2011

Xxxxxxxx Limited

[2010 GHG REPORT]

Prepare By:	Xxxxx xxxxxxxx	**Revision:**	V0.0
Date:	May16, 2011	**For the Period of:**	1st Jan., 2010 – 31st Dec., 2010

[CONTENT]

1.1 Description of the company

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1.2 GHG Assertion

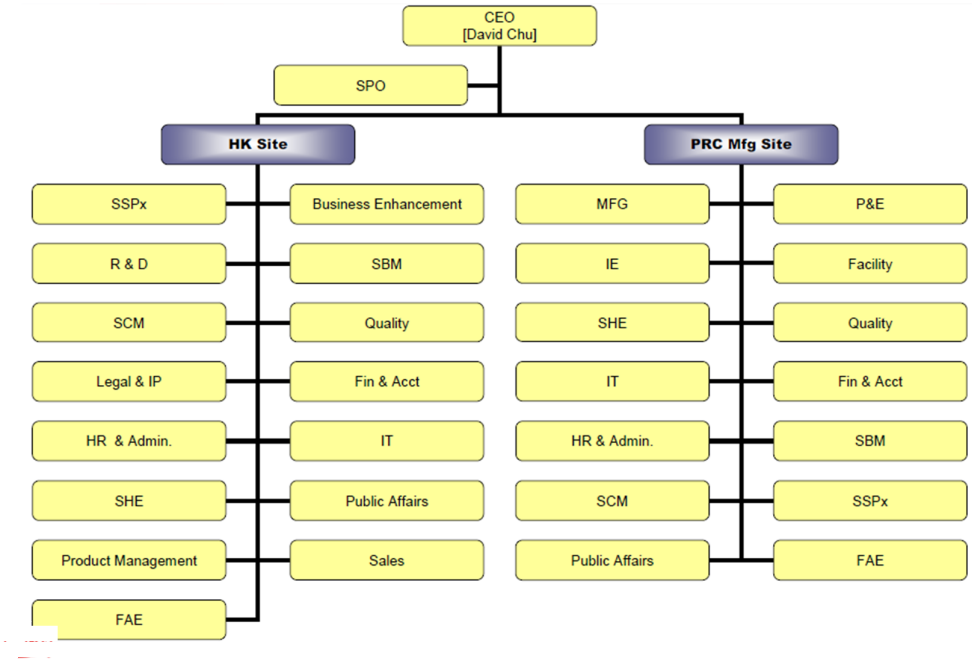
Xxxxxxxx Limited is committed to controlling the energy demand and implementing the GHG auditing within its operational area. We have been driving the continuous improvement plan and activities over the GHG reduction based on the annual inventory results in order to lessen the impact to environment and the global climate because of the GHG emission to the earth. As a leading enterprise in the world, Xxxxxxxx is dedicated to business sustainable development and corporate social responsibility.

1.3 GHG Strategies

Xxxxxxxx has the following objectives to support the GHG reduction:

1. deeeeeeeeeeee
2. ddddddddddddddddd
3. fffffffffffffffffff
4. ffffffffffffffff

2.1 Organizational Chart



1.2 Organizational Boundary

Xxxxxxxx Limited uses the operational control based approach to define organizational boundaries. The boundaries include:

