO2e}$	
		Shuttle bus and cross boarder bus passenger distance in km	$GHG = \text{passenger distance in km} * EF_{CO2e, \text{tran cost}}$	
		Ferry travel between Hong Kong and Macao in number of single trip	$GHG = \text{number of person trip} * EF_{CO2e, \text{passenger trip}}$	
	Business air travel	Flight itinerary	$GHG = \text{passenger distance in km} * EF_{CO2e} \text{ specific to flight distance and cabin class} * \text{uplift factor} * \text{radiative forcing index (RFI)}$	Defra (2011): 2011 Guidelines to DEFRA/DECC's GHG Conversion Factors for Company Reporting. Annex 6 Passenger Transport. Table 6I
	Electricity used for fresh water processing	Water utility bills ¹⁰	$GHG = \text{water consumption in cubic meter/tonne} * EF_{CO2e}$	Hong Kong EPD: Guideline to account for and report on greenhouse gas emissions and removals for buildings in Hong Kong - 2010 edition
Electricity used for sewage	Water utility bills	$GHG = \text{water consumption in cubic meter/tonne} * EF_{CO2e}$		
	Copy and Computer paper	Paper purchase bills	$GHG = \text{paper purchased in reams/sheets} * \text{paper}$	Environmental Paper Network Paper Calculator (www.papercalculator.org) Access date: April 2011

¹⁰ Consumption data in Sep 11 – Jan 12, and Sep 12 – Jan 13 invoice are normalized to reflect the consumption data within year 2012.

	purchase		EF _{CO2e}	
	Paper waste disposed to landfill	Paper purchase bills	GHG = paper purchased in reams/sheets * paper EF _{CO2e}	Hong Kong EPD: Guideline to account for and report on greenhouse gas emissions and removals for buildings in Hong Kong - 2010 edition

- **Assumptions for GHG Emissions Calculations**

Emission source	Assumptions
Staff commuting, local business travel	<p>It is assumed the staff did not change the mode of transportation for commuting in 2012.</p> <p>Assumed all full time staffs go to office from home first before any business travels during specific day.</p> <p>It is assumed that except sales and marketing colleagues and 1 office assistant, all other full time employees did not have local business trip using public transport.</p> <p>GHG Management Team members were interviewed by RESET to understand the travel pattern of marketing and sales employees.</p>

Annex 7: Carbon Offset Project Details

- **Description of the offset project**

Gold Standard VER Project: Energy from landfill gas, China

The project activities will install landfill gas extraction equipment and utilize the recovered gas to generate electricity at Qizi Mountain landfill in Jiangsu Province, China. The project activity will use combination of both vertical and horizontal piping systems for the landfill gas extraction. The extracted gas will be used to generate electricity. Electricity installation capacity is 2*1.2MW. The annual net electricity generation is about 15,840 MWh.

The project was validated using the Gold Standard (GS). GS registered project is selected because according to PAS 2060:2010 standard, GS is one of the offset schemes identified as appropriate for providing carbon offsets meeting the principles of PAS 2060:2010 (Clause 9.1.2). All methodologies approved by the CDM Executive Board that meet GS scope and specific eligibility criteria are accepted by GS for the VER projects. The offsets purchased represents genuine, additional, permanent and independent third party verified GHG reductions.

The credits from the carbon offset projects are stored and retired in Gold Standard Registry. The information about the offset project, quantification methodology and validation and verification procedures are publically available at Gold Standard Registry:

http://mer.markit.com/br-reg/public/project.jsp?project_id=103000000002519

- **Details of offset credits**

Type of offset: Gold Standard Verified Emissions Reductions (GS VERs)

Carbon offset project: Suzhou Qizi Mountain Landfill Gas Recovery Project (300259)

