



Guide to ClimateCalc calculator

www.climatecalc.eu/fi

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1. Purpose

This guide is made with the purpose to be a quick auxiliary tool to get started with making web based carbon calculations in the company. To get a description of the background of ClimateCalc and which standards and data that have been used, we refer to www.climatecalc.eu/fi on sub page "Standards and data".

2. Construction of the carbon calculator

The calculator is constructed with tabs divided into three different categories with different text colours on the tabs. As a point of reference, a graphic company will only need to concentrate on the tabs with green and black text:

Company information 	<p>On the tabs with green text data is typed, which provides the background for the company's carbon account and product specific calculations.</p> <p>Download a template for collection of data to the carbon account www.climatecalc.eu/fi on sub page "Calculation and tools".</p> <p>NOTICE: The tab "Company information" is the first tab to be completed.</p>
Input company	
Input employees	
Input paper	
Input purchased transportation	
Carbon account	<p>The tabs with black text show the result of the data, which the company has typed in the form of the company's carbon account plus possible product specific calculations and the benchmark function.</p> <p>NOTICE that the tabs for product calculation and benchmark are locked until the company is certified.</p>
Product calculation 	
Benchmark 	
Emission calculation	<p>On the tab with blue text, detailed calculations of the emission of greenhouse gases are made based on data typed on the tabs with green text. The company needs only engage in the tab "Emission calculation", if the company wants to see the result of the detailed calculations or has their own data in form of specific emission factors. If the company uses fuels or other materials not included as default data in the calculator these data must also be typed on the "Emission calculation" tab.</p>

3. Typing in data

When typing in data, remember to save data, before going to another tab or closing the browser. Press the button in the right corner in the bottom of the screen to do this.

Figure 3.1 Example of buttons to save and print data



When typing, the carbon calculator will automatically make you aware of missing typed data. This is shown with **RED text** or **RED marks**. When the carbon account is to be verified, there must be no red markings.

NOTICE:

In some situations it may not be possible to save typed data, if any red marks occur.

Figure 3.2 Example of typing where the red marks show that information about the responsible, and information about where data come from, is missing.

A. PURCHASED FUEL FOR BURNING IN THE COMPANY'S OWN STATIONARY BURNING UNITS							
						Describe where data come from	
1. Natural gas	Fill in only one cell	<input type="text"/>	Nm ³	<input type="text"/>	kWh	-- responsibility --	<input type="text"/>
2. LPG	Fill in only one cell	<input type="text"/>	m ³	130000	kg	-- responsibility --	<input type="text"/>
3. Heating oil (light)	Fill in only one cell	<input type="text"/>	litre	<input type="text"/>	kg	-- responsibility --	<input type="text"/>
4. Other fuel		<input type="text"/>		<input type="text"/>	kg	-- responsibility --	<input type="text"/>
5. Other fuel		<input type="text"/>		<input type="text"/>	kg	-- responsibility --	<input type="text"/>
6. Other fuel		<input type="text"/>		<input type="text"/>	kg	-- responsibility --	<input type="text"/>

As a point of reference all typed data must be stated as total for the latest calendar year or for the company's latest financial year. Use the below template for collection of data:

TOOL

Template for gathering information for the carbon account. Download:
www.climatecalc.eu/fi on sub page "Calculation and tools" "

Units

By several parameters, the option to make typing in different units is available, e.g. consumption of cleaning agents in both "kg" and "litre". As the parameters automatically are converted and summed up, there must as point of reference **only be typed in one cell**, unless consumption data in the company are stated with different units. If there are data with other units than stated in the calculation tool, conversion can be made via paragraph 16: "Calculation factors".

Data sources

From all typed data, it must be stated, who is responsible for data, and where these come from. This will partly make it easier to carry out the calculation next year and is at the same time a condition for the account to be verified.

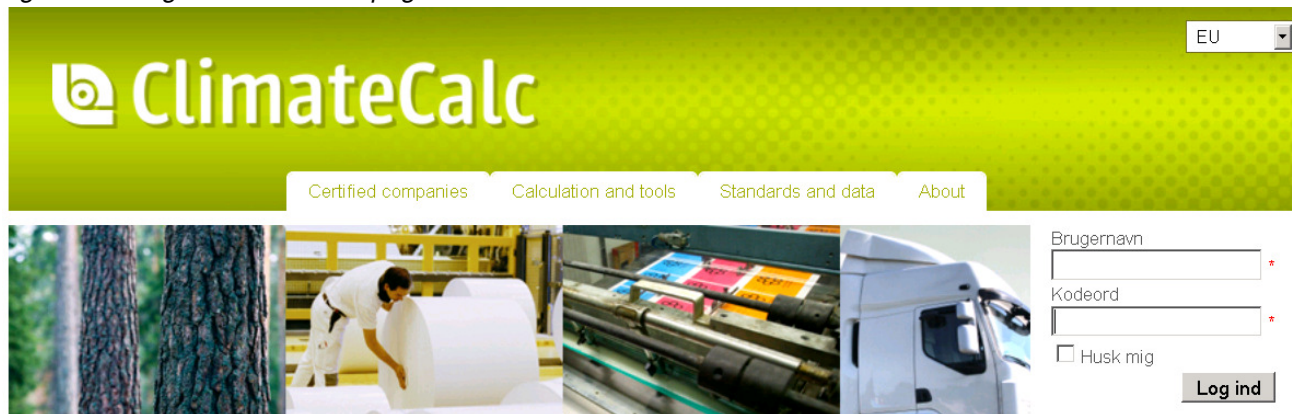
4. User access

To use the ClimateCalc calculator the company must have at least one user set up with a username and a password. For access to ClimateCalc see contact information on www.climatecalc.eu/fi on sub page "About ClimateCalc".

Login

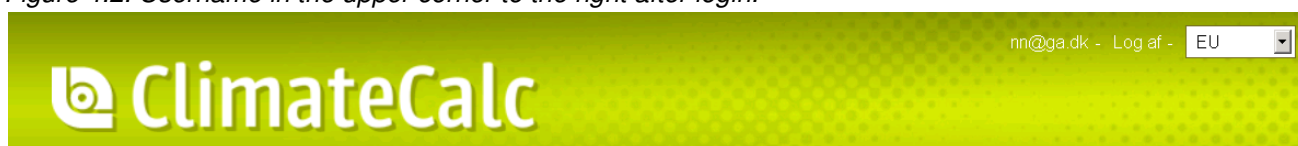
To login enter username and password on the front page of www.climatecalc.eu/fi.

Figure 4.1. Login from the front page of ClimateCalc.



It appears from the status field in the upper corner to the right when a user is logged in

Figure 4.2. Username in the upper corner to the right after login.



In the upper corner to the right it is possible to select the ClimateCalc homepages for the individual countries. A user can gain access to the calculator from any of the homepages.

Changing password

The user password can be changed by the user after login at www.climatecalc.eu/fi on sub page "Calculation and tools".

