Methodological guide and emission factors

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Introduction

This methodological guide compiles all the Emission Factors (EF) used in the Climeet tool, as well as the various assumptions made. For each EF, the name, database and version are given. For shareable databases, the values are given. The EFs used in Climeet are in kg of CO2e, and include all the greenhouse gases covered by the Kyoto Protocol (1997), with a 100-year Global Warming Potential (GWP).
This guide was last updated in June 2025 and corresponds to Climeet version 3.3.
The next Climeet EF update is scheduled for late 2025.

New in the guide :

- Customize units: add new units to all emissions items
- Imperial system added to Climeet's range of units (miles, pounds, gallons, BTUs, etc.)
- Change the name of the "Bus" EF to "Public Bus" in the various "Transport" items
- Addition of the EF "Electric public bus" to the various "Transport" items
- Addition of the EF "electric shuttle" to the various "Transport" items
- “Helicopter" EF added to various "Transport" items
- Change the name of the "wood" to "standard wood" in the "Equipment and built spaces" item.
- Addition of the EF "reception tent" to the "Equipment and built spaces" item.
- Addition of the "marquee" EF to the "Equipment and built spaces" item
- Addition of EF "clothing rack" to " Equipment and built spaces ".
- Addition of the EF " projector" to the "Equipment and built spaces" item
- Addition of the EF "photobooth" to the "Equipment and built spaces" item.
- “Headphones" EF added to "Equipment and built spaces" item
- Addition of "walkie-talkie" EF to "Equipment and built spaces" item
- Addition of the EF "flowers bouquet all sorts to the "Equipment and built spaces" item.
- Addition of the EF "flower bouquet local and seasonal" to "Equipment and landscaping".
- Addition of EF "wrapping glass" to "Equipment and built spaces".
- Updating of monetary EFs in the "Equipment and built spaces" and "Goodies" items with EFs dating from 2023
- Change the names "full meal" and "buffet/cocktail" to "meal/buffet" and "cocktail" in the "Catering" item
- Modification of meal composition names in "Catering".
- EF "mug" added to "Goodies" item
- “Leather" EF added to "Goodies" item
- Changes in monetary EFs of the "Goodies" item
- Addition of the "ceramic" EF to the "Goodies" item

Dedicated work-days

Before the event

This section calculates emissions linked to the event's organization and design phase. The user enters the work-days worked upstream by the organizing teams and intellectual service providers.
The Emission Factors (EF) used are in kgCO2e/work-day and are weighted according to the energy mix of the country concerned, which must also be provided.

They are based on the average carbon footprint of an FTE (Full-Time Employee) working in a service company in Belgium over a working year, i.e. 220 days, in tCO2e/year. The footprint per FTE includes Scopes 1, 2 and 3, i.e. all the emissions associated with an employee's energy use (electricity, heating, air conditioning), commuting and the purchase of consumables.
This value comes from two benchmarks carried out by South Pole on a dozen service companies, mainly in Belgium. This average figure was used to calculate the average EF of a Belgian employee per day worked, on the assumption that an average FTE works 220 days a year.
This EF was then extrapolated to the various countries according to the EF of each country's energy mix.

Issue category title	Data to be entered	EF unit	EF source
Upstream design (organisers)	Number of work-days	kgCO2e/work-day	South Pole
Upstream design (service providers)	Number of work-days	kgCO2e/work-day	South Pole

Assembly/disassembly

It is difficult to obtain information about the travel required by assembly and dismantling teams to get to the event. It was decided to approximate these emissions by calculating the number of work-days of assembly and dismantling, and using the EF from the previous section, per FTE.
The EF used varies according to the country of the event, which is entered by the user in the general parameters.

Assembly (service providers)	Number of work-days	kgCO2e/work-days	South Pole
Disassembly (service providers)	Number of work-days	kgCO2e/work-days	South Pole

Transport for staff and participants

Emissions linked to the travel of organizing teams, suppliers and participants are calculated on the basis of distances travelled per person, according to mode of transport. The EFs were taken from metric databases and then converted to imperial, the values of which are given below.

Combustion vehicles

For all thermal modes of transport, the emissions calculated include upstream emissions (vehicle manufacture) and emissions generated during use. EF are in kgCO2e/person.km.

Electric vehicles

The EF used for electric vehicles is broken down into upstream and in-use emissions.
Emissions from the upstream phase (vehicle manufacture) are calculated using the "passenger car - Core range - Compact vehicle - Electric - France" EF from Base Carbone® V23.1, taking only the upstream part.
Emissions generated during use are calculated on the basis of the average electricity consumption of an electric car per person and per km, and the CO2 intensity of the energy mix of the country hosting the event (source: IEA 2022, non-shareable basis).

Total EF = Upstream EF (kgCO2e/pers.km) + EF of the energy mix of the country hosting the event (kgCO2e/kWh) x Average electricity consumption of an electric car (kWh/pers.km)

Carpooling

For car-sharing, whatever the engine type, the assumption is an average occupancy rate of 3 people, compared with 1.3 for an average vehicle for the emission factor in Base Carbone® V23.1. The EF for car-sharing is therefore calculated on the basis of the EF for an average vehicle of the same engine type, with a ratio of 1.3/3.

Bicycle/ on foot

Emissions linked to the manufacture of the bicycle are not taken into account. Emissions linked to travel are equal to 0, so the EF used is zero.

Electric bicycle

The EF used for electric bicycles is broken down into upstream and in-use emissions.
Upstream emissions are calculated on the basis of the "Electric-assisted bicycle - France" EF from Base Carbone® V23.1, taking only the upstream part.
Emissions generated during use are calculated on the basis of the average electricity consumption of an electric bicycle per person and per km, and the CO2 intensity of the energy mix of the country hosting the event (source: IEA 2022, non-shareable basis).
The average power consumption chosen is that of an average electric scooter, in a conservative approach, and is 0.014 kWh/km, according to a manufacturer of electric bikes and scooters.

Total EF = Upstream EF (kgCO2e/pers.km) + EF of the energy mix of the country hosting the event (kgCO2e/kWh) x Average electric consumption of an electric scooter (kWh/pers.km)

Train

For trains, the EF is adapted according to the CO2 intensity of the energy mix in the country of the event (source: IEA 2022, non-shareable basis).

Sailing boats

Emissions linked to the manufacture of the sailboat are not taken into account. Emissions linked to travel are equal to 0, so the EF used is zero.

Mode of travel	Electricity consumption (kWh/ pers.km)	EF (kgCO2e/ pers.km)	Source	EF title
Car		0,23	Base Carbone® V23.1	Car - Medium engine - 2018 - France
Electric car	0,170	0,084	Base Carbone® V23.1	EF upstream : Passenger car - Mid-range - Compact vehicle - Electric - France Average electricity consumption: 0.17 kWh/km Source : Selectra
Hybrid car		0,183	Base Carbone® V23.1	Passenger car - Mid-range - Compact vehicle - Hybrid, full, P2
Carpooling		0,10	Based on Base Carbone® V23.1	Based on the EF of the Base Carbone® "Car - Average engine - 2018 - France", assumption of 3 people against 1.3 for an average vehicle in the ADEME study.
Electric carpooling	0,074	0,036	Based on Base Carbone® V23.1	Based on the "electric car" EF, assumption of 3 people compared with 1.3 for an average vehicle in the ADEME study.
Hybrid carpooling		0,079	Based on Base Carbone® V23.1	Based on the EF of a "hybrid car", assumption of 3 people compared with 1.3 for an average vehicle in the ADEME study.
Motorcycle/scooter		0,134	Based on Base Carbone® V23.1	Average between EF "Motorcycle <=250cm3 - mixed 2018" and EF "Motorcycle >250cm3 - mixed 2018".
Electric motorcycles	0,06	0,0212	Based on Base Carbone® V23.1 and Eccity	Average consumption of a 125 electric scooter: 6kWh/100 km or 0.06kWh/km EF upstream: average of EF upstream "Motorcycle <=250cm3 - mixed 2018" and "Motorcycle >250cm3 - mixed 2018".