Vintage: 2009

Project ID: 103000000002519

Project type: Methane Capturing Landfill project

Quantity of carbon credit purchased: 66tCO₂e GS VERs

Credit serial number: GS1-1-CN-397-21-2009-183-9935 to 10001

- **Retirement of carbon offset credits**

The GS VERs purchased by Polytrade to offset its corporate GHG emissions were retired by South Pole Carbon Asset Management Ltd. (account holder) on its behalf on 9 July 2013 and the retirement details are publicly available on the GS Registry at:

http://mer.markit.com/br-reg/public/index.jsp?q=SP-259_1306&s=cr

Retirement remarks for the entry containing the credits: retired on behalf of SP Webshop with remark of SP-259_1306

Screenshot of retirement details in Gold Standard Registry:

http://mer.markit.com/br-reg/public/index.jsp?q=SP-259_1306&s=cr

The screenshot shows the Markit Financial Information Services interface. At the top, the Markit logo is on the left and "Financial Information Services" is on the right. Below the logo, there is a "Registry - Public View" header. A search bar contains "SP-259_1306" and a dropdown menu shows "Markit Meta Registry". There are also dropdowns for "All Units" and "Page 1".

Below the search bar, there are tabs for "Account Holders", "Projects", "Issuances / Listings", "Holdings", and "Retired Credits". The "Retired Credits" tab is selected, showing a table with the following data:

Retirement Date	Vintage	Project	Account	Standard	Project Type	Retirement Quantity	Measurement	Type	View
09 Jul 2013	2009	*Suzhou Qizi Mountain Landfill Gas Recovery Project (300259)	South Pole Carbon Asset Management Ltd.	Gold Standard	Other	67	VER (tCO2e)	UNIT	View

Below the table, there is a note: "Serial No.: GS1-1-CN-397-21-2009-183-9935 to 10001" and a message: "Retired on behalf of Webshop with retirement remark SP-259_1306". There are also navigation buttons for "<< Prev" and "Next >>".

Below the table, there is a disclaimer: "Please note this is not a complete listing of all Retired Credits, but only those that public account holder have requested to be publicly available." and a note: "Retirement of a unit does not necessarily constitute the offsetting of an environmental impact. Where a unit is 'retired' on the Registry, it is being taken out of circulation in the marketplace so that any Environmental Benefit that may underpin that unit cannot be dealt with again."

At the bottom, there is a paragraph explaining PIU: "A PIU represents the anticipated Environmental Benefits that are expected to be generated from a project in the future. A PIU does not represent an actual Environmental Benefit. Once the Environmental Benefit has occurred (e.g. the emission reduction or removal from a project) and has been verified in accordance with the relevant Standard, the PIU will be cancelled and an equivalent Unit will be issued under the Standard against which the project is validated and verified. Where a PIU has been sold to another party, the PIU will be listed in the account of the new owner based on a contract between the seller and the new owner which has been seen by Markit. However, Markit provides no assurance or guarantee that any PIU will be converted to a Unit and simply evidences the facts that such rights are anticipated and under contract may have been assigned to a third party."

Annex 8: Declaration of Commitment & Achievement to Carbon Neutrality

“Carbon neutrality of the operations of Polytrade Paper Corporation Limited achieved by The Polytrade Paper Corporation Limited in accordance with PAS 2060 at 31 December 2012 with commitment to maintain to 31 December 2013 for the period commencing 1 January 2010, British Standards Institution certified.”



Michael Chan
Managing Director
Polytrade Paper Corporation Limited
6 June 2013

Annex 9: Sign-off of Carbon Neutrality Report

I hereby endorse this carbon neutrality report and confirm the content of the report is genuine and relevant to Polytrade Paper Corporation Limited.