When changing the password the following conditions must be fulfilled:

- Contain at least 8 characters
- Contain at least 1 number
- Contain at least 1 special character: ` ! " ? \$ % ^ & * () _ - + = { [] } ; : @ ' ~ # | \ < , > . ? /

A text message will appear when the changed password has been approved.

More users

More users can be affiliated to the company's carbon account via ClimateCalc. This might e.g. be relevant if more persons are supposed to make product calculations, or if an external consultant must assist the company. If the company wants to set up more users it must contact the organisation that has granted access to the company, stating names and e-mail addresses of the new users. If the company wants to revoke the access to ClimateCalc of a user (e.g. an external consult-

ant) it should ask the same organization that granted the right to the company for this user in order to delete the user. For contact information see www.climatecalc.eu/fi and the subpage “About ClimateCalc”.

5. Administration of carbon accounts

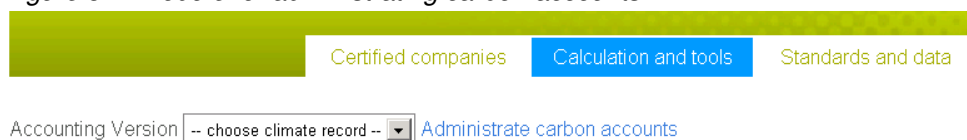
As soon as a company has logged in to ClimateCalc it is possible for the company create a carbon account. The access to the calculation module is on the ClimateCalc front page or via the tab “Calculations and tools”.

Period for carbon account

First step for the company is to define the period for the company’s carbon account. As a point of reference the period must be a full year and may be either the latest calendar year or the company’s latest financial year.

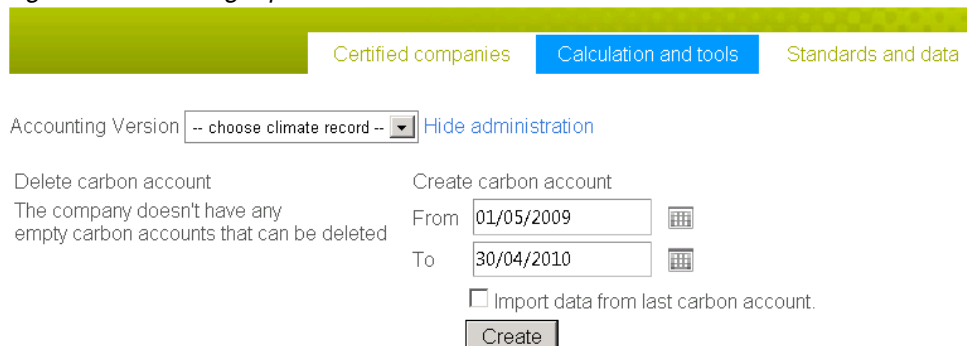
Activate the module “Administrate carbon account” to define the period for the company’s carbon account.

Figure 5.1. Module for administrating carbon accounts.



When the module has been activated the company can create the period for the carbon account.

Figure 5.2. Creating a period for carbon account.



NOTICE:

It is not possible to change the period for a carbon account after creation.

Copying data from latest period

If the company previously has created a carbon account, all data can be copied to a new period. The purpose is to make the typing of new data and data references easier.

To copy data tick off the field: “Import data from latest carbon account”.

Figure 5.3. Copying data from the latest carbon account.

The screenshot shows the 'Calculation and tools' tab in a web application. At the top, there are navigation tabs: 'Certified companies', 'Calculation and tools' (active), and 'Standards and data'. Below the navigation, there is a section for 'Accounting Version' with a dropdown menu set to '-- choose climate record --' and a link for 'Hide administration'. The main area is divided into two sections: 'Delete carbon account' and 'Create carbon account'. The 'Delete carbon account' section has a text input field containing '01-05-2009 - 30-04-2010 (02/08/2011 10:34:34)' and a 'Delete' button. The 'Create carbon account' section has 'From' and 'To' date pickers, a checked checkbox for 'Import data from last carbon account', and a 'Create' button.

Deleting carbon account for a period

If the company mistakenly has created a carbon account for a wrong period the carbon account can be deleted.

NOTICE:

Any data entered in a carbon account with a wrong period can profitably be copied to a carbon account with a proper period, before the wrong carbon account is deleted.

When a carbon account with a wrong period is to be deleted, it is important to be aware not to delete the valid account. To secure this the date for creating the account appears in parentheses after the period.

NOTICE:

If once an account has been deleted, it is not possible to re-establish it.

6. Language

If there is a need to present the carbon account or a product calculation in another language this can be changed in the dropdown menu in the upper corner to the right on all the tabs.

Figure 6.1. Select language via the dropdown menu in the upper corner to the right.

The screenshot shows the 'Standards and data' tab in a web application. At the top, there are navigation tabs: 'Certified companies', 'Calculation and tools', 'Standards and data' (active), and 'About'. Below the navigation, there is a section for 'Accounting Version' with a dropdown menu set to '01/05/2009 - 30/04/201' and a link for 'Administrate carbon accounts'. The main area is divided into several sections: 'Carbon account', 'Product calculation', 'Company information' (active), 'Input company', 'Input employees', 'Input paper', 'Input purchased transportation', 'Emission calculation', and 'Benchmark'. A dropdown menu is open in the upper right corner, showing a list of countries: 'United Kingdom', '- Default Language -', 'Denmark', 'Finland', 'France', 'Italy', 'Netherlands', 'Norway', 'Spain', 'Sweden', and 'United Kingdom' (highlighted).

7. Tab: Company information

Here the company must enter general information like address and contact information. Besides, a clear description of the activities and processes included in the carbon account must be stated.

Marking for completed carbon account

When the company has entered all relevant data on the tabs with green text and is ready for certification, this is marked by pressing the button “Completed”.

Figure 7.1. The button “Finished” is used, when the company is ready for certification. When the company has been certified the audit report can be downloaded via link “Audit report”.

The screenshot shows the 'Company information' tab selected in the navigation menu. The form fields are as follows:

Company name	Speed Print	Mark when data input is completed and the company is ready for audit. Completed
Address	Print road 4	
Postal code	1000	
City	Brussels	

Below the form, there is a link for 'Auditing report'.

NOTICE:

When the button “Completed” is activated, an e-mail will be sent automatically to the organisation to audit the company.

Various printing techniques

The calculator makes it possible to type data for a wide variety of printing techniques. A mark must be put for the printing techniques used in the company in order to be able to type in data for the printing techniques on the tabs “Input company” and “Product calculation”.

Figure 7.2. Example of printing techniques in use.

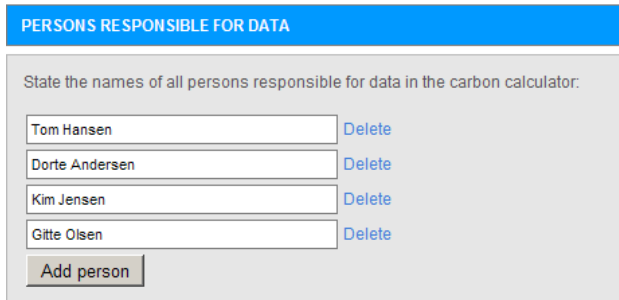
The screenshot shows the following list of printing technologies with their respective checkboxes:

- Heatsset printing
- Sheetfed printing
- Coldset printing
- Flexographic printing
- Screen Printing
- Digital printing
- Magazine rotogravure printing

Persons responsible for data

In order to make the typing of information easier, the names of all persons responsible for data are typed centrally under the tab “Company information”. The persons responsible can afterwards be selected in the dropdown menu next to the specific data on the tabs with green text.