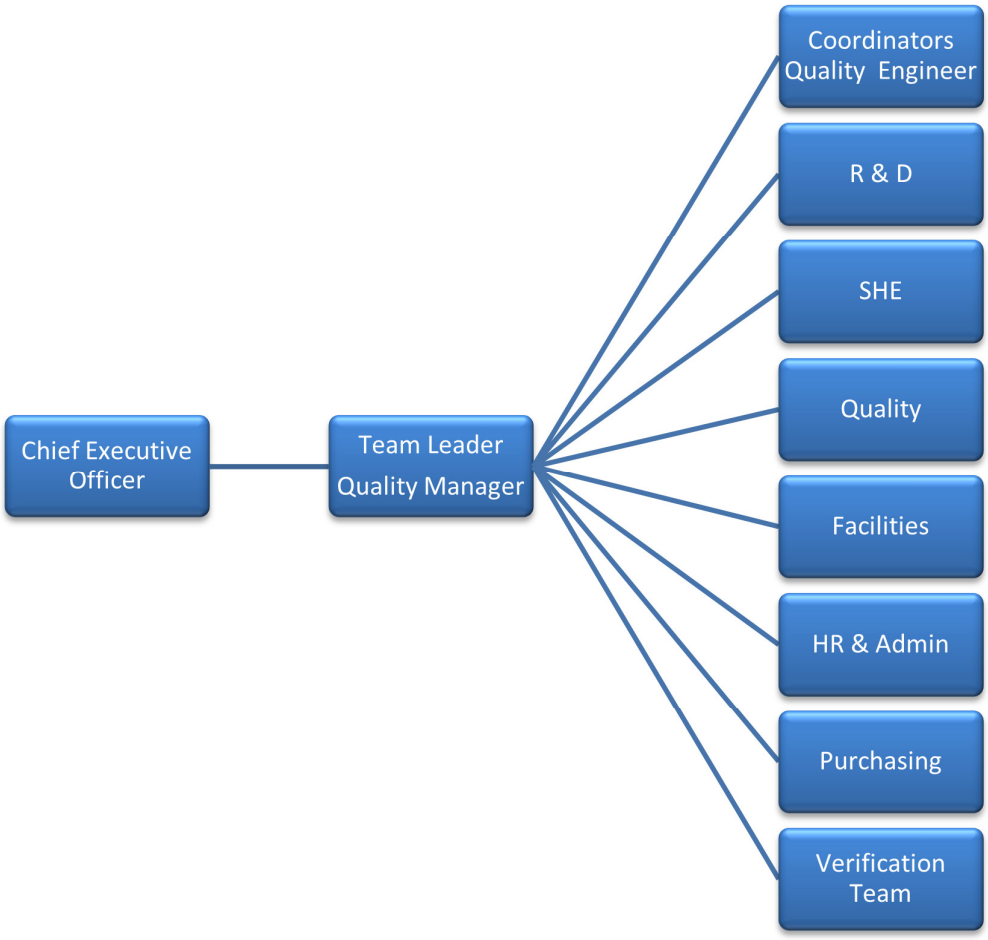
I. HK' s R&D department at xxxxxxx

- BackEnd and xxxxxx
- FrontEnd Lab at Ground Floor
- Office at xth floor

II. Manufacturing plant in Guangming, Shenzhen.

Xxxxxxxx Limited has 100% control over both sites.