Metro/ Tramway		0,005	Base Carbone® V23.1	Metro, tramway, trolleybus - 2018 - Population 100,000 to 250,000 - France
By bike/on foot		0,000		Upstream emissions are not taken into account: the EF is equal to 0
Electric bike	0,014	0,009	Base Carbone® V23.1	EF upstream : Bicycle - electrically assisted - France Average electric consumption of a scooter: 0.014 kWh/km
Public bus		0,113	Base Carbone® V23.1	Bus - Diesel - France
Electric public bus	0,17	0,009	Based on Base Carbone® V23.1 and MTE	Upstream : EF vehicle production from the Base Empreinte documentation for Bus-Autocar of 4 kgCO2e/kg, occupancy rate of 10 people, weight of 10.7 tonnes and total distance in km of 480,000 km Electricity consumption of 168 kWh/100 km (very dense environment). Source: Cost-benefit analysis of electric vehicles - buses and coaches, 2018 Assumption: 10-person occupancy rate
Minibus		0,041	Mobitool 2020	
Shuttle		0,0295	Base Carbone® V23.1	Coach - diesel
Electric shuttle	0,06	0,004	Based on Base Carbone® V23.1 and MTE	Upstream : Vehicle manufacturing EF from the Base Empreinte documentation for Bus-Autocar of 4 kgCO2e/kg, load factor of 30 people, weight of 12 tonnes and total distance in km of 361884 km Electric consumption of 165 kWh/100 km (mixed environment). Source: Cost-benefit analysis of electric vehicles - buses and coaches, 2018 (MTE) Assumption: 30-person occupancy rate
Train		Varies according to the country of the event	BEIS 2022, IEA electricity EFs 2022	Based on BEIS 2022 and adapted to the country according to the EF of the energy mix (IAE 2022), non-shareable basis
Sailing boats		0,000		Upstream emissions are not taken into account: the EF is equal to 0
Motorboat		0,064	Base Carbone® V23.1	River shuttle - 2009 data - France
Cruise ship		0,39	Howitt, et al., 2010	Source "Carbon emissions from international cruise ship Passengers'

				travel to and from New Zealand" Howitt, Revol, Smith, 2010

Aerial

Plane

For air travel, EFs vary between short-, medium- and long-haul flights. An index function has been created to select the short-, medium- or long-haul column according to the distance entered by the user. We consider short-haul flights for an outbound distance of less than 463 km, a medium-haul flight for an outbound distance of between 463 and 3700 km, and a long-haul flight for an outbound distance of over 3700 km.
We also differentiate between economy and business class, with different EFs: a business class Passenger occupies a larger seat in the aircraft and therefore has a larger carbon footprint. EFs do not take into account in-flight services.
Aerial EFs take condensation trails into account.

Mode of travel	Short mail kgC02e/pers.km	Medium-haul kgC02e/pers.km	Long-haul kgCO2e/pers.km	EF source	EF title
Plane - economy	0,205	0,225	0,151	BEIS V1.1	Economy class, Well-To-Tank, with RFI
Plane - business class	0,308	0,652	0,438	BEIS V1.1	Business class - Well-To-Tank emissions - with RFI
Private jet	2,9	2,9	2,9	My daily jet	Average based on CO2e/person emissions of 7 private jets on a Paris - London route
Helicopter	0,542	0,542	0,542	Based on FOCA and Base Carbone® V23.1	Average "AvGas" and "Kerosene" EFs Upstream: EF "manufacturing vehicles

Private jet

The EF of the private jet is calculated from the average CO2 emissions/person of 7 private jets that have flown from Paris to London:

Device	Co2 emissions per person
Beechcraft Hawker 400XP	474 kg Co2
Beechcraft King Air 350	645 kg Co2
Bombardier Challenger 850	484 kg Co2
Bombardier Learjet 60	1,200 kg Co2
Cessna Citation CJ2	1,299 kg Co2
Embraer Phenom 300	866 kg Co2
Dassault Falcon 7X	1,452 kg Co2

Source : https://mydailyjet.com/ressources/ecologie-jet-prive-empreinte-carbone

Helicopter

The Helicopter EF is divided into upstream emissions and in-flight emissions.

Upstream emissions:
The EF calculation is based on a document produced by the FOCA (Swiss Federal Office of Civil Aviation), which gives fuel consumption figures per hour for almost 150 helicopter models.
Based on the list of models, we have estimated the average weight of a helicopter at 3,500 kg.
The EF for "manufacturing vehicles" in Base Carbone® V23.1 is 5.5 kgCO2e/kg.
We assume a service life of 20 years, with 500 flight hours per year and an average speed of 220 km/h. This gives a total lifetime distance of 2,200,000 km. According to the helicopter models on the list, the average Passenger capacity is 8 Passengers.
Upstream emissions/Passenger.km = 0.001067073 kgCO2e/Passenger.km

Emissions during flight:
The FOCA document gives an average fuel consumption per hour of 257 kg. According to the models on the list, 50% use AvGas, and 50% kerosene.
Averaging the "AvGas" and "Kerosene" EFs, Europe zone, from Base Carbone® V23.1, the helicopter fuel EF is equal to 3.8 kgCO2e/kg.
Given a helicopter's average speed of 220 km/h and average capacity of 8.2 Passengers, the EF for a helicopter flight = 0.540486243 kCO2e/km.person.

We add the upstream EF and the flight EF to obtain a helicopter EF = 0.5416 kgCO2e/km.person.

Mode of transport: unknown

The user also has the option of selecting "Unknown" in transport mode, if the information is not available.
Assumptions for the distribution of modes of transport have been made on the basis of the distance travelled entered by the user. These assumptions are set out in the table below.
In a conservative approach, when assumptions are made about a trip made by car, the tool uses only the EFs of a combustion-powered car. The EF used for trains is the EF train France.

In this way, the user enters the origin of the participants and the number of participants, and the tool will use an EF calculated from the different EFs for the modes of transport present in the tool, according to the percentage distribution of the modes of transport and the distance range entered.

Example: 100 participants from France, the tool assumes an average distance of 500 km one way, with 60% of participants by car, 30% by train, 8% by economy plane and 2% by business plane. The EF used is 0.162 kgCO2e/pers.km.

Origin of participants	Local (0 - 15 km)	Regional (15 - 100 km)	National (100 - 1,000 km)	Same continent (1,500 km)	Neighbouring continent (3,500 km)	Other continent (7,500 km)	Distant continent (15,000 km)

Distance used	5 km	40 km	500 km	1,500 km	3,500 km	7,500 km	15,000 km
Car	50%	60%	60%				
Carpooling	10%	10%					
Metro/Tramway	30%						
By bike/on foot	10%						
Train		30%	30%	10%			
Plane - economy			8%	72%	80%	50%	50%
Plane - business			2%	18%	20%	50%	50%
EF Unknown France (kgCO2e/pers.km)	0,126	0,150	0,162	0,280	0,310	0,295	0,295

Imperial system

The user can enter the miles traveled. The miles are then converted into km by the tool, before being converted into kgCO2e with the EF presented above.