Figure 7.3. Example of typing names of responsible for data



The screenshot shows a web interface for managing data responsibility. At the top, there is a blue header bar with the text "PERSONS RESPONSIBLE FOR DATA". Below this, a grey box contains the instruction "State the names of all persons responsible for data in the carbon calculator:". Underneath the instruction, there are four text input fields, each containing a name: "Tom Hansen", "Dorte Andersen", "Kim Jensen", and "Gitte Olsen". To the right of each name is a blue "Delete" link. At the bottom left of the grey box, there is a grey button labeled "Add person".

8. Tab: Input company

The company must type data for purchase of fuel, energy, raw materials, waste products etc. for all the relevant parameters in the tab. As point of reference, all data must be stated as total of latest calendar year or of the company's latest financial year.

Special data

If there is stated consumption of e.g. "other" fuel, electricity, district heating, or plates, which is not standard in the carbon calculator, specific data must be typed on the tab "Emission calculation".

Figure 8.1. Example of typing specific electricity. The red text shows that supplementary data must be typed on the tab: "Emission calculation".

C. PURCHASED ENERGY FOR USE IN THE COMPANY AND VEHICLES								
1. Electricity for use in the company	Fill in only one cell	<input type="text"/>	kWh	<input type="text"/>	MJ	-- responsibility --	Describe where data come from	<input type="text"/>
2. Electricity (supplier specific)	Fill in only one cell	3100447	kWh	<input type="text"/>	MJ	Dorte Andersen	New Energy: specification 09/10	<input type="text"/>
ALSO TYPE EMISSION DATA FOR SUPPLIER SPECIFIC ELECTRICITY ON THE SHEET: EMISSION CALCULATION POINT C2.1 AND C2.2								

Stationary combustion units (paragraph A)

Stationary combustion units are defined as combustion which takes place in e.g. boilers, kettles, motors, generators and turbines, which are permanently installed and owned by the company or controlled by the company.

Data for electricity (paragraph C)

When typing data for electricity it is possible to type input of purchased electricity used in the company itself (C1 and C2) as well as purchased electricity used for electric vehicles which are not charged in the company (C3 and C4) and therefore not covered by the electricity consumption on C1 and C2.

The calculator makes it possible to type consumption of electricity by using either default data or supplier specific data.

Default data

The default data in the calculator represent the average electricity in the country and is typed in C1 and C3. Default data include the emissions coming directly from electricity production and emissions from production and transportation of fuels and transmission losses in the grid.

Supplier specific data

Supplier specific data mean documentation in the form as a declaration from the electricity supplier. The information must be typed in C2 and C4 on the tab "Emission calculation". Data must be typed for both greenhouse gas emissions from electricity production and data for transmission losses in the grid.

NOTICE

Supplier specific data for electricity production must include upstream emissions from production and transportation of fuel. See paragraph 12 "Tab: Emission calculation" for an explanation of upstream emissions.

Data for district heating (paragraph C)

Emissions of greenhouse gases from the production of district heating vary from one district heating supplier to another. Partly there may be differences in the energy sources used, and partly some district heating plants besides district heating also produce electricity which is sold via the electricity grid. The large differences between plants mean that it is not reliable to use average data for district heating production in the country. Therefore, it is necessary to obtain specific data from the individual supplier. Data must appear either as

1. Operating data for the district heating plant or
2. Supplier specific data

Operating data for the district heating plant

To calculate the emissions of greenhouse gases from the district heating plant the composition of the energy sources used as well as the efficiency of the plant must be known. The emission calculation is based on a range of default data including the emissions coming directly from district heating production and emissions from production and transportation of fuels. The calculator allows via default data the typing of the below mentioned energy sources:

- Coal
- Natural gases
- Bio fuels
- Waste heat

The efficiency of the plant must always be typed in the calculator. If the plant produces electricity for the electricity grid the efficiency of the electricity must be typed, too. It should be noted that if a district heating plant also produces electricity a credit is given for the total emissions of greenhouse gases for the electricity sold to grid

Finally, the transmission loss in the heating system is revealed. An example of typing production data from the district heating system is shown in Figure 8.2.

Figure 8.2. Example of typing operating data from the district heating plant.

3. Electricity for vehicles (besides C1)	Fill in only one cell	<input type="text"/>	kWh	<input type="text"/>	MJ	-- responsibility --	<input type="text"/>
4. Electricity (supplier specific)	Fill in only one cell	<input type="text"/>	kWh	<input type="text"/>	MJ	-- responsibility --	<input type="text"/>
5. District heating (plant calculation)	Fill in only one cell	430000	kWh	<input type="text"/>	MJ	Dorte Andersen	Green Heat: specification 2009/2010
State the share of energy sources for the district heating plant:		Coal:	<input type="text"/>	25	%	Dorte Andersen	Green Heat: e-mail 08-06-10
		Natural gas:	<input type="text"/>	25	%	Dorte Andersen	Green Heat: e-mail 08-06-10
		Biomass:	<input type="text"/>	0	%	-- responsibility --	<input type="text"/>
		Waste heat:	<input type="text"/>	50	%	Dorte Andersen	Green Heat: e-mail 08-06-10
					100 %		
State the energy efficiencies for the district heating plant:		Heat efficiency:	<input type="text"/>	50	%	Dorte Andersen	Green Heat: e-mail 08-06-10
		Electricity efficiency:	<input type="text"/>	25	%	Dorte Andersen	Green Heat: e-mail 08-06-10
State the transmission loss in the heating system:			<input type="text"/>	20	%	Dorte Andersen	Green Heat: e-mail 08-06-10
6. District heating (supplier specific)	Fill in only one cell	<input type="text"/>	kWh	<input type="text"/>	MJ	-- responsibility --	<input type="text"/>

Supplier specific data

Supplier specific data mean documentation in the form as a declaration from the district heating supplier. The data must be typed on the tab "Emission calculation". Data must be typed for both greenhouse gas emissions from district heating production, and data for transmission losses in the heating system.

NOTICE

Supplier specific data for district heating production must include upstream emissions from production and transportation of fuel. See paragraph 12 “Tab: Emission calculation” for an explanation of upstream emissions.

Companies without printing (paragraph F)

The carbon calculator is constructed so that the consumption of purchased paper normally is reference for the key figures in the carbon account. However, the company may have a production form with other conditions than the amount of paper being representative for the size of the production, and where it is relevant to use another reference, which will be used as an alternative to calculation of key figures in the carbon account. This may be relevant for instance to finishing companies with a limited or no consumption of purchased paper. The alternative reference may e.g. be the company's turnover or produced square meters of product. The alternative reference is typed on point F1 and F2.

