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# Carbon footprinting:

## Carbon Reporting Tool for Chinese SME Companies: User Guide

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### **Introduction**

We have developed a tool that is designed for Chinese SME's to collect data that will allow them to calculate, manage and report the carbon footprints of their businesses.

This document is a step-by-step guide to entering your data into the Carbon Reporting Tool. The numbering system used in this document corresponds to the different work sheets in the tool and are written in both English and Chinese.

A supplementary document has also been produced, called 'Carbon Footprinting: An overview for Chinese SME's' that provides further information on the methodology that is used within the tool to calculate carbon footprints.

## **Overview of the Tool**

The Carbon Reporting Tool is designed to be an easy and quick way of entering all the information you need to calculate your company's carbon footprint, which can then be used to communicate externally in a variety of ways. The tool is built using Microsoft Excel 2003. The tool consists of:

- A series of different work sheets, in which you can enter different types of information
- Two final work sheets, that show the results of the carbon footprint broken down in a variety of ways

You can navigate between the different sheets by clicking on the tabs at the bottom of the tool.

The tool consists of the following work sheets:

### **Data Input Sheets**

1. Title Sheet
2. On-site Fuel Use
3. Fugitive Emissions
4. Purchased Energy
5. Material Inputs
6. Inbound Logistics
7. Outbound Logistics
8. Business Travel
9. Employee Commuting
10. Waste and Water
11. Customer Apportionment
12. Product Apportionment

### **Results Sheets**

13. Results
14. Results – Percentage Split

## **Data Required Using the Tool**

Before you complete the tool, you will need to collect some information relating to your company, including energy consumption, transport, and materials used. You might find this information in a variety of sources, such as:

- Energy bills
- Invoices for purchased fuel
- Purchasing records
- Supplier invoices, including materials and logistics providers
- Documentation from waste contractors

## **Entering Data into the Tool**

Once you have identified and collected the necessary information, the next stage is to enter this data into the tool. Detailed step-by step instructions are given below on how to enter this information into each input sheet of the tool. Enter data in the tool where necessary and leave blank when it is not applicable to your company.

There are also instructions in the tool itself – simply click on the 'C' icon for instructions in Chinese and the 'E' icon for instructions in English.

## Using the Carbon Reporting Tool

The following section provides guidance on how to use the tool and input information.

Open the Excel document called 'Carbon Reporting Tool for Chinese SME's'.

The first worksheet is called '1. Title Sheet'.

### 1. Title Sheet

This sheet is where you enter the details for your company. In addition, it is important to define the 'consolidation approach' that you are taking to calculate your company's carbon footprint, which sets the boundary of your organisation.

For this, you have three choices:

- Operational control
- Financial control
- Equity share

Use '**operational control**' if you are defining the boundary of your company as everything over which that your company has the full authority to implement new operating policies (e.g. in this case, vehicles you lease but operate would be included in boundary).

Use '**financial control**' if you are defining the boundary of your company as everything from which it gains the majority of financial benefits (e.g. in this case, vehicles you lease but operate (i.e. gain financial benefit from) would be included in boundary).

Use '**equity share**' if you are defining the boundary of your company as everything that it wholly or partly owns (e.g. in this case, vehicles you lease but operate would be excluded in boundary).

As a default, the tool is set to '**operational control**'. If you need more information, see Chapter 3 and 4 (p16-33) of the Greenhouse Gas Protocol 'Corporate Standard' published by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD)

<http://www.ghgprotocol.org/standards/corporate-standard>.

**Please note that if the 'consolidation approach' box is blank, then the tool will not produce any results.**

### 1.1 Data Required

- Company name
- Start date and end date of the time period for which you have collected your data. The reporting period needs to have a 12 month duration

It is very important that all data entered into the tool corresponds with the 12 month period that you have selected.

### 1.2 How to Enter Data

- Enter your company name (1)
- Enter your name, as the person entering data in the Carbon Reporting Tool (2)
- Enter the start date for the reporting period (3)
- Enter the end date for the reporting period (4)
- Enter the consolidation approach used – equity share/ financial control/ operational control (5)

标题页 Title Page		
C E	公司名称 Company Name	1
	报告者姓名 Reporter Name	2
	报告起始日期 Reporting period start date:	3
	报告结束日期 Reporting period end date:	4
C E	合并方法 Consolidation Approach	Operational 5 ol 运营控制
使用者可以点击help键得到更多的说明 The user can click on the help boxes for additional instructions to appear		

## **2 On-site Fuel Use**

This sheet is where you enter information for fuel that is used on-site, such as for heating or manufacturing, or transport on-site, such as forklift trucks.