The mile/km conversion ratio is as follows:

1	mile	1,609344498	km

The EFs in person.mile are shown in the following table:

Mode of travel	**Electricity consumption (kWh/ pers.mile)**	**EF (kgCO2e/ pers.mile)**
Car		0,370
Electric car	0,274	0,135
Hybrid car		0,295
Carpooling		0,161
Electric carpooling	0,119	0,058
Hybrid carpooling		0,128
Motorcycle/scooter		0,216
Electric motorcycles	0,097	0,034
Metro/ Tramway		0,008
By bike/on foot		0
Electric bike	0,023	0,014
Public bus		0,182
Electric public bus	0,27	0,014
Minibus		0,066

Shuttle		0,047
Electric shuttle	0,089	0,007
Train		Varies according to the country of the event
Sailing boats		0,000
Motorboat		0,103
Cruise ship		0,628

Mode of travel	**Short mail kgC02e/pers.mile**	**Medium-haul kgC02e/pers.mile**	**Long-haul kgCO2e/pers.mile**
Plane - economy	0,330	0,362	0,243
Plane - business class	0,496	1,049	0,705
Private jet	4,67	4,67	4,67
Helicopter	0,872	0,872	0,872

Origin of participants	**Local (0 - 10 miles)**	**Regional (10 - 50 miles)**	**National (50 - 500 miles)**	**Same continent (1000 miles)**	**Neighboring continent (2,500 miles)**	**Other continent (5000 miles)**	**Distant continent (10,000 miles)**
Distance used	5 miles	20 miles	225 miles	1000 miles	2500 miles	5000 miles	10,000 miles
Car	50%	60%	60%				
Carpooling	10%	10%					
Metro/Tramway	30%						
By bike/on foot	10%						
Train		30%	30%	10%			
Plane - economy			8%	72%	80%	50%	50%
Plane - business			2%	18%	20%	50%	50%
EF Unknown France (kgCO2e/pers.miles)	0,204	0,241	0,261	0,451	0,500	0,474	0,474

Freight

For the Freight section, the user is given the choice of entering data in kg, m³ for the metric system, or in lbs, US ton and ft3 for the imperial system, or in number of vehicles, depending on the information available.
When the unit entered is the number of vehicles, the user cannot enter data for the "train", "container" and "aircraft" categories.

Almost all EFs come from BEIS 2023, in kgCO2e/tonne.km and kgCO2e/km.
For EF in m³ of material, conversion factors used in invoicing by logistics professionals have been used. They differentiate between air, sea and land.

Imperial system

lbs and US tons are converted to kg before being converted to kgCO2e. Similarly, ft3 are converted to m3. Finally, miles are converted to km.
The conversion ratios between the metric and imperial systems are the same for all delivery vehicles:

1	mile	1,609	km
1	lb	0,454	kg
1	US ton	907,19	kg
1	ft3	0,028	m3

Electric utility

The EF is calculated from the average electricity consumption of a commercial vehicle (according to Transport Media) and the EF of the energy mix of the country hosting the event.

Electric utility EF (kgCO2e/km) = Country energy mix EF (kgCO2e/kWh) x Average electric utility consumption (kWh/km) + Utility upstream EF (kgCO2e/km).

Electricity consumption in kg of equipment is calculated on the assumption that it is the same ratio between the utility's EF in kgCO2e/km and the utility's EF per kg of equipment as between the electric utility's electricity consumption in kWh/km and electricity consumption per kg of equipment (rule of 3).

Electric utility consumption per kg (kWh/kg.km) = Electric utility consumption (kWh/km) / Utility EF (kgCO2e/km) x Utility EF per kg (kgCO2e/kg.km)

Refrigerated van

For the refrigerated van, the carbon impact is divided between fuel consumption, for driving and for operating the integrated refrigeration unit, and the carbon impact linked to the leakage of refrigerant fluids from the refrigeration unit.

Emissions linked to the energy consumption of the refrigeration unit on board the van are calculated using information from the Comité National Routier (CNR), which gives the average

fuel consumption of a refrigeration unit per hour, and the average speed travelled in km/h of a refrigerated van.

EF refrigerated fuel consumption (kgCO2e/km)= EF of an average van (kgCO2e/km) + EF of petrol (kgCO2e/litre) x average fuel consumption of a refrigeration unit (litre/hour) / average speed of a refrigerated van (km/h)
So EF refrigeration (kgCO2e/km) = 0.27 + 3.1 x 2.5 / 57.3

The carbon impact of a refrigerated van is the sum of the impact of fuel consumption and refrigerant gas leakage.

For the EF in kg of material, the ratio between the EF in number of trucks for the van and that for the refrigerated van is transposed to this EF in kg of material (excluding refrigerants).

EF utility refrigeration per kg (kgCO2e/kg.km) = EF utility refrigeration (kgCO2e/km) / EF utility (kgCO2e/km) x EF utility per kg (kgCO2e/kg.km)

Emissions from leaking refrigerants used in the refrigeration unit are also taken into account.
According to Base Carbone® V23.1 data, the quantity of refrigerants for a vehicle of this size is 2.2 kg, and the annual leakage rate is 25%. So, per year, for a light commercial vehicle, the quantity lost is 0.55 kg.
According to CNR data, a truck travels an average of 140,850 km per year, giving a value in kg of fluid per km and per truck of 3.9E-06 kg/truck.km.
According to Base Carbone® V23.1 resources, the refrigerant gases most commonly used in refrigeration units for trucks of this size are 85% R134a and 15% R404a.

Refrigerant	EF (kgCO2e/kg)	Source	Assumptions
R134a	1300	Base Carbone® V23.1	
R404a	3490	Base Carbone® V23.1	
EF refrigerant for refrigerated vans	1696	Based on Base Carbone® V23.1	From Base Carbone® V23.1 air conditioning table Truck-mounted pulley-belt system 85% R134a and 15% R404a

On a per-vehicle, per-km basis, this gives an EF for refrigerant gas leakage of 0.0066 kgCO2e/km.

For the EF in kg of refrigerant-related material, we assume that an average van has a payload of 820 kg (according to Petit Forestier). This gives an EF in kg of equipment and per km of 8.1E-06 kgCO2e/kg.km.

For the EF related to refrigerant leakage in m3 of material, we use the road transport conversion factor used by market standards, which is 333 kg/m3 (source: DSV).

Electric refrigerated van

The electricity consumption of an electric refrigerated van (kWh/km) is calculated on the assumption that the ratio between the refrigerated van and the electric refrigerated van is the same as that between the van and the electric refrigerated van (rule of 3).

Electric refrigeration utility consumption (kWh/km) = Refrigeration utility EF (kgCO2e/km) / Utility EF (kgCO2e/km) x Electric utility consumption (kWh/km)

The carbon impact of refrigerant leakage is calculated using the same methodology as for a thermal refrigerated van. The same EF in kgCO2e/truck.km is used.

Electricity consumption in kg of equipment is calculated on the assumption that it is the same ratio between the EF of the van in trucks and the EF of the van in kg of equipment, as between the electricity consumption of the electric refrigerated van in number of trucks and that in kg of equipment.

Utility electric refrigeration consumption per kg (kWh/kg.km) = Utility electric refrigeration consumption (kWh/km) / Utility EF (kgCO2e/km) x Utility EF per kg (kgCO2e/kg.km)

Similarly, the same EF in kg and m3 of material is used to estimate the carbon impact of refrigerants as for the refrigerated van.

Hydrogen utility vehicle

The EF of the hydrogen-powered LCV in kg of material is calculated from the EF of the hydrogen-powered LCV in number of vehicles (kgCO2e/km), which corresponds to a 3.5-tonne truck, and the average empty weight of a LCV, which is 2.1 tons according to ADEME.

EF hydrogen utility per kg (kgCO2e/kg.km) = EF hydrogen utility (kgCO2e/km) / (3500-2100)

Refrigerated truck <33t

The carbon impact of the refrigerated truck is equally divided between the impact of fuel consumption and the impact of refrigerant leaks.
The impact of fuel consumption is calculated from BEIS data.
For the impact of refrigerants, we use the same emission factor per truck and per km as for refrigerated vans, i.e. 0.0066 kgCO2e/km.