NOTICE

Even though data are typed on point F1 and F2 the company may have a paper consumption typed on point D1.

Figure 8.3. Example of typing of data for the size of the production for a company without printing and paper consumption.

F. PRODUCTION DATA FOR COMPANIES WITHOUT PRINTING			
1. State data for the production size if there is no paper consumption	<input type="text" value="20395000"/>	<input type="text" value="Kim Jensen"/>	Describe where data come from
2. State the unit for the production size, e.g. production hours, turnover, etc.	<input type="text" value="turn over"/>	unit	<input type="text" value="Account 2009/2010"/>

9. Tab: Input employees

The company must make a calculation of the employee's commuting to and from work. As point of reference, all data must be stated as total of the latest calendar year or of the company's latest financial year. From all typed data, it must be stated who is responsible for data, and where these come from.

To use for calculation of the employee's commuting to and from work, two methods are compiled:

Standard calculation (paragraph H)

A method for standard calculation is compiled in the carbon calculator, which makes it easier for the company to make a quick calculation of the influence of the employee's commuting to and from work. The standard calculation is based on general numbers over the emission of greenhouse gases from different means of transportation.

When using the standard calculation, the company must make a qualified estimation of the used means of transportation, distances, and the number of working days for the employee's commuting to and from work. In connection with the verification, the company must state the reasons for the estimation.

NOTICE

The consumption of fuel to employees with company car is typed on the tab: "Input company" under paragraph B.

If the standard calculation shows that employee's commuting to and from work are **more than 5 %** of the company's total emissions of greenhouse gases (See tab "Carbon account", a detailed calculation should be made possibly via paragraph I: "Own calculation").

Figure 9.1. Example of typing employee commuting via standard calculation.

H. STANDARD CALCULATION OF FUEL CONSUMPTION BY EMPLOYEE COMMUTING TO AND FROM WORK						
Means of transport	Number of employees	Average distance per employee per day (both ways)	Average number of working days per employee per year	Calculated amount of fuel per year		Describe where data come from
Employees						
1. with company car	<input type="text" value="5"/> persons					
2. Transportation petrol car	<input type="text" value="43"/> persons	<input type="text" value="32"/> km	<input type="text" value="220"/> days	21470 litre petrol	<input type="text" value="Dorte Andersen"/>	<input type="text" value="Estimated: Dorte and Jens 09-06-10"/>
3. Transportation diesel car	<input type="text" value="31"/> persons	<input type="text" value="41"/> km	<input type="text" value="220"/> days	14266 litre diesel	<input type="text" value="Dorte Andersen"/>	<input type="text" value="Estimated: Dorte and Jens 09-06-10"/>
4. Transportation scooter	<input type="text" value="1"/> persons	<input type="text" value="20"/> km	<input type="text" value="220"/> days	242 litre petrol	<input type="text" value="Dorte Andersen"/>	<input type="text" value="Estimated: Dorte and Jens 09-06-10"/>
5. Transportation motor cycle	<input type="text" value="2"/> persons	<input type="text" value="10"/> km	<input type="text" value="220"/> days	263 litre petrol	<input type="text" value="Dorte Andersen"/>	<input type="text" value="Estimated: Dorte and Jens 09-06-10"/>
6. Transportation bicycle/walking	<input type="text" value="5"/> persons				<input type="text" value="Dorte Andersen"/>	<input type="text" value="Estimated: Dorte and Jens 09-06-10"/>
7. Public transportation	<input type="text" value="2"/> persons	<input type="text" value="30"/> km	<input type="text" value="220"/> days	608 kg CO ₂ eq	<input type="text" value="Dorte Andersen"/>	<input type="text" value="Estimated: Dorte and Jens 09-06-10"/>

Own calculation (paragraph I)

In the form for own calculation, the company has the option to type detailed information about the consumption of fuel in the form of petrol, diesel, or "other fuel". If data are typed on other fuel, the specific data must be typed about the used fuel on the tab: "Emission calculation".

On own calculation, it is possible to directly type the emissions of greenhouse gases regarding public transportation. This can be calculated via other transportation models.

For all data, which is typed in the form "Own calculation", an account or other documentation must be available, showing the background for the used data.

10. Tab: Input paper

On this tab, the company must type data of the used paper qualities. The typed data on the different paper qualities are part of the carbon calculator as weighted average. When product calculations are made, it is a condition that data for the used paper qualities on “Input paper” are typed.

Data from the paper suppliers

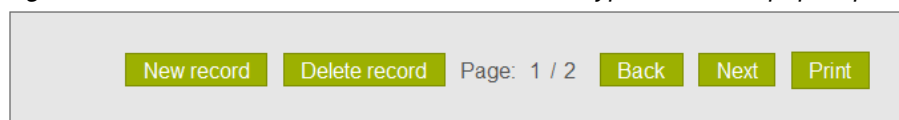
It is recommended that paper data is typed for at least 50 % of the purchased paper tonnage in the company.

Figure 10.1. The upper field of the tab shows the weighted average of the typed data and the share of paper for which data is typed.

CALCULATED EMISSION FACTORS BASED ON TYPED DATA IN THIS SHEET	
Calculated emission factors based on typed data in this sheet	
Emissions from production of paper	414 kg CO ₂ eq/t
Emissions from transportation of paper	230 kg CO ₂ eq/t
Typed data for part of total purchased paper	73 %

Data must be entered for one paper quality at a time via the module in the lower right corner. By using the button “New record” it is possible to enter data for a new paper quality. It is possible to print a review of the entered paper qualities.

Figure 10.2. Module for administration of data for typed and new paper qualities.



NOTICE

For the part of the company’s paper purchase, where paper data are not typed, the carbon calculator calculates with worst case data in the carbon account for both paper production and transportation of paper to printing company. Therefore, it is important to type data for the majority of the company’s paper purchase.

Data of the used paper qualities can be requested from the paper suppliers. For this purpose the letter templates can be used.

TOOL

Letter templates to the paper suppliers. Download: www.climatecalc.eu/fi on sub page “Calculation and tools”

Data on production of paper (paragraph L)

All data for paper is stated in “tonnes” and therefore the shortening “t” is used e.g. in “Annual purchased amount (t)”.

Two methods can be used in typing data on production of paper from the paper suppliers. At present, it is preferred, if the paper suppliers have reported data to the CEPI- method to compilation of Carbon Footprint for paper production (www.cepi.org). This method is referred to as “the Ten Toes”

and states carbon data on 10 different parameters. It must be noted that the calculator only includes data typed on parameters 3-7. By typing data for the other parameters data are shown in blue writing to indicate that data are not included.

Figure 10.3. Example of typing data based on the CEPI-method.