2.3 GHG Inventory Development Team



2.4 Person Responsible

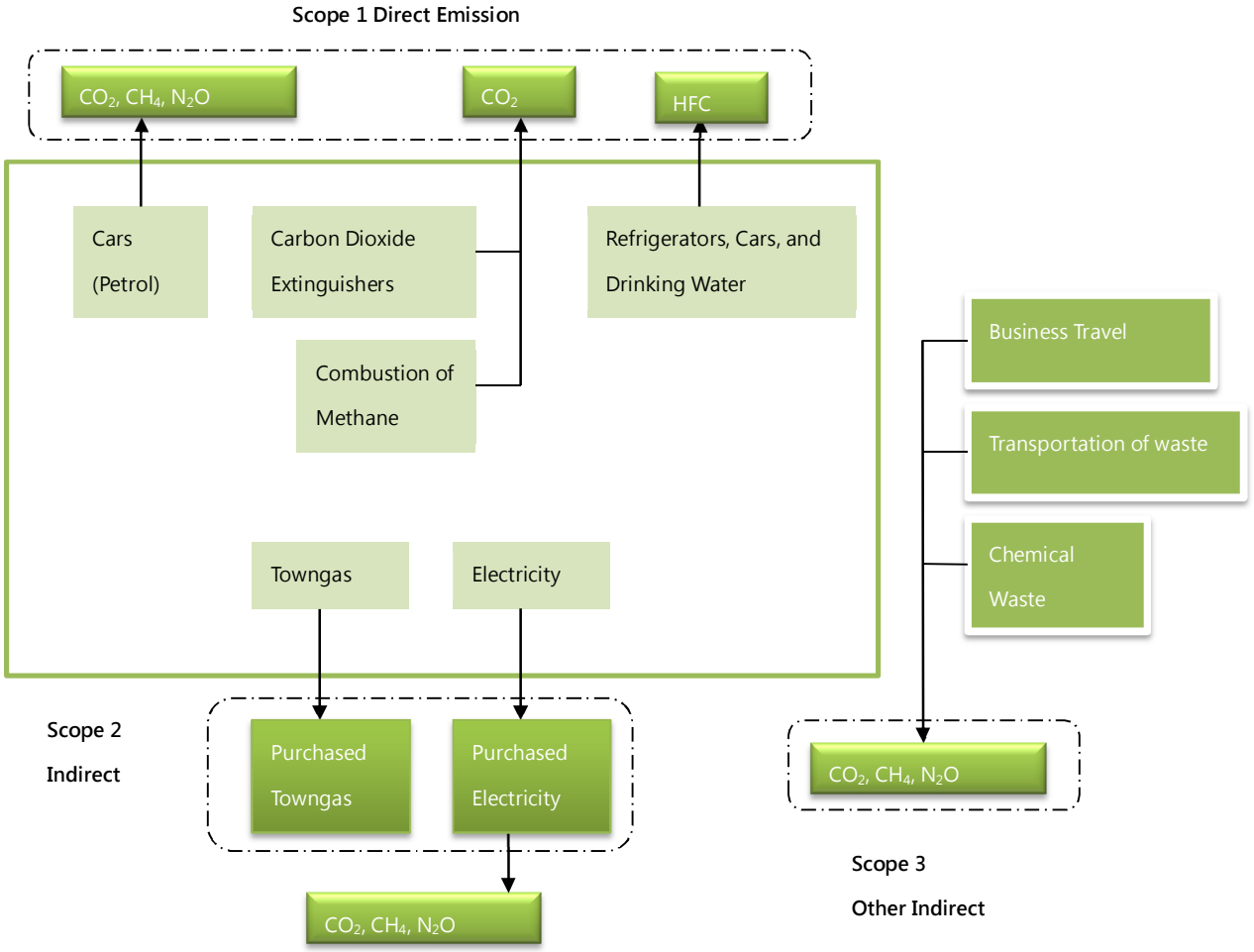
- Chief Executive Officer has overall responsibility for GHG emissions and provides manpower support.
- Quality Manager, Team Leader, is responsible for managing and organizing GHG inventory developing activities.
- Coordinators are responsible for planning and coordinating GHG activities with other functional departments.
- Verification team is responsible for verifying GHG data and GHG documents.
- Team members from different functional departments are responsible for data collection, quantification, and preparation of GHG documents, including GHG inventory and GHG report.