We assume that the average payload of a refrigerated truck weighing less than 33 tons is 9380 kg (according to Petit Forestier for a 19-tonne refrigerated truck).
Per kg of material, this gives: 7.1E-07 kgCO2e/kg.km.
For m3 of equipment, we use the same method as for the refrigerated van.

Refrigerated trucks >33t

The carbon impact of the refrigerated truck is equally divided between the impact of fuel consumption and the impact of refrigerant leaks.
The impact of fuel consumption is calculated from BEIS data.

For the impact of refrigerants, we use the same methodology for refrigerated vans as for the <33t truck, but with a different quantity of refrigerant per truck, and a different leakage rate. According to the Bilan Carbone resources®, for a refrigerated truck of this size, the quantity of refrigerant is 6.5 kg, and the annual leakage rate is 15%, giving a quantity of 6.9E-06 kg/truck.km. The refrigerant used in trucks over 33 tons is usually R404a, with a GWP of 1300. This gives an EF per truck and per km of 0.027 kgCO2e/km.

We assume that the average payload of a refrigerated truck over 33 tons is 28,000 kg (according to Petit Forestier for a 38-tonne refrigerated truck).
Per kg of material, we obtain: 9.74E-07kgCO2e/kg.km.
For m3 of equipment, we use the same method as for the refrigerated van.

Refrigerant leaks

To summarize, here are the EFs related to refrigerant leakage by vehicle type, and according to the unit selected by the user. These EFs are added to the EFs for fuel consumption to obtain total EFs.

Vehicle type	EF refrigerants	Unit	Source	Assumptions
Refrigerated van	0,01	kgCO2e/truck.km	Based on BC ADEME V23.1 and Bilan Carbone V8.9 spreadsheet	
Electric refrigerated van	0,01	kgCO2e/truck.km	Based on BC ADEME V23.1 and Bilan Carbone V8.9 spreadsheet	
Refrigerated truck < 33 T	0,01	kgCO2e/truck.km	Based on BC ADEME V23.1 and Bilan Carbone V8.9 spreadsheet	
Refrigerated trucks > 33 T	0,03	kgCO2e/truck.km	Based on BC ADEME V23.1 and Bilan Carbone V8.9 spreadsheet	

Vehicle type	EF refrigerants	Unit	Source	Assumptions
Refrigerated van	0,00001	kgCO2e/kg.km	Based on BC ADEME V23.1 and Bilan Carbone V8.9 spreadsheet	Payload : 820 kg
Electric refrigerated van	0,00001	kgCO2e/kg.km	Based on BC ADEME V23.1 and Bilan Carbone V8.9 spreadsheet	Payload : 820 kg
Refrigerated truck < 33 T	0,000001	kgCO2e/kg.km	Based on BC ADEME V23.1 and Bilan Carbone V8.9 spreadsheet	Payload : 9380 kg
Refrigerated trucks > 33 T	0,000001	kgCO2e/kg.km	Based on BC ADEME V23.1 and Bilan Carbone V8.9 spreadsheet	Payload : 28,000 kg
Vehicle type	**EF refrigerants**	**Unit**	**Source**	**Assumptions**
Refrigerated van	0,00269	kgCO2e/m3.km	Based on BC ADEME V23.1 and Bilan Carbone V8.9 spreadsheet	333 kg/m3

Electric refrigerated van	0,00269	kgCO2e/m3.km	Based on BC ADEME V23.1 and Bilan Carbone V8.9 spreadsheet	333 kg/m3
Refrigerated truck < 33 T	0,00024	kgCO2e/m3.km	Based on BC ADEME V23.1 and Bilan Carbone V8.9 spreadsheet	333 kg/m3
Refrigerated trucks > 33 T	0,00032	kgCO2e/m3.km	Based on BC ADEME V23.1 and Bilan Carbone V8.9 spreadsheet	333 kg/m3

EF in number of vehicles

In km

Vehicle type	EF (kgCO2e/km) or Electricity consumption (kWh/km)		Source	EF title and assumptions
Utility	0,26	kgCO2e/km	BEIS 2023	Van - Average (up to 3.5 tonnes) - Petrol - Global
Electric van	0,25	kWh/km	Transport Media	Average electricity consumption of an electric van = 0.25 kWh/km
Refrigerated van	0,41	kgCO2e/km	Based on BEIS 2023 CNR data and Base Carbone® V23.1	EF refrigerated utility fuel consumption + EF refrigerants
Electric refrigerated van (electricity consumption only)	0,41	kWh/km	Based on BEIS 2023, Transport Media, CNR and Base Carbone® V23.1	Calculated from the EF of the van and refrigerated van and the consumption of the electric van. + EF refrigerants
Refrigerated truck < 33 T	1,11	kgCO2e/km	According to BEIS 2023	HGVs refrigerated (all diesel) - Articulated (>3.5 - 33t), Average Laden + EF refrigerants
Refrigerated trucks > 33 T	1,34	kgCO2e/km	According to BEIS 2023	HGVs refrigerated (all diesel) - Articulated (>33t), Average Laden + EF refrigerants
Trucks < 33 T	0,95	kgCO2e/km	BEIS 2023	HGV (all diesel) - Articulated (>3.5 - 33t), Average Laden
Trucks > 33 T	1,13	kgCO2e/km	BEIS 2023	HGV (all diesel) - Articulated (>33t), Average Laden
Hydrogen utility vehicle	0,31	kgCO2e/km	Base Carbone® V23.1	Commercial <3.5t - Hydrogen electrolysis decentralized EU
Cargo bike	0,00	kgCO2e/km		Upstream emissions are not taken into account, EF is zero

In miles

Vehicle type	EF (kgCO2e/miles) or Electricity consumption (kWh/miles)		Source	EF title and assumptions
Utility	0,41	kgCO2e/miles	According to BEIS 2023	Van - Average (up to 3.5 tonnes) - Petrol - Global

Electric van	0,40	kWh/km	Transport Media	Average electricity consumption of an electric van = 0.25 kWh/km
Refrigerated van	0,66	kgCO2e/miles	Based on BEIS 2023 CNR data and Base Carbone® V23.1	EF refrigerated utility fuel consumption + EF refrigerants
Electric refrigerated van (electricity consumption only)	0,66	kWh/km	Based on BEIS 2023, Transport Media, CNR and Base Carbone® V23.1	Calculated from the EF of the van and refrigerated van and the consumption of the electric van. + EF refrigerants
Refrigerated truck < 33 T	1,78	kgCO2e/miles	According to BEIS 2023	HGVs refrigerated (all diesel) - Articulated (>3.5 - 33t), Average Laden + EF refrigerants
Refrigerated trucks > 33 T	2,15	kgCO2e/miles	According to BEIS 2023	HGVs refrigerated (all diesel) - Articulated (>33t), Average Laden + EF refrigerants
Trucks < 33 T	1,53	kgCO2e/miles	According to BEIS 2023	HGV (all diesel) - Articulated (>3.5 - 33t), Average Laden
Trucks > 33 T	1,82	kgCO2e/miles	According to BEIS 2023	HGV (all diesel) - Articulated (>33t), Average Laden
Hydrogen-powered utility vehicle	0,50	kgCO2e/miles	Based on Base Carbone® V23.1	Commercial <3.5t - Hydrogen electrolysis decentralized EU
Cargo bike	0,00	kgCO2e/miles		Upstream emissions are not taken into account, EF is zero