Michael Chan

Managing Director

Polytrade Paper Corporation Limited

6 June 2013

Annex 10: Qualifying Explanatory Statements (QES) Checklist

Items	Status	Section in Carbon Neutrality Report
Table B.1 – Checklist for QES supporting declaration of commitment to carbon neutrality		
1 Identify the individual responsible for the evaluation and provision of data necessary for the substantiation of the declaration including that of preparing, substantiating, communicating and maintaining the declaration.	√	Annex 1
2 Identify the entity responsible for making the declaration	√	1
3 Identify the subject of the declaration	√	4.2
4 Explain the rationale for the selection of the subject (<i>The selection of the subject should ideally be based on a broader understanding of the entire carbon footprint of the entity so that the carbon footprint of the selected subject can be seen in context; entities need to be able to demonstrate that they are not intentionally excluding their most significant GHG emissions (or alternatively can explain why they have done so)</i>)	√	4.2, 5.2.1
5 Define the boundaries of the subject	√	5.2.1
6 Identify all characteristics (<i>purposes, objectives or functionality</i>) inherent to that subject	√	4.2, 5.2.1
7 Identify and take into consideration all activities material to the fulfillment, achievement or delivery of the purposes, objectives or functionality of the subject	√	4.2, 5.2.2
8 Select which of the 3 options within PAS 2060 you intend to follow	√	4.3
9 Identify the date by which the entity plans to achieve the status of 'carbon neutrality' of the subject and specify the period for which the entity intends to maintain that status	√	4.3, Annex 7
10 Select an appropriate standard and methodology for defining the subject, the GHG emissions associated with that subject and the calculation of the carbon footprint for the defined subject	√	5.1
11 Provide justification for the selection of the methodology chosen (<i>The methodology employed shall minimize uncertainty and yield accurate, consistent and reproducible results.</i>)	√	5.1
12 Confirm that the selected methodology was applied in accordance with its provisions and the principles set out in PAS 2060	√	5.1
13 Describe the actual types of GHG emissions, classification of emissions (<i>Scope 1, 2 or 3</i>) and size of carbon footprint of the subject exclusive of any purchases of carbon offsets:	√	5.2.2, 7
a) <i>All greenhouse gases shall be included and converted into tCO₂e</i>	√	5.2.2, 7
b) <i>100% Scope 1 (direct) emissions relevant to the subject shall be included when determining the carbon footprint</i>	√	5.2.2, 7

<i>c) 100% Scope 2 (indirect) emissions relevant to the subject shall be included when determining the carbon footprint</i>	√	5.2.2, 7
<i>d) Where estimates of GHG emissions are used in the quantification of the subject carbon footprint (particularly when associated with Scope 3 emissions) these shall be determined in a manner that precludes underestimation</i>	√	5.2.2, 7
<i>e) Scope 1, 2 or 3 emission source estimated to be more than 1% of the total carbon footprint shall be taken into consideration unless evidence can be provided to demonstrate that such quantification would not be technically feasible or cost effective. (Emission sources estimated to constitute less than 1% may be excluded on that basis alone)</i>	√	5.2.2, 7
<i>f) The quantified carbon footprint shall cover at least 95% of the emissions from the subject</i>	√	5.2.2, 7
<i>g) Where a single source contributes more than 50% of the total emissions, the 95% threshold applies to the remaining sources of emissions</i>	√	5.2.2, 7
<i>h) Any exclusion and the reason for that exclusion shall be documented</i>	√	5.2.2
14 Where the subject is an organization/company or part thereof, ensure that:		
a) Boundaries are a true and fair representation of the organization’s GHG emissions (i.e. shall include all GHG emissions relating to core operations including subsidiaries owned and operated by the organization). <i>It will be important to ensure claims are credible – so if an entity chooses a very narrow subject and excludes its carbon intensive activities or if it outsources its carbon intensive activities, then this needs to be documented</i>	√	5.2.1
b) Either the equity share or control approach has been used to define which GHG emissions are included. <i>Under the equity share approach, the entity accounts for GHG emissions from the subject according to its share of equity in the subject. Under the control approach, the entity shall account for 100% of the GHG emissions over which it has financial and/or operational control</i>	√	5.2.1
15 Identify if the subject is part of an organization or a specific site or location, and treat as a discrete operation with its own purpose, objectives and functionality	√	5.2.1
16 Where the subject is a product or service, include all Scope 3 emissions <i>(as the lifecycle of the product/service needs to be taken into consideration)</i>	Not applicable (The footprint covers operational activities of the subject (Polytrade))	