3.1 Definition

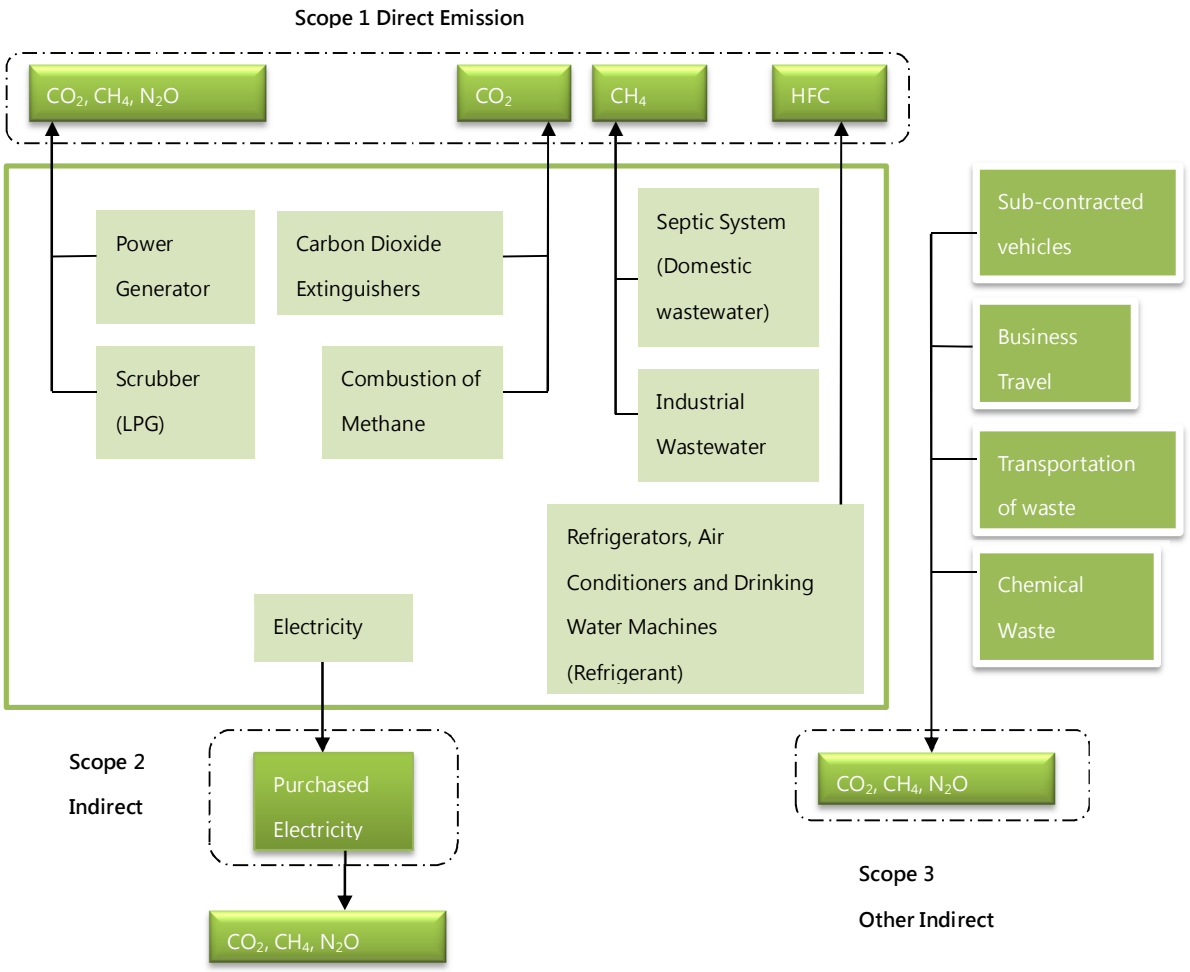
The GHG emission sources of Xxxxxxxx Ltd. Are defined as following:

Scope 1 Direct Emission	Scope 2 Indirect Emission	Scope 3 Other Indirect Emission
1. Generation of electricity, heat, or steam. 2. Transportation of materials, products, waste, and employees. 3. Fugitive Emission 4. Emissions result from Processing	Generation of purchased energy, which is consumed in company-owned or controlled equipment or operation.	Emissions that occur as a consequence of the activities of the company, but occur from sources not owned or controlled by the company. These emissions are excluded this year.

Operational Boundaries of HK' s site



Operational Boundaries of Shenzhen’ s factory



3.2 Direct GHG emission (Scope 1)

Hong Kong's site

Scope	Type of Emission	Facilities	Emission Sources
Scope 1 Direct Emission	Generation of electricity, heat, or steam (Stationary Emissions)	-	-
	Transportation of materials, products, waste, and employees (Mobile Emissions)	Cars	Petrol
	Fugitive Emissions	CO_2 Extinguishers	CO_2
		Refrigerators	HFC
		Cars	HFC
	Emissions result from Processing	Scrubber (Combustion of Methane)	Methane