EF by weight of material

In kg of material.km

Vehicle type	**Unit: kg of material**		**Source**	**EF title**
Utility	0,0009	kgCO2e/kg.km	BEIS 2023	Van - Average (up to 3.5 tonnes) - Petrol - Global
Electric van	0,0009	kWh/kg.km	Based on BEIS 2023 and Transport Media	Calculated from the EF of the truck, the electric consumption of the electric truck in number of trucks and the EF of the truck in kg.
Refrigerated van	0,0015	kgCO2e/kg.km	Based on BEIS 2023 CNR data and Base Carbone® V23.1	Calculated from the EF of the van and refrigerated van in number of trucks and the EF of the van in kg + EF of refrigerants.
Electric refrigerated van	0,0015	kWh/kg.km	Based on BEIS 2023, Transport Media, CNR and Base Carbone® V23.1	Calculated from the EF of the van, the consumption of the electric refrigerated van in number of trucks and the EF of the van in kg.
Refrigerated truck < 33 T	0,0002	kgCO2e/kg.km	BEIS 2023	HGVs refrigerated (all diesel) - Articulated (>3.5 - 33t), Average Laden + EF refrigerants

Refrigerated trucks > 33 T	0,0001	kgCO2e/kg.km	BEIS 2023	HGVs refrigerated (all diesel) - Articulated (>33t), Average Laden + EF refrigerants
Trucks < 33 T	0,0001	kgCO2e/kg.km	BEIS 2023	HGV (all diesel) - Articulated (>3.5 - 33t), Average Laden
Trucks > 33 T	0,0001	kgCO2e/kg.km	BEIS 2023	HGV (all diesel) - Articulated (>33t), Average Laden
Hydrogen-powered utility vehicle	0,0002	kgCO2e/kg.km	Based on Base Carbone® V23.1	Assumption of an average load of 1400 kg for a 3.5t van
Cargo bike	0,0000	kgCO2e/kg.km		Upstream emissions are not taken into account, EF is zero
Train	0,000034	kgCO2e/kg.km	BEIS 2023	Rail - Freight train
Plane	0,0012	kgCO2e/kg.km	BEIS 2023	Freight flights - International - with RF
Container ship	0,00002	kgCO2e/kg.km	BEIS 2023	Cargo ship - Container ship - Average

In lbs.miles and US ton.miles

Vehicle type	**Unit entered: lbs of material**		**Unit specified: US ton of material**	
Utility	0,00067	kgCO2e/lbs.miles	1,344	kgCO2e/ton.miles
Electric utility	0,00065	kWh/lbs.miles	1,306	kWh/ton.miles
Refrigerated van	0,00108	kgCO2e/lbs.miles	2,168	kgCO2e/ton.miles
Electric refrigerated van	0,00107	kWh/lbs.miles	2,142	kWh/ton.miles
Refrigerated truck < 33 T	0,00012	kgCO2e/lbs.miles	0,249	kgCO2e/ton.miles
Refrigerated trucks > 33 T	0,00008	kgCO2e/lbs.miles	0,162	kgCO2e/ton.miles
Trucks < 33 T	0,00010	kgCO2e/lbs.miles	0,204	kgCO2e/ton.miles
Trucks > 33 T	0,00007	kgCO2e/lbs.miles	0,131	kgCO2e/ton.miles
Hydrogen utility vehicle	0,00016	kgCO2e/lbs.miles	0,324	kgCO2e/ton.miles
Cargo bike	0,00000	kgCO2e/lbs.miles	0,000	kgCO2e/ton.miles
Train	0,00003	kgCO2e/lbs.miles	0,050	kgCO2e/ton.miles
Plane	0,00090	kgCO2e/lbs.miles	1,796	kgCO2e/ton.miles
Container ship	0,00002	kgCO2e/lbs.miles	0,036	kgCO2e/ton.miles

EF by volume of material transported

Converting kg into m3 of material

Road transport

To convert to m3 of material, we use the road transport conversion factor used by market standards, which is 333 kg/m3 (source: DSV).

EF and electrical consumption in kg of material are therefore multiplied by 333 for all road vehicles.

Air transport

For air transport, we use the air transport conversion factor used by market standards, which is 167 kg/m3 (source: DSV). The aircraft EF in kgCO2e/km.kg is multiplied by 167.

Maritime transport

For shipping, we use the shipping conversion factor used by market standards, which is 1000 kg/m3 (source: DSV). The ship-container EF in kgCO2e/km.kg is therefore multiplied by 1000.

Vehicle type	**Unit entered: m3 of material**		**Source**
Utility	0,31	kgCO2e/m3.km	Based on BEIS 2023
Electric utility	0,30	kWh/m3.km	Based on BEIS 2023 and Transport Media
Refrigerated van	0,50	kgCO2e/m3.km	Based on BEIS 2023, CNR and Base Carbone® V23.1
Electric refrigerated van	0,49	kWh/m3.km	Based on BEIS 2023, Transport Media, CNR and Base Carbone® V23.1
Refrigerated truck < 33 T	0,06	kgCO2e/m3.km	Based on BEIS 2023
Refrigerated trucks > 33 T	0,04	kgCO2e/m3.km	Based on BEIS 2023
Trucks < 33 T	0,05	kgCO2e/m3.km	Based on BEIS 2023
Trucks > 33 T	0,03	kgCO2e/m3.km	Based on BEIS 2023
Hydrogen utility vehicle	0,07	kgCO2e/m3.km	Based on Base Carbone® V23.1
Cargo bike	0,00	kgCO2e/m3.km	Upstream emissions are not taken into account - EF is zero
Train	0,01	kgCO2e/m3.km	Based on BEIS 2023
Plane	0,21	kgCO2e/m3.km	Based on BEIS 2023
Container ship	0,02	kgCO2e/m3.km	Based on BEIS 2023

In ft3.miles

Vehicle type	**Unit supplied: ft3 of material**		**Source**
Utility	0,0140	kgCO2e/ft3.miles	Based on BEIS 2023
Electric utility	0,0136	kWh/ft3.miles	Based on BEIS 2023 and Transport Media
Refrigerated van	0,0227	kgCO2e/ft3.miles	Based on BEIS 2023, CNR and Base Carbone® V23.1
Electric refrigerated van	0,0224	kWh/ft3.miles	Based on BEIS 2023, Transport Media, CNR and Base Carbone® V23.1
Refrigerated truck < 33 T	0,0026	kgCO2e/ft3.miles	Based on BEIS 2023

Refrigerated trucks > 33 T	0,0017	kgCO2e/ft3.miles	Based on BEIS 2023
Trucks < 33 T	0,0021	kgCO2e/ft3.miles	Based on BEIS 2023
Trucks > 33 T	0,0014	kgCO2e/ft3.miles	Based on BEIS 2023
Hydrogen-powered utility vehicle	0,0034	kgCO2e/ft3.miles	Based on Base Carbone® V23.1
Cargo bike	0,0000	kgCO2e/ft3.miles	Upstream emissions are not taken into account - EF is zero
Train	0,0005	kgCO2e/ft3.miles	Based on BEIS 2023
Plane	0,0094	kgCO2e/ft3.miles	Based on BEIS 2023
Container ship	0,0011	kgCO2e/ft3.miles	Based on BEIS 2023

Data specific to Climeet Space Designer

Forecast freight calculation in the "Catalog" tab

In the Catalog section of Climeet, dedicated to space designers, users can calculate the projected freight associated with a space. In the parameters, you can specify whether or not manufacturing is local, and choose a distance range in km.

Space forecast freight emissions are calculated from the surface area in m² entered in the space parameters. This surface area is converted into m3 by dividing the value by 10, based on internal data from space designers.