L. DATA ON PRODUCTION OF PAPER	
Emissions calculated on the basis of typed data in one of the following two ways	415 kg CO ₂ eq/t
1. Data based on CEPI's method for estimation of Carbon Footprint in 10 parameters	
1. Carbon sequestration in forests:	<input type="text"/> kg CO ₂ eq/t
2. Carbon stored in forest products:	<input type="text" value="1355"/> kg CO ₂ eq/t
3. Greenhouse gas emissions from forest product manufacturing facilities:	<input type="text" value="95"/> kg CO ₂ eq/t
4. Greenhouse gas emissions associated with producing fibre:	<input type="text" value="5"/> kg CO ₂ eq/t
5. Greenhouse gas emissions associated with producing other raw materials/fuels:	<input type="text" value="123"/> kg CO ₂ eq/t
6. Greenhouse gas emissions associated with purchased electricity, steam etc.:	<input type="text" value="92"/> kg CO ₂ eq/t
7. Transport-related greenhouse gas emissions:	<input type="text" value="100"/> kg CO ₂ eq/t
8. Emissions associated with product use:	<input type="text"/> kg CO ₂ eq/t
9. Emissions associated with product end-of-life:	<input type="text"/> kg CO ₂ eq/t
10. Avoided emissions and offsets:	<input type="text"/> kg CO ₂ eq/t
Period of validity for typed data:	<input type="text" value="2010 (carbon profile 16-09-2011)"/>

Alternative to using the CEPI-method, the company can use data from the paper suppliers' PaperProfiles. The information on the paper suppliers' PaperProfiles is not as accurate as the CEPI-method, and therefore PaperProfile data only must be used, if data according to the CEPI-method cannot be provided from the paper suppliers. The following data must be typed from PaperProfiles:

- CO₂ (fossil)
- Purchased electricity consumption
- The country, where the paper factory is placed, must be selected from the dropdown menu.

Figure 10.4. Example of typing data based on PaperProfile.

2. Data based on Paper Profiles	
CO ₂ (fossil):	<input type="text" value="55"/> kg CO ₂ /t
Purchased electricity consumption:	<input type="text" value="817"/> kWh/t
State the country, where the paper factory is situated in the dropdown menu:	<input type="text" value="Sweden"/>
Period of validity for typed data:	<input type="text" value="2011-01-01 - 2011-12-31"/>

Data on transportation of paper (paragraph M)

Two methods can be used for typing data for transportation of paper from the paper suppliers to the company. The best way is, if the paper suppliers have stated specific data for the emissions of greenhouse gases by transportation of the paper from the paper factory to the company. This can for instance happen, if the supplier fills the form, which is a part of the above tools (letter template and form). Data must only be typed for emission of greenhouse gases from burning of the fuels. The emissions from production of the fuels are automatically added in the carbon calculator.

The alternative to using data from the paper suppliers is to type the distances between the paper factory and the wholesaler plus the distance between the wholesaler and the company. When distance data are typed, the carbon calculator uses default data for transportation of goods with truck. Therefore, it must always be the aim to use specific data on the emissions of greenhouse gases reported directly from the paper supplier.

Figure 10.5. Example of typing data based on distance.

M. DATA ON TRANSPORTATION OF PAPER	
Emissions calculated on the basis of typed data in one of the following two ways	125 kg CO ₂ eq/t
1. Data reported by the supplier (only emissions from burning of fuel)	
Type the emissionens from transportation of paper (only direct emissions)	<input type="text"/> kg CO ₂ /t
Date or period of validity for typed data:	<input type="text"/>
2. Own information about distance	
Distance for transportation of paper from paper mill to wholesaler or directly to company	<input type="text"/> 984 km
Distance for transportation of paper from wholesaler to company	<input type="text"/> 83 km

11. Tab: Input purchased transportation

On this tab, the company must type data for transportation of products between the company and possible sub suppliers, plus data for transportation of products to the customer.

Transportation of products to the customer is in the carbon calculator defined as: **“Transportation of products to the first delivery address”**.

The customer’s further transportation of the product plus eventual transportation via distribution companies and the Post Office are not included in the carbon calculator.

For use to calculation of purchased transportation, two methods are compiled:

Standard calculation

A method to standard calculation is compiled in the carbon calculator, which makes it easier for the company to carry out a quick calculation of the importance of the purchased transportation. The standard calculation is based on general numbers over the emissions of greenhouse gases from transportation of goods.

By using the standard calculation, the company must make a qualified estimation over the yearly transported amount plus the average distance divided on vehicles in different sizes. In connection with the verification, the company must be able to substantiate the estimates.

Figure 11.1 Example of typing data via standard calculation.

T. TRANSPORTATION OF PRODUCTS TO CUSTOMERS			
Standard calculation - Annual amount of transported products			Describe where data come from
1. Lorry 3,5-16 ton (fleet average)	<input type="text" value="3233260"/> kg	<input type="text" value="Tom Hansen"/>	<input type="text" value="Invoice: DSV 2009/2010, estimeret distance"/>
Average distance of transported products	<input type="text" value="200"/> km	<input type="text" value="Tom Hansen"/>	<input type="text" value="Invoice: DSV 2009/2010, estimeret distance"/>
2. Lorry 16-32 ton (fleet average)	<input type="text" value="3145890"/> kg	<input type="text" value="Tom Hansen"/>	<input type="text" value="Invoice: DSV 2009/2010, estimeret distance"/>
Average distance of transported products	<input type="text" value="200"/> km	<input type="text" value="Tom Hansen"/>	<input type="text" value="Invoice: DSV 2009/2010, estimeret distance"/>
3. Lorry >32 ton (fleet average)	<input type="text"/> kg	<input type="text" value="-- responsibility --"/>	<input type="text"/>
Average distance of transported products	<input type="text"/> km	<input type="text" value="-- responsibility --"/>	<input type="text"/>
Total calculated quantity of delivered printed matters (Carbon account):		<input type="text" value="6379150"/> kg	

Own calculation

In the form for own calculation, the company has the opportunity to type detailed information about consumption of fuel in the form of petrol, diesel, bottled gas, electricity or “other fuel”. If data are typed on other fuel, specific data about the used fuel must be typed on the tab: “Emission calculation”.

Moreover, on own calculation there is the opportunity to type the emissions of greenhouse gases directly. This can be calculated via other transportation models.

For all data, which is typed on own calculation, an account or other documentation must be available, which shows the reason for the used data.

12. Tab: Emission calculation

On the tab “Emission calculation”, the carbon calculator makes detailed calculations of the emissions of greenhouse gases based on data typed on the tabs with green text. The company only needs to deal with the tab “Emission calculation”, if the company wants to see the result of the detailed calculations or has their own data in the form of specific emission factors. If the company uses printing ink or other materials without default data in the calculator, these must be typed in the calculator as well as on the tab “Emission calculation”.

Detailed calculations

Data typed on the tabs with green text are automatically converted into emission of greenhouse gases via default emission factors, which state the emission of CO₂ equivalents per unit. For instance, the default emission factor can be “CO₂ eq/kg printing ink” or “CO₂ eq/kWh electricity”.

Besides calculation to CO₂ equivalents, a distribution of the emissions is made automatically in Scope 1, Scope 2, and Scope 3 according to the guidelines in The Green House Gas Protocol. For a more specific definition of the different scopes, we refer to paragraph 13: “Tab: Carbon account” and www.climatecalc.eu/fi on sub page “Standards and data”

Via the detailed calculations, it is possible to see, how the emissions of for instance purchased diesel are divided among the emissions from burning of diesel and the emissions from production of diesel.