### **2.1 Data Required**

- Total quantity of each type of fuel used, per year, for use on-site
- Total quantity of each type of fuel used, per year, for transport on-site
- Details of whether on-site vehicles are owned by the company or leased
- Details of whether on-site vehicles are operated by the company or a third party

When collecting data for your site, that the data matches the boundary of your organisation as defined in Section 1.

### **2.2 How to Enter Data**

The worksheet is divided into 2: On-Site Combustion (burning fuel for heating for example or using fuel to run machinery) and On-Site Vehicles (forklift trucks for example).

On the left-hand side of the work sheet, enter the quantities of fuel used

- Select the name of each fuel used and units of measurement by selecting from the drop-down menu (1)
- Enter the quantity of each type of fuel used per year (2)

现场燃烧 On-Site Combustion		
C	燃料和单位	年消耗量
E	Fuel & Units	Quantity per year
	1	2

Repeat this on the right-hand side of the worksheet for any fuels that are used for vehicles used on the site

- Select the name of each type of fuel used and units of measurement by selecting from the drop-down menu (3)
- Select the vehicle ownership and control by selecting from the drop down menu (4)
- Enter the quantity of each type of fuel used per year (5)

现场车辆 On-Site Vehicles			
C	燃料和单位	车辆所有权和控制权	年消耗量
E	Fuel & Units	Vehicle Ownership and Control	Quantity per year
	3	4	5

### 3 Fugitive Emissions

This sheet is where you enter any fugitive emissions from your site, which are any greenhouse gases that are released directly into the atmosphere.

There are two types of fugitive emissions – process emissions and refrigerant losses. Process emissions are gases that are released directly into the atmosphere from on-site processes (e.g. cement production). Refrigerant losses are gases that leak from refrigeration equipment (such as fridges and air conditioning units) and this can be captured by entering some overall information about how you manage your company’s refrigerant gases.

The worksheet shows that these 2 types of fugitive emission sources are entered into 2 separate tables.

The list below shows the list of fugitive gases. If you do not have this data available, this is not a problem - please just leave it blank.

Carbon dioxide	HFC-152a	HFE-449sl	(HFE-7100)
Carbon tetrachloride	HFC-227ea	HFE-569sf2	(HFE-7200)
CFC-11	HFC-23	Methane	
CFC-113	HFC-236fa	Methyl chloride	
CFC-114	HFC-245fa	Methyl chloroform	
CFC-115	HFC-32	Methylene chloride	
CFC-12	HFC-365mfc	Metyl bromide	
CFC-13	HFC-43-10mee	Nitrogen trifluoride	
Dimethylether	HFE-125	Nitrous oxide	
Halon-1211	HFE-134	PFC-116	
Halon-1301	HFE-143a	PFC-14	
Halon-2402	HFE-236ca12	PFC-218	(HG-10)
HCFC-123	HFE-245cb2	PFC-3-1-10	
HCFC-124	HFE-245fa2	PFC-318	
HCFC-141b	HFE-254cb2	PFC-4-1-12	
HCFC-142b	HFE-338pcc13	PFC-5-1-14	(HG-01)
HCFC-22	HFE-347mcc3	PFC-9-1-18	
HCFC-225ca	HFE-347pcf2	PFPME	
HCFC-225cb	HFE-356pcc3	Sulfur hexafluoride	
HCFE-235da2	HFE-43-10-pccc124	Trifluoromethyl	
HFC-125	(H-Galden 1040x)	sulfur pentafluoride	
HFC-134a			
HFC-143a			

#### 3.1

### 3.2 Data Required

- Total quantity of each type of fugitive greenhouse gas emitted from on-site processes per year
- The name of each type of refrigerant gas used on-site
- For each refrigerant gas:
  - The total quantity in stock on your site at the start of the reporting period
  - The total quantity in stock on your site at the end of the reporting period
  - The total quantity purchased during the reporting period
  - The total quantity that was used to fill new refrigeration equipment
  - The total quantity that was sold or sent off-site for recovery

### 3.3 How to Enter Data

In the first table, enter the quantities of each type of gas emitted per year as follows:

- Select the name of each type of gas emitted by selecting from the drop-down menu (1)
- Enter the quantity of gas emitted in kg (2)