As a function of distance, assumptions are made about the distribution of freight transport modes, and the following EFs are obtained:

User-selected distance	EF (kgCO2e/m3.km)	EF source	Transport mode assumptions
+/- 50km from the event	0,052	Based on BEIS 2023	100% trucks <33t
+/- 200 km from the event	0,052	Based on BEIS 2023	100% trucks <33t
+/- 600km from the event	0,052	Based on BEIS 2023	100% trucks <33t
+/- 1000 km from the event	0,052	Based on BEIS 2023	100% trucks <33t
+/- 3000km from the event	0,0915	Based on BEIS 2023	75% truck <33t / 25% airplane
+/- 5000km from the event	0,131	Based on BEIS 2023	50% HGV <33t / 25% boat / 25% plane
+/- 10000km from the event	0,171	Based on BEIS 2023	75% plane / 25% boat

NB: the imperial system is only implemented in Climeet Organizer.

Data specific to Climeet Space Designer and Caterer

Freight calculation in the "My services" tab

The user has the choice of entering the known fuel consumption or estimating the number of kg, m3 or trucks.

The EF used for fuel consumption are as follows:

Fuels	EF	Unit	Source	Assumptions
Gasoline (liter)	2,70	kgCO2e/litre	Base Carbone® V23.1	Gasoline - Unleaded premium fuel (95, 95-E10, 98)
Diesel (liter)	3,10	kgCO2e/litre	Base Carbone® V23.1	Road diesel - B7
Electricity (kWh)	Depends on country of event	kgCO2e/kWh	Based on IEA 2022	EF of the country's electricity mix
LNG (liter)	2,15	kgCO2e/litre	Base Carbone® V23.1	LNG, Liquefied Natural Gas - (including road, sea and river)
CNG (kg)	2,96	kgCO2e/kg	Base Carbone® V23.1	CNG, Compressed Natural Gas for road vehicles

NB: the imperial system is only available on Climeet Organizer

Equipment and built spaces

Physical data

Most of the EFs in the "Equipment and built spaces" category come from the Base Carbone® V23.1, and the INIES database version 4.1.33.
For small electronic items for which the EF did not exist in Base Carbone® V23.1, the EF was calculated on the basis of monetary data.
For other elements for which no EF is available in the databases, the EF was calculated from the EF of the main material and the average weight of the element.

All EFs are listed in the table below.
For each item, different units relevant to the nature of the item are proposed.

The conversion ratios between metric and imperial are the same for all items.

Conversion ratios between units of different dimensions (weight, volume, length, surface area) vary according to the material.

Existing EF lines but with new units compared to Climeet 3.2 are in blue. New EF are in orange.

Stands and structures

Stands and structures	EF without end of life	EF with the end of life	Unit	Source	EF title and assumptions	Weighting >50% recycled materials	No. of "unknown" uses	No. of rental uses
Standard wood (kg)	0,04	0,16	kgCO2e/kg	Base Carbone® V23.1	Short-life wood (furniture...) - manufacturing	0,68	2	10
Standard wood (m3)	24,22	104,74	kgCO2e/m3	Based on Base Carbone® V23.1	Based on wood EF (kg) Density: 660 kg/m3	0,68	2	10
Plywood (m^2)	6,96	18,06	kgCO2e/sq. m	Based on INIES	Plywood panel made from okoume-peppercorns and phenolic resin	0,68	2	10

				version 4.1.33	(PF), made in France, for multiple uses (v.1.2) *Carbon storage in wood not taken into account because lifespan <100 years			
Plywood (kg)	1,09	2,82	kgCO2e/kg	Based on INIES version 4.1.33	EF plywood (m²) / 6.4 Weight used in INIES documentation: 6.4 kg	0,68	2	10
Plywood (linear meter)	17,40	45,15	kgCO2e/ml	Based on INIES version 4.1.33	EF plywood (m²) * 2.5 Assumption: 2.5 m height for a partition wall	0,68	2	10
Medium_density_ fiberboard (m²)	15,92	37,02	kgCO2e/sq. m	Based on INIES version 4.1.33	Medium-density fiberboard (MDF) for dry applications, fire-retardant in the rough [thickness 22 mm, up to 30 mm] (v.1.1) *Carbon storage in wood not taken into account because lifespan <100 years	0,68	2	10
Medium_density_ fiberboard (kg)	0,98	2,29	kgCO2e/kg	Based on INIES version 4.1.33	EF medium (m²) / 16.2 Weight used in INES documentation = 16.2 kg	0,68	2	10
Melamine_board (m²)	13,21	30,71	kgCO2e/sq. m	Based on INIES version 4.1.33	Fire-retardant melamine-surfaced particleboard type P2 (panels for interior fittings used in dry environments) [thickness 19 mm, up to 25 mm] (v.1.1) *Carbon storage in wood not taken into account because lifespan <100 years	0,68	2	10
Melamine_board (kg)	0,98	2,29	kgCO2e/kg	Based on INIES version 4.1.33	EF melamine (m²) / 13.5 Weight used in INES documentation = 13.5 kg	0,68	2	10
Melamine_board (linear meter)	33,01	76,76	kgCO2e/ml	Based on INIES version 4.1.33	EF melamine (m²) * 2.5 Assumption: 2.5 m height for a partition wall	0,68	2	10

Glass (kg)	0,43	0,93	kgCO2e/kg	Base Carbone® V23.1	Glass - new	0,72	2	5
Glass (m²)	17,94	18,20	kgCO2e/sq. m	INIES version 4.1.33	4.5 and 6 mm tempered glass (excluding installation accessories)	0,72	2	5
Steel (kg)	1,90	2,21	kgCO2e/kg	Base Carbone® V23.1	Steel or tinplate - new	0,71	20	100
Steel (ml)	4,75	5,13	kgCO2e/ml	INIES version 4.1.33	Steel framing for partition walls and suspended ceilings [T-section 35 to 48 mm] - default environmental data (v.1.1)	0,71	20	100
Aluminium (kg)	7,49	7,80	kgCO2e/kg	Base Carbone® V23.1	Aluminium - new	0,54	20	100
Plastic (kg)	1,79	3,27	kgCO2e/kg	Base Carbone® V23.1	Plastic - PET - new	0,54	2	10
Plastic (m²)	7,15	7,17	kgCO2e/sq. m	INIES version 4.1.33	PVC awning fabric - default environmental data (v.1.4)	0,54	2	10
Lighting bridge (m)	52,44	54,6	kgCO2e/ml	Based on Base Carbone® V23.1	EF "aluminum" (kgCO2e/kg) Assumption: a 3-ml light bridge = 21kg: 7kg aluminum / ml	0,54	50	250
Praticable / stage (m²)	165,46	174,12	kgCO2e/sq. m	Based on Base Carbone® V23.1	EF aluminum (kgCO2e/kg) and EF plywood Assumption: 2mx1m = 40 kg 50% aluminum and 50% plywood	0,61	50	250
Reception tent (m²)	43,81	47,16	kgCO2e/sq. m	Based on France Chapiteaux and Base Carbone® V23.1	Estimated average quantities of steel (structures) and polyester (tarpaulins) based on references in the France Chapiteaux 2024 catalog.	0,61	20	100
Marquee (m²)	32,60	36,73	kgCO2e/sq. m	Based on France Chapiteaux and Base	Estimated average quantities of steel (structures) and polyester (tarpaulins) based on France Chapiteaux 2024 catalog references	0,61	20	100

				Carbone® V23.1				

Case of wood EF in the INIES database :

The EFs "plywood", "medium" and "melamine" come from the INIES database and account for the CO2 emissions stored in wood during its life cycle. However, the documentation in the Empreinte database specifies that sequestration can be taken into account when the wood product is considered to have been in use for at least a century, which is not the case for materials used in the event industry. We have therefore chosen to remove sequestered emissions from the INIES EF database, on the assumption that carbon storage is estimated at 1.850 kgCO2e/kg of product, according to the Empreinte database documentation. The mass of the Functional Unit used in the construction of the EFs is specified in the documentation of the INIES base, i.e. :

- Plywood: 6.4 kg of wood in UF
- Medium: 16.2 kg wood in UF
- Melamine: 13.5 kg of wood in the UF

To each EF with end-of-life, the value of 1.850 * UF wood mass has been added in kgCO2e.