Specific emission factors

If the company has specific emission factors from used energy sources or raw materials, these can be typed on “Specific emission factors”. If specific emission factors are typed, the carbon calculator uses these data instead of the default emission factor. Provided that specific emission factors are typed, it must from all data be stated, who is responsible for data, and where these come from.

If there on the tabs with green text is stated consumption of for instance “other fuel”, electricity, district heating, or plates, which is not default in the tool, **specific data must always be typed** in the form of emission factors and in some cases heating values.

Upstream emissions

In connection with several parameters the term “upstream” is used. “Upstream” means that the emission factors include other emissions than the direct emissions from burning fuels or producing raw materials. Upstream emissions are e.g. indirect emissions from production and transportation of fuels and materials.

13. Tab: Carbon account

The company's carbon account is generated automatically based on the typed data on the tabs with green text and data from the tab with blue text if own data are typed under the tab with blue text. The carbon account is divided into different paragraphs, which shortly are described below.

Key figures for the emissions of greenhouse gases

In the upper paragraph, the essential main numbers and key figures for the carbon account are presented with the purpose to make it easy for the company to compare the total performance from year to year. On this paragraph, data are:

- Total amount of delivered printed matters
- Waste paper percentage
- Total emission of greenhouse gases (Scope 1+ 2 + 3)
- Total energy consumption (Scope 1 + 2)
- Key figures of total emission (Scope 1 + 2 + 3) per ton printed matter
- Key figures of total energy consumption (Scope 1 + 2) per ton printed matter

NOTICE

The above parameters change if the company has typed data over the production size on "Input company" paragraph F.

Direct and indirect emissions – Scope 1, Scope 2 and Scope 3

At the bottom of the carbon account the direct as well as the indirect emissions are specified by dividing the emissions in Scope 1, Scope 2 and Scope 3 as described in The Green House Gas Protocol:

- Scope 1: Direct emissions of greenhouse gases from the company by for instance burning of oil or gas in own boilers or vehicles.
- Scope 2: Indirect emissions of greenhouse gases from production of purchased energy such as electricity and district heating.
- Scope 3: Other indirect emissions of greenhouse gases from for instance production of raw material, purchased transportation services, and the employee's commuting to and from work.

For further information we refer to www.climatecalc.eu/fi on sub page "Standards and data".

Company and product related emissions

In addition to division in Scope 1, 2, and 3, the carbon account is divided in a *company related emission* and a *product related emission*. This division of the emissions is an expression of whether the customers have a real influence on the size of the emissions or not. The emissions, which are categorized as product related emissions, can thus be adjusted to the circumstances in relation to a concrete order on the tab: "Product calculation". E.g. will the choice of paper qualities for the specific order be of essential importance to the final emission of greenhouse gases.

Figure 13.1. Example of a carbon account for a company.

Company: Speed Print Accounting period: 01-05-2009 - 30-04-2010
 Address: Print road 4 Basic year: 01-05-09 - 30-04-10
 City: 1000 Brussels Responsible for the account: Tom Hansen
 Country: Belgium Certificate number:

The account includes: Printing in sheetfed and in-house finishing.

Total quantity of delivered printed matters:	6379 t	Waste paper:	20%
Total emissions of greenhouse gases (Scope 1+2+3):	9599 t CO ₂ eq	Key figures:	1505 kg CO ₂ eq/t
Total energy consumption (Scope 1+2):	19973 GJ	Key figures:	3131 MJ/t

Emissions from activities	Company related	Product related	Total emissions	
Burning of fuel in stationary burning units at the company	391 t CO ₂ eq		391 t CO ₂ eq	4%
Burning of fuel in own or leased vehicles	90 t CO ₂ eq	4	95 t CO ₂ eq	1%
Direct emissions (Scope 1)	482 t CO₂ eq	4 t CO₂ eq	486 t CO₂ eq	5%
Purchase of electricity	0 t CO ₂ eq		0 t CO ₂ eq	0%
Purchase of district heating	160 t CO ₂ eq		160 t CO ₂ eq	2%
Energy indirect emissions (Scope 2)	160 t CO₂ eq		160 t CO₂ eq	2%
Production of paper and other substrate		5555 t CO ₂ eq	5555 t CO ₂ eq	58%
Transportation of paper and other substrate (incl. upstream)		1812 t CO ₂ eq	1812 t CO ₂ eq	19%
Production of printing ink and varnish		660 t CO ₂ eq	660 t CO ₂ eq	7%
Production of PE- and cardboard packing		73 t CO ₂ eq	73 t CO ₂ eq	1%
Transportation of products to and from subsupplier		0 t CO ₂ eq	0 t CO ₂ eq	0%
Transportation of products to the customer		293 t CO ₂ eq	293 t CO ₂ eq	3%
Production of fountain solution and cleaning agents	10 t CO ₂ eq		10 t CO ₂ eq	0%
Production of plates and cylinders	339 t CO ₂ eq		339 t CO ₂ eq	4%
Employee's commuting to and from work (incl. upstream)	110 t CO ₂ eq		110 t CO ₂ eq	1%
Emissions from production of purchased fuel	99 t CO ₂ eq	1 t CO ₂ eq	100 t CO ₂ eq	1%
Other indirect emissions (Scope 3)	558 t CO₂ eq	8395 t CO₂ eq	8953 t CO₂ eq	93%
Total (Scope 1+ 2+3)	1200 t CO₂ eq	8400 t CO₂ eq	9599 t CO₂ eq	100%

14. Tab: Product calculation

On this tab, the company has the opportunity to calculate the carbon impact by producing specific products. The tab for product calculation is locked, until the company has been certified.

NOTICE

If information in a product calculation is missing or mistakes have been made this will be shown in **text** or **arrows** marked with **RED**. In case of serious errors in the product calculation the calculator reports errors in the result field in the top to the right. In that way, it is impossible to complete the product calculation until the error has been corrected.

Administration of product calculations

The product calculations are administrated via the module in the lowest right corner. A new product calculation is started as follows:

- Press the button “New record” (not the first time a product calculation is made)
- Name the product calculation in the typing field
- Press the button “Save”.

Figure 14.1. Module for administration of product calculations.

The screenshot shows a horizontal toolbar with a dropdown menu on the left containing '1001314 B' and a text input field containing '1001548'. To the right of these are five green buttons: 'Save', 'New record', 'Delete record', 'Print listing', and 'Print'.

Via the administration module it is possible to print the specific product calculation as well as an review over the product calculations for a specific period with the option for making a filtration on the product calculations marked as compensated (Compensation will be discussed later in this guide).

Figure 14.2. Module for printing a review over product calculations.

The screenshot shows a 'Print' dialog box with a title bar and a close button. It contains a checkbox for 'Compensated' which is unchecked. Below it are two date pickers for 'Calculation period' with values '01-05-2009' and '01-11-2009'. There are two empty date pickers for 'Compensated period'. At the bottom left is a green 'Print' button and at the bottom right is a blue 'Close' button.