过程排放 Process Emissions		
C	气体	年排放量 (千克)
E	Gas	Quantity per year (kg)
	1	2

In the second table, enter the information relating to refrigerant gases as follows:

- Enter the name of each type of refrigerant gas used on-site (3)
- For each refrigerant gas:
  - Enter the total quantity in stock on your site at the start of the reporting period (4)
  - Enter the total quantity in stock on your site at the end of the reporting period (5)
  - Enter the total quantity purchased during the reporting period (6)
  - Enter the total quantity that was used to fill new refrigeration equipment (7)
  - Enter the total quantity that was sold or sent off-site for recovery (8)

<b>制冷剂损耗</b>			
Refrigerant Losses			
<b>C</b>	<b>E</b>	制冷剂 1	制冷剂 2
		Refrigerant	Refrigerant
	制冷剂名称 Refrigerant name	3	
	报告起始期制冷剂存量 (千克) Refrigerant stock at start of reporting period (kg)	4	
	报告结束期制冷剂存量 (千克) Refrigerant stock at end of reporting period (kg)	5	
	报告期内所购买的制冷剂量 (千克) Refrigerant purchased during reporting period (kg)	6	
	新设备所填充的制冷剂量 (千克) Amount of refrigerant to fill new equipment (kg)	7	
	销售或送往厂区外用于回收利用的制冷剂量 (千克) Refrigerant sold or sent off-site for recovery (kg)	8	
	<b>制冷剂排放总量 (千克)</b> <i>Total refrigerant emissions (kg)</i>	0	0

# 4 Purchased Energy

This work sheet is where you enter energy used on your site that you buy in the form of electricity, heat, steam or cooling. Please note that other fuels that are used on-site for processes (manufacturing) or transport needs to be entered on a different work sheet, which is called '2. On-site fuel-use'.

## 4.1 Data Required

- Total energy bought per year, in the form of electricity, heat, steam or cooling in Megawatt-hours
- Technologies used for the transfer of any heat, steam and cooling purchased for your site

## 4.2 How to Enter Data

- Enter the total on-site electricity consumption per year (1) and select the region in which your site is located (2) using the drop down
- Enter the total quantity of heat purchased per year (3) and select from the drop-down menu the type of technology used and region (4)
- Enter the quantity of steam purchased per year (5) and select from the drop-down menu the type of technology used and region (6)
- Enter the quantity of cooling purchased per year (7) and select the type of technology and region from the drop-down menu (8)

**能源购买**  
Purchased Energy

**C** 电力  
**E** ELECTRICITY

年消耗量 (MWh)	国家
Quantity per year (MWh)	Region
1	2

**C** 热力  
**E** Heat

年消耗量 (MWh)	技术和地区
Quantity per year (MWh)	Technology & Region
3	4



## 5.2 How to Enter Data

Under 'Material Inputs – Quantity' on the left-hand side of the work sheet, enter information for materials used on-site for which you have data on the quantity used.

- Enter a material name to describe each material used (1) For example, you could type 'Product packaging'.
- Select the material type and unit of measurement for each material used by selecting from the drop-down menu (2). For example, you could select 'Polyethylene (kg)' for the material for product packaging.
- Enter the quantity of each type of material used per year (3)

As you enter data in these two material input tables, the tool will calculate the contribution of each line as percentage of the total carbon emissions from materials associated with your company. These percentages will appear in the final column on the right hand side of each table as shown below (4).

原材料投入—数量 Material inputs - Quantity				
C	产品描述	材料类型和计量单位	年消耗量	材料引起排放的百分比
E	Description	Material & Unit of Measurement	Quantity per year	Percentage of material emissions
	1	2	3	4

Under 'Material Inputs – Financial Approximation' on the right hand side of the sheet, enter information for materials used on-site for which you have financial spend data.

- Enter a material name to describe each material used (5)
- Select the 'Financial Category' for each material used by selecting from the drop-down menu (6)

- Enter the financial spend per year on each type of material used (7)

As you enter data in these two material input tables, the tool will calculate the contribution of each line as percentage of the total carbon emissions from materials associated with your company. These percentages will appear in the final column on the right hand side of each table as shown below (8).