Equipment

Furniture category	EF without end of life	EF with the end of life	Unit	Source	EF title and assumptions	Weighting >50% recycled materials	No. of "unknown" uses	No. of rental uses
Chair (nb)	24,8	28,39	kgCO2e/unit	Base Carbone® V23.1	Chair - wood textile	0,775	20	80
Table (nb)	80,2	130	kgCO2e/unit	Base Carbone® V23.1	Table - solid wood	0,68	20	80
Sofa (nb)	182	200	kgCO2e/unit	Base Carbone® V23.1	Sofa - leather	1	20	80
Cabinet (nb)	907	1026	kgCO2e/unit	Base Carbone® V23.1	Cabinet - representative	0,68	20	80
Clothing rack (nb)	6,43	7,48	kgCO2e/unit	Based on Base Carbone® V23.1	EF "steel - new Assumption: 3.385 kg Average of 3 bearing references	0,42	20	80

Electronics_ Lighting category	EF without end of life	EF with the end of life	Unit	Source	EF title and assumptions	Weighting >50% recycled materials	No. of "unknown" uses	No. of rental uses
Distribution board (nb)	680,00	687,40	kgCO2e/unit	Base Carbone® V23.1	Electrical panel - World	1	20	80
Electric cable (m)	0,38	0,58	kgCO2e/m	Base Carbone® V23.1	External power cable - main supply, copper conductor, PE insulation and PVC sheath	1	30	100
Multi-socket (nb)	2,8	3,10	kgCO2e/unit	Based on Base Carbone® V23.1	Computers and electronic equipment - value of purchases (kgCO2e/euro) > EF calculated on the basis of the average price of a multi-socket t in euros (7 euros on average).	1	30	100
Spotlights (nb)	29,05	29,4	kgCO2e/unit	INIES version 4.1.33	Indoor recessed spotlights [P=13W to 20W] - default environmental data (v.1.4)	1	20	80
Alarm (nb)	14,96	15,10	kgCO2e/unit	INIES version 4.1.33	Fire alarms (types 1, 2a, 2b, 3, 4) - default environmental data (v.1.2)	1	20	60
LED spotlights (nb)	10,95	11,30	kgCO2e/unit	INIES version 4.1.33	14W LED indoor spotlight - default environmental data (v.1.1)	1	20	80
Backlit cabinet (nb)	135,22	136	kgCO2e/unit	INIES version 4.1.33	Flexible LED strips (power supply included) (P 36 to 75W) - environmental data	1	30	100

Fabrics category	EF without end of life	EF with the end of life	Unit	Source	EF title and assumptions	Weighting >50% recycled materials	No. of "unknown" uses	No. of rental uses
Needlepunched carpet (m²)	27,61	30,10	kgCO2e/sq.m	INIES version 4.1.33	Flexible textile flooring - default environmental data (v.1.3)	0,54	2	2
Needlepunched carpet (kg)	34,21	37,29	kgCO2e/kg	According to INIES version 4.1.33	Grammage = 807 g/m². Average obtained from the carpet references used in the INIES base	0,54	2	2

					documentation of the EF "needle-punched carpet (m²)".			
Velvet carpet (m²)	23,55	24	kgCO2e/sq.m	INIES version 4.1.33	Tufted 100% polyamide pile carpet tiles with a total pile weight greater than 750 g/m² (v.1.1)	0,54	2	2
Velvet carpet (kg)	31,40	32	kgCO2e/kg	According to INIES version 4.1.33	Grammage = 750 g/m². According to the INIES documentation of the EF "carpet pile (m²)".	0,54	2	2
Lino (m²)	34,38	42,20	kgCO2e/sq.m	INIES version 4.1.33	Flexible linoleum flooring - - default environmental data (v.1.3)	0,68	2	5
Lino (kg)	8,82	10,82	kgCO2e/kg	According to INIES version 4.1.33	Grammage = 3900 g/m². According to a Forbo product sheet for Marmoleum 3.2 mm	0,68	2	5
Rubber (m²)	44	53,50	kgCO2e/sq.m	INIES version 4.1.33	Flexible rubber flooring - - default environmental data (v.1.3)	1	2	5
Rubber (kg)	7,86	9,55	kgCO2e/kg	According to INIES version 4.1.33	Grammage = 5600 g/m². According to a CCFAT technical document on the application of X-Elastic 4 mm	1	2	5
Curtains (m²)	5,26	5,39	kgCO2e/sq.m	INIES version 4.1.33	Blackout curtain - default environmental data (v.1.1)	0,87	10	30
Curtains (kg)	22,47	23,03	kgCO2e/kg	According to INIES version 4.1.33	Grammage = 234 g/m². Average of 4 references present in the INIES documentation of the EF "curtains (m²)".	0,87	10	30
Brushed cotton (m²)	1,14	1,15	kgCO2e/sq.m	INIES version 4.1.33	Thermal and acoustic insulation for cotton fiber partitions [R=2.5m2.K/W] - default environmental data (v.1.2) With end of life	0,885	2	2
Brushed cotton(kg)	2,02	2,03	kgCO2e/kg	According to INIES version 4.1.33	Grammage = 567 g/m². According to the INIES database documentation of the EF "brushed cotton (m²)".	0,885	2	2

Category Signage	EF without end of life	EF with the end of life	Unit	Source	EF title and assumptions	Weighting >50% recycled materials	No. of "unknown" uses	No. of "rental" uses

Adhesive (m)	0,06713	0,0686	kgCO2e/m	INIES version 4.1.33	Vario® Multitape adhesive (v.1.3) With end of life	1	1	2
Adhesive (m²)	Non-shareable basis	Non-shareable basis	kgCO2e/sq.m	Based on Ecoinvent 3.8	EF "ethylvinylacetate production, foil - RER - ethylvinylacetate, foil" - assumption 150 g/m².	1	1	2
Textile (m²)	7,15	7,17	kgCO2e/sq.m	INIES version 4.1.33	PVC awning fabric - default environmental data (v.1.4)	0,87	1	2
Textile (kg)	14,34	14,37	kgCO2e/kg	Based on INIES version 4.1.33	Grammage = 499 g/m². Average obtained from the fabric references used in the INIES database documentation of the EF "textile (m²)".	0,87	1	2
PVC (m²)	7,15	7,17	kgCO2e/sq.m	INIES version 4.1.33	PVC awning fabric - default environmental data (v.1.4)	0,61	1	2
PVC (kg)	14,34	14,37	kgCO2e/kg	Based on INIES version 4.1.33	Grammage = 499 g/m². Average obtained from the fabric references used in the INIES database documentation of the EF "textile (m²)".	0,61	1	2
PET (m²)	0,54	0,98	kgCO2e/sq.m	Based on Base Carbone® V23.1	EF "Plastic - PET - new" (kgCO2e/kg) 300g/m² assumption Source: Bretagne Matériaux	0,54	1	2
PET (kg)	1,79	3,27	kgCO2e/kg	Base Carbone® V23.1	"Plastic - PET - new	0,54	1	2
Polyester (m²)	3,425	3,80	kgCO2e/sq.m	Based on Base Carbone® V23.1	Assumption: 250g/m². EF "spun polyester fibres	0,54	2	10
Polyester (kg)	13,70	15,18	kgCO2e/kg	Base Carbone® V23.1	Polyester fiber yarn	0,54	2	10
Polypropylene (m²)	0,13	0,5	kgCO2e/sq.m	Based on Base Carbone® V23.1	Assumption: 250g/m². EF "PP"	0,54	2	10
Polypropylene (kg)	0,52	2	kgCO2e/kg	Base Carbone® V23.1	PP - Polypropylene	0,54	2	10
Cardboard (kg)	0,39	1,13	kgCO2e/kg	Base Carbone® V23.1	Cardboard - new	1,36	2	2