17 Describe the actual methods used to quantify GHG emissions (e.g. use of primary or secondary data), the measurement unit(s) applied, the period of application and the size of the resulting carbon footprint. <i>(The carbon footprint shall be based as far as possible on primary activity data.)</i> <i>Where quantification is based on calculations (e.g. GHG activity data multiplied by greenhouse gas emission factors or the use of mass balance/lifecycle models) then GHG emissions shall be calculated using emission factors from national (Government) publications. Where such factors are not available, international or industry guidelines shall be used. In all cases the sources of such data shall be identified</i>	√	5.2.4, 7, Annex 6
18 Provide details of, and explanation for, the exclusion of any Scope 3 emissions	√	5.2.2
19 Document all assumptions and calculations made in quantifying GHG emissions and in the selection or development of greenhouse gas emission factors. <i>(Emission factors used shall be appropriate to the activity concerned and current at the time of quantification.)</i>	√	Annex 6
20 Document your assessments of uncertainty and variability associated with defining boundaries and quantifying GHG emissions including the positive tolerances adopted in association with emission estimates. <i>(The statement could take the form of a qualitative description regarding the uncertainty of the results, or a quantitative assessment of uncertainty if available (e.g. carbon footprint based on 95% of likely greenhouse gas emissions; primary sources are subject to variation over time; footprint is best estimate based on reasonable costs of evaluation)).</i>	√	8
21 Document Carbon Footprint Management Plan:		
a. Make a statement of commitment to carbon neutrality for the defined subject	√	3.1
b. Set timescales for achieving carbon neutrality for the defined subject	√	3.5
c. Specify targets for GHG reduction for the defined subject appropriate to the timescale for achieving carbon neutrality including the baseline date, the first qualification date and the first application period.	√	3.6, Annex 2
d. Document the planned means of achieving and maintaining GHG emissions reductions including assumptions made and any justification of the techniques and measures to be employed to reduce GHG emissions.	√	3.7, Annex 5
e. Specify the offset strategy including an estimate of the quantity of GHG emissions to be offset, the nature of the offsets and the likely number and type of credits.	√	3.9
22 Implement a process for undertaking periodic assessments of performance against the Plan and for implementing corrective action to ensure targets are achieved. <i>The frequency of assessing performance against Plan should be commensurate with the timescale for achieving carbon neutrality.</i>	√	3.8
23 Where the subject is a non-recurring event such as weddings or concert, identify ways of reducing GHG emissions to the maximum extent commensurate with enabling the event to meet its intended objectives before the event takes place and include 'post event review' to determine whether or not the expected minimisation in emissions has been achieved.	Not applicable	

24 Any reductions in the GHG emissions from the defined subject delivered in the three years prior to the baseline date and not otherwise taken into account in any GHG emissions quantification have been made in accordance with this PAS.	Not applicable	
25 Record the number of times that the declaration of commitment has been renewed without declaration of achievement.	√	3.10
26 Specify the type of conformity assessment:		
a. independent third party certification	√	11
b. other party validation	Not applicable	
c. self validation	Not applicable	
27 Include statements of validation where declarations of commitment to carbon neutrality are validated by a third party certifier or second party organizations.	√	Annex 8
28 Date the QES and have it signed by the senior representative of the entity concerned (e.g. CEO of a corporation; Divisional Director, where the subject is a division of a larger entity; the Chairman of a town council or the head of the household for a family group).	√	Annex 9
29 Make QES publicly available and provide a reference to any freely accessible information upon which substantiation depends (e.g. via websites).	√	12
30 Update the QES to reflect changes and actions that could affect the validity of the declaration of commitment to carbon neutrality.	√	12
Table B.2 – Checklist for QES supporting declaration of achievement of carbon neutrality		
1 Define standard and methodology use to determine its GHG emissions reduction	√	5.1
2 Confirm that the methodology used was applied in accordance with its provisions and the principles set out in PAS 2060 were met	√	4.1, 4.3
3 Provide justification for the selection of the methodologies chosen to quantify reductions in the carbon footprint, including all assumptions and calculations made and any assessments of uncertainty. <i>(The methodology employed to quantify reductions shall be the same as that used to quantify the original carbon footprint. Should an alternative methodology be available that would reduce uncertainty and yield more accurate, consistent and reproducible results, then this may be used provided the original carbon footprint is re-quantified to the same methodology, for comparison purposes. Recalculated carbon footprints shall use the most recently available emission factors, ensuring that for purposes of comparison with the original calculation, any change in the factors used is taken into account)</i>	√	5.1, 7, 8