原材料投入—财务估算 Material inputs - Financial Approximation				
C	产品描述	财务分类	年价值 (人民币)	材料引起排放的百分比
E	Description	Financial Category	Value per year (RMB)	Percentage of material emissions
	5	6	7	8

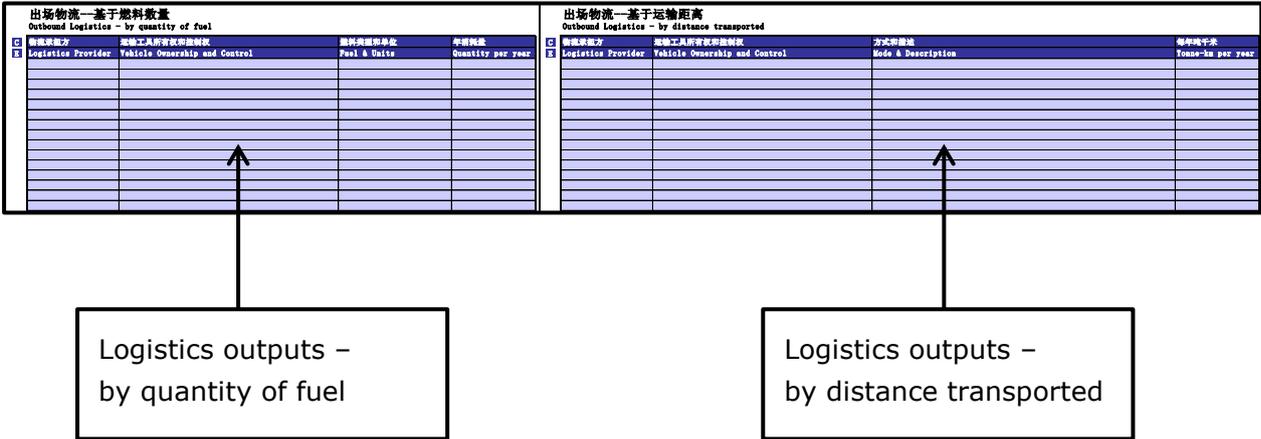




# 7 Outbound Logistics

This sheet is where you enter details for the transport used to transport finished goods from your site. As for inbound logistics, this can be done in 1 of 2 ways; either using the amount of fuel used or the distance travelled. Ideally you would provide the total fuel used per year for each logistics provider. If fuel data is not available, which is likely, please enter the total distance travelled for the provider. The worksheet is separated into 2 for both approaches.

- Logistics outputs - by quantity of fuel (on the left hand side)
- Logistics outputs - by distance transported (on the right hand side)



If you have a mixture of data in fuel use and distance , simply enter the data for each logistics provider in the relevant section of the sheet, but please make sure that each transport stage is only included in one table to avoid double-counting.

## 7.1 Data Required

For each of your logistics suppliers, either the total fuel used or distance travelled, for each type of fuel or mode of transport (Fuel preferable).

## 7.2 How to Enter Data

Complete the 'Logistics outputs - by quantity of fuel' table as follows:

- Enter the name of each logistics provider (1)



## 8 Business Travel

This sheet is where you enter business travel by employees. Ideally you would provide the total fuel used per year for each type of fuel.

- If the transport uses public transport or the fuel use is not known, please enter the distances travelled for each mode of transport
- If you have a mixture of data in fuel use and distance, simply enter the data for each type of travel in the relevant section of the sheet
- If you have a mixture of data in fuel use and distance, simply enter the data for each vehicle, group of vehicles or mode of transport in the relevant section of the sheet, but please make sure that each transport stage is only included in one table and not both, to avoid double-counting

### 8.1 Data Required

- For each vehicle used for business travel, the total fuel used or distance travelled, and whether the vehicle is owned or leased
- For each mode of transport, the total distance travelled

### 8.2 How to Enter Data

On the left-hand side, enter the quantities of fuel used for employee business travel

- Enter an name to describe the vehicle, or group of vehicles (1)
- Under 'Vehicle Ownership and Control' select the option that represents whether the vehicle is owned by your company or by third party and whether it is operated by your company or a third party (2)
- Select the type and unit of fuel used by that vehicle or group of vehicles (3)
- Enter the total quantity of fuel used per year (4)





## **10 Waste and water**

This sheet is where you enter information relating to waste and waste water created on-site.

### **10.1 Data Required**

Information is required for the following types of waste if relevant:

- Iron and steel
- Aluminium
- Other metals
- Plastics
- Glass
- Paper and card
- Wood
- Food
- Other agricultural/garden waste
- Other non-biodegradable waste
- Mixed waste
- Waste water

For each type of waste, please indicate the total quantity of material (Kg) that is recycled, sent to landfill, incinerated with energy recovery, incineration without energy recovery, composted, or indicate if the waste treatment is unknown. For water, the total quantity of waste water (litres) that is treated is required.