Shenzhen's factory

Scope	Type of Emission	Facilities	Emission Sources
Scope 1 Direct Emission	Generation of electricity, heat, or steam (Stationary Emissions)	Scrubber	LPG
		Power generator	Diesel
	Transportation of materials, products, waste, and employees (Mobile Emissions)	-	-
	Fugitive Emissions	Septic System (Domestic water)	CH_4
		Industrial wastewater treatment	CH_4
		CO_2 Extinguishers	CO_2
		Refrigerators	HFC
		Drinking water machines	HFC
	Emissions result from Processing	Scrubber (Combustion of Methane)	Methane

3.3 Indirect GHG emission (Scope 2 & Scope 3)

Hong Kong' s site

Scope	Type of Emission	Facilities	Emission Sources
Scope 2 Indirect Emissions result from purchased energy	Generation of purchased energy, which is consumed in company-owned or controlled equipment or operation.	Whole factory	Electricity
		Scrubber	Towngas
Scope 3 Other indirect emissions	Emissions that occur as a consequence of the activities of the company, but occur from sources not owned or controlled by the company. These emissions are excluded this year.		

Shenzhen' s factory

Scope	Type of Emission	Facilities	Emission Sources
Scope 2 Indirect Emissions result from purchased energy	Generation of purchased energy, which is consumed in company-owned or controlled equipment or operation.	Whole factory	Electricity
Scope 3 Other indirect emissions	Emissions that occur as a consequence of the activities of the company, but occur from sources not owned or controlled by the company. These emissions are excluded this year.		

3.4 Total GHG Emission

Scope 1 (Direct Emission)

Emission (tCO_2e)							
Location	CO_2	CH_4	N_2O	HFC	PFC	SF_6	Total
HK					-	-	
Shenzhen					-	-	

Scope 2 (Indirect Emission)

Emission (tCO_2e)							
Location	CO_2	CH_4	N_2O	HFC	PFC	SF_6	Total
HK		-	-	-	-	-	
Shenzhen		-	-	-	-	-	

Total Emission

Emission (tCO_2e)			
Location	Scope 1	Scope 2	Total
HK			
Shenzhen			

Xxxxxxxx Ltd. does not have emissions resulting from the combustion of biomass.

3.5 Size Threshold

The size threshold for the Xxxxxxxx Limited is either 0.5% or 300 tonnes CO_2e, the smaller value is applied. The single emission source can be neglected if the emission ratio is less than 0.5%, but the amount neglected should not exceed 3% out of the total company' s emission.

3.6 Change Threshold

The change threshold for Xxxxxxxx Limited is either 3% or 2500 tonnes CO2e, the smaller value is applied.

3.7 Materiality Threshold

The materiality threshold for Xxxxxxxx Limited is 5%.

4.1 Emission sources exclusions

Other indirect emissions (scope 3) in year 2010 are excluded from GHG quantification as these GHG activities and emissions were not measured and the data was not available. Currently, they are reported qualitatively only.

The following are sources of GHG emissions which have not been included.

Emission Source	Emission Level Scope
1. Staff commuting to work in personal cars	Indirect (Scope 3)
2. Staff commuting to work in sub-contracted vehicles	Indirect (Scope 3)
3. Business travel by air	Indirect (Scope 3)
4. Chemical waste treatment	Indirect (Scope 3)
5. Transportation of waste	Indirect (Scope 3)

4.2 Data Quality Management

1. All responsible departments should clearly state the data sources, e.g. purchase orders, calibration records, receiving records, database, or computer reports, to ensure the data quality and accuracy. Any evidence which can prove and justify the data accuracy should be investigated and be kept in the responsible departments for subsequent tracking.
2. The GHG auditing should be based on the principles of Relevance, Completeness, Consistency, Transparency, and Accuracy stated in "IPCC Guidelines for National Greenhouse Gas Inventories". The steps are briefly described as follows:
   (I) The GHG responsible team is responsible for GHG auditing and coordinating with different departments inside the company and other external organizations.
   (II) A development procedure covering the GHG auditing should be established to ensure the accuracy of emission data.
   (III) General data auditing: it focuses on the mistakes occurred leading to general errors, including data collection, input, processing, documentation, and emission quantification.
   (IV) Special data auditing: it focuses on the appropriateness of the boundaries, the re-calculation, data quality of emission sources, and other factors leading to data uncertainty.
3. Uncertainty of this inventory:
4. The criteria of this uncertainty evaluation are set as: ±5% Excellent, ±15% Good, ±30% Normal, and over ±30% Poor.