About the order

In product calculation, the following must always be stated concerning the order:

- Customer
- Product name
- Order number
- Responsible for calculation

Paper consumption

In the paper consumption section, the qualities, which are part of the concrete order, are selected. Notice that you can only choose between default data (worst case) plus the paper qualities, which are typed on the tab: "Input paper".

Besides the paper quality, the consumption of paper plus the amount of paper in the finished product must be stated. This happens either by weight calculation or by sheet calculation.

NOTICE
Data for the specific paper quality must only be typed as weight or sheet. In case of typing both categories the calculator reports error.

Weight calculation

A weight calculation is made by typing two of the three of the following information for each paper quality:

- Consumption of paper on the order
- The amount of paper in finished product
- Paper waste (waste paper / purchased paper)

Sheet calculation

A tab calculation is made by typing the following information for each paper quality:

- Paper size
- Grammage
- Consumption of sheets on the order
- Paper waste (waste paper / purchased paper)

In the product calculation, the carbon calculator automatically suggests an average waste paper percentage based on the information on the tab "Input company". For each order, it should be considered, if the concrete waste percentage on the order is different from the average. If so, the actual data of the product must be used.

Figure 14.3. Example of typing paper data in product calculation. Notice that the average paper waste from the company's carbon account is stated in italic.

PAPER CONSUMPTION						
	Paper quality 1	Paper quality 2	Paper quality 3			
State the used paper qualities in the dropdown menu:	LumiPress (90-200g)	UPM Finesse (KY)	-- Væg kvalitet			
<i>Paper data is typed on the sheet: Input paper</i>						
Weight calculation: State at least two data of paper consumption mentioned below						
Consumption of paper for the order:	20000 kg	20000 kg	0 kg			
Amount of paper in the finished product:		16000 kg	0 kg			
Paper waste (waste paper/purchased paper):	20 %	4000 kg	0 kg			
<i>The carbon calculator's paper waste/purchased paper (average):</i>	21 %					
Sheet calculation: State all data of paper consumption mentioned below						
Paper format:		1040 mm				
Paper format:		720 mm				
Grammage:		200 g/m ²				
Consumption of sheets for the order:		0 kg	2000	300 kg		
Paper waste (waste paper/purchased paper):		0 kg	23 %	69 kg		
<i>The carbon calculator's paper waste/purchased paper (average):</i>	21 %					
Describe where data come from:	Order calculation					

Companies without printing

For companies, which have selected another reference for the size of the production than the amount of purchased paper, the order's size is stated with the same unit, which is typed on "Input company" paragraph F.

NOTICE

By production calculation for companies with no paper consumption in-house the product weight must be determined on the basis of the weight of the load on the pallet, because in this case the product weight is not automatically calculated on the section "Transportation of products to the customer". The weight of the product must then be stated with the weight of the pallets.

Consumption of printing ink, varnish, and packing

The consumption of printing ink, varnish, and packing must be stated for the concrete product. In the product calculation, the carbon calculator automatically suggests an average consumption based on information found on the tab "Input company". For each order, it should be considered, if the consumption of the concrete product is different from the average. If so, the actual data of the product must be used.

NOTICE

If it has been decided to hide some printing techniques on the tab "Company information" this will cause that the parameters for this printing technique are hidden on the tab "Product calculation".

The typed consumption of packing on the order must include all packing made of cardboard and plastic supplied to the order, and not only transportation packing.

Sub supplier's work

Sub supplier's work plus transportation between company and sub supplier must be calculated and included in the product calculation. Therefore, the company must communicate with the sub supplier and ask for information about how great an emission of greenhouse gases, the work on the order causes.

NOTICE

To the sub supplier, it must be stated, if this calculation of the emissions must include transportation to and from the sub supplier plus possible transportation to the customer.

NOTICE

Data from the sub supplier must cover the same parameters which normally are included in the ClimateCalc calculation tool. The parameters appear from the standards which are basis for the ClimateCalc calculation tool. For further information we refer to www.climatecalc.eu/fi on sub page "Standards and data"

When communicating with the sub supplier, the developed letter template can be used.

TOOL

Letter template to sub supplier. Download: www.climatecalc.eu/fi on sub page “Calculation and tools”

The emission related to transportation of the products between the company and the sub suppliers must be calculated and included in the product calculation for the concrete order. This can either happen by making a standard calculation or an own calculation. For an elaboration of this, we refer to paragraph 11: “Tab: Purchased transportation”.

Figure 14.4. Example of typing data for sub supplier work in product calculation plus transportation between company and sub supplier.

WORK OF SUBSUPPLIERS			
	Supplier 1	Supplier 2	Supplier 3
State the name of the used sub-suppliers:	European Bookbind		
State the sub-supplier's emissions			
State the emissions from the sub-supplier's work on the order:	500 kg CO ₂ eq		
State where to find the documentation from the sub-supplier:	Mail: European Bookbind 04-03-10		
State transportation to and from the sub supplier in one of the two following ways			
Standard calculation: Transported amount and distance:	16969 kg 30 km		
Choose the size of the truck in the dropdown menu (load weight):	Lastbil 16-32 ton (middel voi)		
Own calculation: Emission calculated via transportation model:			
Describe where data come from:	Average weight		

Transportation of products to the customer

The emissions related to transportation of products to the customer must be calculated and included in the product calculation for the concrete order. The calculator makes a theoretical calculation of the weight of the product based on the weight of paper, inks and packing in the product supplied in-house. The weight of the pallets and other transportation materials as well as any paper waste and supplied packing at the sub supplier's must be typed manually.

For a more detailed explanation, we refer to paragraph 11: “Tab: Purchased transportation”, where the transportation to the customer must be calculated.

NOTICE

Errors are reported at transportation calculation, if transportation data are typed for a tonnage that is less than the calculated tonnage of the product.

Figure 14.5. Example of typing data for transportation of products to the customer.

TRANSPORTATION OF PRODUCTS TO THE CUSTOMER			
Calculated weight of the printed matter (in-house added material):	16434 kg		
Calculated weight of the packing (in-house added material):	30 kg		
State the weight of pallets:	425 kg	Data come from:	Ordrekalkulation
State any adjustment of added packing at the sub-suppliers:	10 kg	Data come from:	Mail fra Dansk Bogbind 04-03-10
Total weight of materials to the customer	16899 kg		
State transportation to the customer in one of the two following ways			
Standard calculation: Transported amount and distance:	Delivery 1 12924 kg 200 km	Delivery 2 3975 kg 50 km	Delivery 3 kg km
Choose the size of the truck in the dropdown menu (load weight):	Lastbil 16-32 ton (middel voi)	Lastbil 16-32 ton (middel voi)	
Own calculation: Emission calculated via transportation model:			
Describe where data come from:	Ordrekalkulation, Google Maps	Ordrekalkulation, Google Maps	

Company related emissions

Based on the stated paper consumption of the order, the order is attributed to a company related emission, which is expression of the company's average emissions that cannot be ascribed single products.