### **10.2 How to Enter Data**

All the data entered in this section relates to total amount of waste created on-site during the reporting period. In the table relating to waste:

- Enter the mass of each type of material that is recycled (1)
- Enter the mass of each type of material that is sent to landfill (2)
- Enter the mass of each type of material that is incinerated with energy recovery (3)

- Enter the mass of each type of material that is incinerated without energy recovery (4)
- Enter the mass of each type of material that is composted (5)
- Enter the mass of each type of material that is sent to the waste stream , but how the waste is treated is unknown (6)
- Enter the quantity of waste water (7) in litres

废弃物 Waste							
C E	年消耗量 (千克) Quantity per year (kg)						年消耗量 (升) Quantity per year (l)
	回收 Recycling	填埋 Landfill	有能量回收焚烧 Incineration with energy recovery	无能量回收焚烧 Incineration without energy recovery	堆肥 Composting	其他 Unknown	废水 Waste Water
	材料 Material						
	钢铁 Iron and steel						
	铝 Aluminium						
	其他金属 Other metals						
	塑料 Plastics						
	玻璃 Glass	1	2	3	4	6	
	纸制品 Paper and Card						
	木材 Wood						
	食品 Food						
	其他农业、园艺废弃物 Other agricultural/garden waste				5		
	其他非生物可降解废弃物 Other non-biodegradable waste						
	混合废弃物 Mixed waste						7





## 13 Results

This sheet shows the results of your carbon footprint broken down in a variety of ways. The results are designed to be aligned with the requirements of the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard (GHG Protocol Corporate Standard).

This standard states that a company's carbon emissions should be divided into three areas, or 'scopes' as follows:

- **Scope 1:** These are direct emissions that occur from sources that are owned or controlled by the company. For example, emissions from combustion in owned boilers and vehicles and emissions from chemical production in owned process equipment.
- **Scope 2:** These are emissions from the generation of the electricity, steam, heat or cooling consumed by the company.
- **Scope 3:** These are emissions that are a consequence of the activities of the company, but occur from sources not owned or controlled by the company. Some examples of scope 3 activities are extraction and production of purchased materials, business travel in leased vehicles, employee commuting and waste disposal.

In addition, the results are presented in a way that is consistent with the requirements of the Carbon Disclosure Project (CDP). The tables and charts of results are presented in the breakdowns shown in the table below, which also shows which question from the CDP they refer to:

<b>Results Breakdown</b>	<b>Units of results</b>	<b>CDP Question</b>
Emissions breakdown by scope	Metric tonnes CO2e	8.2a, 8.3a
Scope 1 breakdown by greenhouse gas	Metric tonnes CO2e, metric tonnes	9.2c
Scope 1 breakdown by activity	Metric tonnes CO2e	9.2d
Scope 2 breakdown by activity	Metric tonnes CO2e	10.2c
Energy breakdown	MWh	12.2
Scope 3 breakdown	Metric tonnes CO2e	15.1
Electricity split by greenhouse gas	Metric tonnes CO2e	Not included in CDP
Scope 1 Biogenic Emissions	Metric tonnes CO2	Not included in CDP
Emissions split by customer	Metric tonnes CO2e	SM1.1
Emissions split by product/product category	Metric tonnes CO2e	Not included in CDP

'Scope 1 Biogenic Emissions' refers to carbon dioxide that is released from sources of biogenic carbon. Biogenic carbon is carbon that is derived from biomass (such as crops or wood), and not from fossilised sources (such as oil or gas).

This work sheet includes a free text box at the bottom – please enter any details regarding any facilities or areas of your operations that you have not included in your report. The information you enter here is linked to a similar box in the following work sheet – 'Results – Percentage Split'.

## 14 Results – Percentage Split

This sheet shows the same results breakdowns as described in Section 13 (except the last three in the table above), but the numbers are presented as a percentage of the total, rather than in absolute numbers.

### 范围排放量

#### EMISSIONS BREAKDOWN BY SCOPE

范围 Scope	吨CO2e Metric Tonnes CO2e
范围1 (此信息也符合CDP8.2a条款的要 Scope 1 (CDP question 8.2a):	
范围2 (此信息也符合CDP8.3a条款的要 Scope 2 (CDP question 8.3a):	
范围3 (公制吨CO2e排放) Scope 3 (metric tonnes CO2e):	



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