4 Describe the means by which reductions have been achieved and any applicable assumptions or justifications	√	3.8, 7.2
5 Ensure that there has been no change to the definition of the subject <i>(The entity shall ensure that the definition of the subject remains unchanged through each and every stage of the methodology. In the event that material change to the subject occurs, the sequence shall be re-started on the basis of a newly defined subject.)</i>	√	4.2
6 Describe the actual reductions achieved in absolute and intensity terms and as a percentage of the original carbon footprint. <i>(Quantified GHG emissions reductions shall be expressed in absolute terms and shall relate to the application period selected and/or shall be expressed in emission intensity terms (e.g. per specified unit of product or instance of service))</i>	√	7.2
7 State the baseline/qualification date	√	4.3, 5.2.3
8 Record the percentage economic growth rate for the given application period used as a threshold for recognising reductions in intensity terms	√	7.2
9 Provide an explanation for circumstances where a GHG reduction in intensity terms is accompanied by an increase in absolute terms for the determined subject	Not applicable	
10 Select and document the standard and methodology used to achieve carbon offset	√	Annex 7
11 Confirm that:		
a) Offsets purchased or allowance credits surrendered represent genuine, additional GHG emission reductions elsewhere	√	Annex 7
b) Projects involved in delivering offsets meet the criteria of additionality, permanence, leakage and double counting. <i>(See the WRI Greenhouse Gas Protocol for definitions of additionality, permanence, leakage and double counting)</i>	√	Annex 7
c) Carbon offsets are verified by an independent third party verifier	√	Annex 7
d) Credits from Carbon offset projects are only issued after the emission reduction has taken place	√	9, Annex 7
e) Credits from Carbon offset projects are retired within 12 months from the date of the declaration of achievement	√	Annex 7
f) Credits from Carbon offset projects are supported by publically available project documentation on a registry which shall provide information about the offset project, quantification methodology and validation and verification procedures	√	Annex 7
g) Credits from Carbon offset projects are stored and retired in an independent and credible registry	√	Annex 7
12 Document the quantity of GHG emissions offset and the type and nature of offsets actually purchased including the number and type of credits used and the time period over which credits were generated including:		
a) Which GHG emissions have been offset.	√	Annex 7
b) The actual amount of carbon offset.	√	Annex 7
c) The type of offset and projects involved.	√	Annex 7
d) The number and type of carbon offset credits used and the time period over which the credits have been generated.	√	Annex 7

e) Information regarding the retirement/cancellation of carbon offset credits to prevent their use by others including a link to the registry where the offset has been retired.	√	Annex 7
13 Specify the type of conformity assessment:	√	
a) independent third party certification	√	11
b) other party validation	Not applicable	
c) self validation	Not applicable	
14 Include statements of validation where declarations of achievement of carbon neutrality are validated by a third party certifier or second party organizations.	√	10, Annex 8
15 Date the QES and have it signed by the senior representative of the entity concerned (e.g. CEO of a corporation; Divisional Director, where the subject is a division of a larger entity; the Chairman of a town council or the head of the household for a family group)	√	Annex 9
16 Make QES publicly available and provide a reference to any freely accessible information upon which substantiation depends (e.g. via websites)	√	12
Table B.3 – QES openness and clarity – Entities should satisfy themselves that the QES		
1 Does not suggest a reduction which does not exist, either directly or by implication	√	
2 Is not presented in a manner which implies that the declaration is endorsed or certified by an independent third party organization when it is not	√	
3 Is not likely to be misinterpreted or be misleading as a result of the omission of relevant facts	√	
4 Is readily available to any interested party	√	12

- End -