For a closer account, we refer to paragraph 13: "Tab: Carbon account". If the company has no printing and no paper consumption, the company related emissions are calculated on the basis of the size of the order with the same unit as typed on "Input company" paragraph F.

Other emissions

ClimateCalc is constructed based on international standards for calculation of carbon impact by producing printed matters. For a closer account of this, we refer to www.climatecalc.eu/fi on sub page "Standards and data". In calculation of the emissions of greenhouse gases for the parameters, which are included in the carbon calculator, minimum 95 % of the emissions in the defined scope will be included. To compensate for the non calculated emissions, the product calculation has a supplement corresponding to the missing 5 %.

Compensation

It is possible to mark an order as compensated and to upload documentation for purchased compensation. This can be done by marking for compensated next to the result on the top of the page.

Figure 14.6. Example of an order marked as compensated. Upload of documentation for purchased compensation has been made done.

Customer:	<input type="text" value="Print & Publish"/>	Carbon calculation of the printed matter	
Product name:	<input type="text" value="Print & Publish"/>	Production of paper	8991 kg CO ₂ eq
Order number:	<input type="text" value="1001314 B"/>	Transportation of paper to the company	2008 kg CO ₂ eq
Responsible for the calculation:	<input type="text" value="TSH"/>	Production of ink and varnish	1647 kg CO ₂ eq
Certificate number:	<input type="text" value="CC-000001/DK"/>	Production of packing	78 kg CO ₂ eq
	<input checked="" type="checkbox"/> Compensated - 12/08 - 2011	Work of subsupplier	564 kg CO ₂ eq
	Compensation: <input type="text"/>	Transportation to the customer	348 kg CO ₂ eq
		Company related emissions	5371 kg CO ₂ eq
		Other emissions	1000 kg CO ₂ eq
		Total emissions	20007 kg CO₂ eq

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15. Tab: Benchmark

On this tab the company benchmark the company's own performance on the carbon area. By comparing to other companies' performance it is easier for the company to assess the potential for improvements. The tab for benchmark is locked, until the company has been certified.

NOTICE

All companies are anonymous in a benchmark in ClimateCalc. In that way a company cannot see the names of the other companies included in the selected benchmark. To ensure the anonymity, benchmarking is only possible if there are at least four companies with the same profile in the selected benchmark. Benchmark happens across companies in all the countries.

Benchmark happens in relation to the company's key figures included in the carbon account for the selected period:

- Waste paper [%]
- Key figures showing total emission per ton printed matter [kg CO₂ eg/ton]
- Key figures showing total energy consumption per ton printed matter [MJ/ton]

We refer to paragraph 13: "Tab: Carbon account" for deepening of the key figures.

You can benchmark in two ways:

- By comparing all companies no matter printing method being used.
- By comparing with companies with exactly the same printing techniques as the company has stated on the tab "Company information".

Figure 15.1. Example of benchmark with marking for comparison with the same printing techniques as the company uses

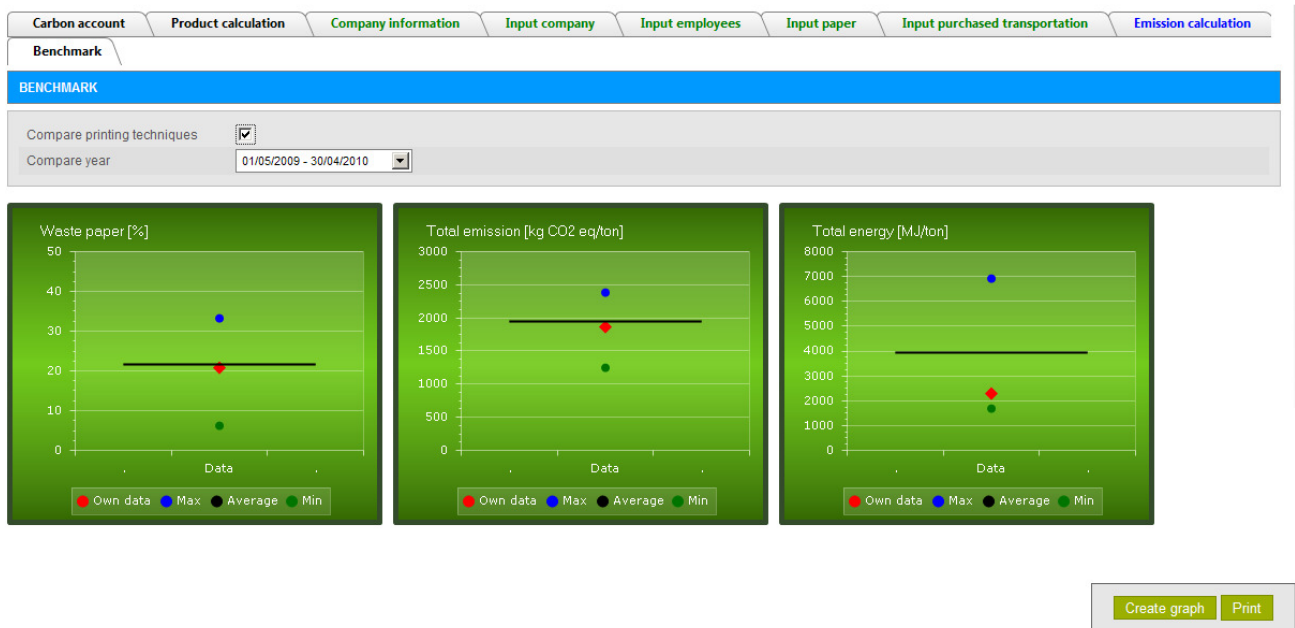
The screenshot shows a navigation bar with tabs: Carbon account, Product calculation, Company information, Input company, Input employees, Input paper, Input purchased transportation, and Emission calculation. The 'Benchmark' tab is active. Below the navigation bar, the 'BENCHMARK' section is highlighted in blue. Underneath, there are two input fields: 'Compare printing techniques' with a checked checkbox and 'Compare year' with a dropdown menu showing '01/05/2009 - 30/04/2010'.

To generate a benchmark, press the button "Create graph" in lowest right corner.

The benchmark shows the following parameters with different colours for each of the key figures:

- RED: Level for the company
- BLUE: Level for company with the highest level
- GREEN: Level for company with the lowest level
- BLACK: Average level for all companies

Figure 15.2. Example of benchmark. The button for generating benchmark is shown in the lowest right corner.



NOTICE

Benchmark is not possible if the company has entered data showing the size of the production under "Input company", paragraph F. The reason for this is that when the company uses a self selected unit as reference for the key figures, the company cannot compare itself to other companies.

16. Calculation factors

Energy units

Energy	kWh	MJ	kcal
1 kcal =	0,001163	0,004187	1
1 MJ =	0,2778	1	238,85
1 kWh =	1	3,6	859,85

Size units

Abbreviation	Pronouncement	Size
k	Kilo	1.000
M	Mega	1.000.000
G	Giga	1.000.000.000
T	Tera	1.000.000.000.000