The materiality threshold for Xxxxxxxx Limited is 5%.

The descriptions of the general and special data quality verification are mentioned as below:

Table 4.2-1 Description of general data auditing

Stage	Task description
Data collection, input, and processing	1. Check if there are any written errors in the original data 2. Check the completeness and if there are any omissions 3. Ensure the electronic files are kept in correct revision.
Documentation	1. Confirm the source of all the data (including reference data) in the spreadsheet 2. Check if the reference materials are documented. 3. Ensure the following items are documented: boundaries, base-year, methodologies, activities data, emission factors, and other parameters.
Quantification and checking	1. Check if the units, factors, and conversion factors are properly shown. 2. Check if the units are properly used during the process of calculation. 3. Check conversion factors. 4. Review the steps of data processing in the spreadsheet. 5. Distinguish the input data and derived data in the spreadsheet. 6. Select samples of calculations. 7. Check the steps of calculations. 8. Review the categories of emission sources and the sum of data from different functions. 9. Review the consistency of quantification methodologies between different periods of time.

Table 4.2-1 Description of special quality auditing

Stage	Task description
Emission factors and other parameters	1. Check the appropriateness of the emission factors and other parameters used. 2. Check if the units of factors or parameters match that of the activity data. 3. Check if the unit conversion factors are used properly.
Activity data	1. Check the sustainability of the data collection process. 2. Check the consistency of the changes of the historical data. 3. Compare the activity data between the same kind of facilities or departments. 4. Check if there is relationship between the activity data and the production capacity. 5. Check if the activity data had been changed if the base-year is re-calculated.
Calculation	1. Check the correctness of the default calculation formula in the GHG calculation tool. 2. Check the consistency of the estimation of historical base-year. 3. Compare the activity data between the same kind of facilities or departments. 4. Check if there is relationship between the activity data and the production capacity.

4.3 Quantification Methodologies

4.3.1 The quantification of GHG emission sources mainly use Emission Factors Method, and the formula is as following:

Activity Data x Emission Factor x GWP = CO_2e

1. The unit of emission sources should be converted to appropriate unit of weight or volume, i.e. kg or m^3.
2. The emission sources should use the emission factors and calculation methods provided by IPCC Guidelines for National Greenhouse Gas Inventories.
3. The results from the product of activity data and emission factor should be multiplied by the GHG's GWP (source: IPCC 4th Assessment Report 2007), and the final value is expressed as tonnes CO_2 equivalent (tCO_2e).

4.3.2 Quantification of GHG emissions:

a. Direct Emissions:

1. Stationary Combustion

Includes power generator (diesel) and scrubber (LPG). Emission factors method would be used.

CO_2 emission = Amount of fuel consumed (activity data) x Emission Factor x GWP

Emission factor = Net Calorific Value of the Fuel x Carbon Emission Factor of Fuel x GWP

CH_4 or N_2O emission = Amount of fuel consumed x Emission Factor x GWP

Emission factor = Net Calorific Value of the Fuel x Carbon Emission Factor of Fuel x GWP

Source:

China: 2006 IPCC Guidelines for National Greenhouse Gas Inventories/ China's Energy Statistical Yearbook 中國能源統計年鑒 2009

2. Mobile Combustion

Includes company-owned cars (petrol). Emission factors method would be used.

CO_2 emission = Amount of fuel consumed (activity data) x Emission Factor x GWP

Emission factor = Net Calorific Value of the Fuel x Carbon Emission Factor of Fuel x GWP

CH_4 or N_2O emission = Amount of fuel consumed x Emission Factor x GWP

Emission factor = Net Calorific Value of the Fuel x Carbon Emission Factor of Fuel x GWP

Source:

HK: Guidelines to Account for and Report on Greenhouse Gas Emissions and Removals for Buildings (Commercial, Residential or Institutional Purposes) in Hong Kong, 2010.

China: 2006 IPCC Guidelines for National Greenhouse Gas Inventories/ China's Energy Statistical Yearbook 中國能源統計年鑒 2009

3. Fugitive Emissions

Include refrigerants of refrigerators, drinking water machines, vehicles, fire extinguishers (CO_2), septic systems (CH_4), and industrial wastewater treatment (CH_4). Emission factors method, Mass balance approach, and Self-derivation method would be used.

I. Septic system

CH_4 Emission = Activity data x Emission Factor x GWP

Emission Factor = Maximum CH_4 producing capacity x MCF (Methane Correction Factor)

Activity data = Population (man/day/year) x BOD (g/person/day) x 0.001 x Correction factor for BOD

Source:

Table 6.2, 6.3, 6.4, Volume 5, IPCC Guidelines for National Greenhouse Gas Inventories

II. Industrial wastewater treatment

CH_4 Emission = Total COD removed per year x Emission Factor x GWP

Total COD removed per year = avg. wastewater generated per day x operating days per year x avg. concentration of COD

Emission Factor = Maximum CH_4 producing capacity x MCF (Methane Correction Factor)

Source:

III. Refrigerants/Fire extinguishers

Fugitive Emission = Amount of Replenishment x GWP

There is no replenishment in 2010, so this type of emission would not be quantified.

4. Emission from processing

I. Combustion of Methane

CO_2 emission = consumption of methane x remaining CH4 from the chamber (%) x scrubber’ s efficiency (%) x emission factor

Emission factor: derived by chemical mass balance method

b. Indirect Energy Emissions

O_2 Emission = amount of energy consumption x emission factor

Source:

HK:Electricity: "中電控股年報"和"中電主要表現數據"

Towngas: The Hong Kong and China Gas Company Limited

China:中國清潔發展機制網 http://cdm.ccchina.gov.cn/web/index.asp,《2010 中國區域電網基準線排放因子》

4.4 Change of quantification methodologies

When there are changes of quantification methodologies, emissions are quantified with new methodologies and should be compared with the original methodologies. In addition, differences between two quantification methodologies and adoption of new methodologies should be explained. Currently, this is the report of first base-year and so there is no change of quantification methodologies.

4.5 Change of emission factors

When there are changes of emission factors, emissions are re-calculated. In addition, differences between two calculations should be explained. Currently, this is the report of first base-year and so there is no change of emission factors.

5. GHG Base-Year

5.1 Selection of Base-Year

This is Xxxxxxxx Limited' s first GHG report. The chosen base year calculated for this report is the year from January 1, 2010 to December 31, 2010. Rolling base-year is adopted.

5.2 Change of Base-Year

The base-year GHG inventory should be recalculated based on the latest situation if:

- there are changes to operational boundaries;
- the ownership and control of GHG sources or sinks are transferred into or out of organizational boundaries;
- there are changes to GHG quantification methodologies that result in significant changes to quantified GHG emissions or removals. In this company, 3% change of the base year emissions (significant threshold) would be used.

However, recalculation of base-year GHG inventory would not consider normal changes in facility production level, including opening or closing of facilities and increase or decrease in production capacity.

6. Verification

6.1 Internal Verification

Internal verification is conducted at least once a year. This GHG report must by internally verified with the problems corrected before releasing.

Level of assurance:
Reasonable level of assurance ≤5%
Limited level of assurance > 5%

Level of Assurance: **Reasonable**

6.2 External Verification

After the GHG inventory and report are internally verified, the GHG system would be externally verified by 3rd party certification body.

7. Release and control of the GHG report

This GHG emissions inventory report has been prepared and written in accordance with the requirements of ISO 14064-1. It covers the GHG data and information from January 1, 2010 to December 31, 2010. This report must be reviewed and approved by the GHG team leader and kept by the Quality department. The release and control should be done in accordance with the relevant management procedure. With permission, this report is to be released to and applied by inside the company and other interested parties for making decision related to the enterprise' s GHG emission and reduction.