Cardboard (m^2)	0,39	1,13	kgCO2e/sq.m	Based on Base Carbone® V23.1	Assumption: heavy-duty triple-flute cardboard (commonly used for events) Grammage = 1000 g/m^2.	1,36	2	2
Plastic (kg)	1,79	3,27	kgCO2e/kg	Base Carbone® V23.1	Plastic - PET - new	0,54	2	10
Plastic (m^2)	7,15	7,17	kgCO2e/sq.m	INIES version 4.1.33	PVC awning fabric - default environmental data (v.1.4)	0,54	2	10

Print category	EF without end of life	EF with the end of life	Unit	Source	EF title and assumptions	Weighting >50% recycled materials	No. of "unknown" uses	No. of rental uses
Book/Catalogue (kg)	3,67	4,40	kgCO2e/kg	Based on Base Carbone V23.1	From EF "300g book" onwards	1,03	2	10
Book/Catalogue (nb)	1,10	1,32	kgCO2e/unit	Base Carbone V23.1	EF "300g book	1,03	2	10
Printed poster (kg)	4,40	5,13	kgCO2e/kg	Based on Base Carbone® V23.1	Adaptation of the "Printed paper label" EF from an average weight of 100g/m^2 to an average weight of a poster of 150 g/m^2 (industry data).	1,03	2	2
Printed poster (m^2)	0,66	0,77	kgCO2e/sq.m	Based on Base Carbone® V23.1	Adaptation of the "Printed paper label" EF from an average weight of 100g/m^2 to an average weight of a poster of 150 g/m^2 (industry data).	1,03	2	2

Video_sound category	EF without end of life	EF with the end of life	Unit	Source	EF title and assumptions	Weighting >50% recycled materials	No. of "unknown" uses	No. of rental uses
Screen (nb)	371,00	422	kgCO2e/unit	Base Carbone® V23.1	Television - 40-49 inches	1	20	60

23-55" screen (nb)	265,00	265	kgCO2e/unit	Base Carbone® V23.1	23.8-inch screen	1	20	60
55-98" screen (nb)	371,00	422	kgCO2e/unit	Base Carbone® V23.1	Television - 40-49 inches	1	20	60
+98" screen (nb)	1080,00	1118	kgCO2e/unit	Base Carbone® V23.1	2m² advertising screen without casing	1	20	60
Computer (nb)	169	189,00	kgCO2e/unit	Base Carbone® V23.1	Computer - Stationary - Office	1	20	60
Tablet (nb)	82,2	86	kgCO2e/unit	Base Carbone® V23.1	Shelf - detachable	1	20	60
Speaker (nb)	30,70	50 ;70	kgCO2e/unit	Base Carbone® V23.1	Voice-activated speaker	1	20	60
Camera (nb)	30,60	32,40	kgCO2e/unit	Base Carbone® V23.1	Camera - Reflex	1	20	60
Printer/ Scanner (nb)	87,90	95,00	kgCO2e/unit	Base Carbone® V23.1	Printer - multifunction	1	20	60
Microphone (nb)	18,34	18,49	kgCO2e/unit	Based on Base Carbone® V23.1	Computers and electronic equipment - Purchases (kgCO2e/euro) Assumption: €40 Source : Bax shop	1	20	60
Camera (nb)	165,06	169,06	kgCO2e/unit	Based on Base Carbone® V23.1	Computers and electronic equipment - Total purchases - Assumption: €180 Source : Cdiscount	1	20	60
VR headset (nb)	61,44	62,64	kgCO2e/unit	Based on Base Carbone® V23.1	Computers and electronic equipment - Purchases Assumption: €67 Source : Darty	1	20	60
Mixing console (nb)	169	189	kgCO2e/unit	Base Carbone® V23.1	Equivalent to EF "laptop	1	20	60

LED wall (m²)	379,00	403	kgCO2e/sq.m	Base Carbone® V23.1	Liquid crystal display, light-emitting diode backlight, m2 (LCD LED), TW	1	20	60
Projector (nb)	145	151	kgCO2e/unit	Base Carbone® V23.1	Projector	1	20	60
Photobooth (nb)	286,57	302,73	kgCO2e/unit	Based on Base Carbone® V23.1	Addition of the following EF: "Camera", "LED spotlight", "Tablet", "Printer/scanner", and EF "aluminum". Assumption: weight of aluminum tripod = 10 kg	1	20	60
Headphones (nb)	30,45	32,47	kgCO2e/unit	Based on Base Carbone® V23.1	Price 150 euros (average based on several references of wired headphones) and EF "IT, electronic and optical products 2023".	1	20	60
Walkie-talkies (nb)	40,60	43,29	kgCO2e/unit	Based on Base Carbone® V23.1	Prize 200 euros (hands-free walkie-talkie (Motorola) and EF "IT, electronic and optical products 2023")	1	20	60

Vegetation category	**EF without end of life**	**EF with the end of life**	**Unit**	**Source**	**EF title and assumptions**	**Weighting >50% recycled materials**	**No. of "unknown" uses**	**No. of "rental" uses**
Plant - small (nb)	5,00	6,93	kgCO2e/unit	Based on Base Carbone® V23.1	EF "Potted shrub - permanent grassland, with clover, North-West region" (kgCO2e/kg) Assumption: 5 kg	1	2	5
Plant - medium(nb)	15,00	20,79	kgCO2e/unit	Based on Base Carbone® V23.1	EF "Potted shrub - permanent grassland, with clover, North-West region" (kgCO2e/kg) Assumption: 15 kg	1	2	5

Plant - large (nb)	50,00	69,30	kgCO2e/unit	Based on Base Carbone® V23.1	EF "Potted shrub - permanent grassland, with clover, North-West region" (kgCO2e/kg) Assumption: 50 kg	1	2	5
Soil (kg)	0,63	1,02	kgCO2e/kg	Base Carbone® V23.1	Black horticultural peat - Conventional extraction	1	1	2
Flower bouquet all sorts (10 flowers) (nb)	28,3	28,33	kgCO2e/unit	Based on Royal Agricultural Society of England 2022	From the EF of a bouquet of 11 flowers from Kenya Suitable for a bouquet of 10 flowers	1	2	5
Flower bouquet local and seasonal (10 flowers) (nb)	2,99	3,04	kgCO2e/unit	Based on Royal Agricultural Society of England 2022	From the EF of a bouquet of 11 flowers from the UK (local and seasonal flowers for the study) Suitable for a bouquet of 10 flowers	1	2	5

Catering category	**EF without end of life**	**EF with the end of life**	**Unit**	**Source**	**EF title and assumptions**	**Weighting >50% recycled materials**	**No. of "unknown" uses**	**No. of rental uses**
Refrigerator (nb)	257	382	kgCO2e/unit	Base Carbone® V23.1	Combination refrigerator	1	20	60
Coffee maker (nb)	47,60	52,38	kgCO2e/unit	Base Carbone® V23.1	Espresso coffee machine	1	20	60
Refrigerated cabinet (nb)	514	764	kgCO2e/unit	Based on Base Carbone® V23.1	Assumption: 2 times EF "Refrigerator - combined" (Base Carbone® V23.1)	1	20	60
Dishwashers (nb)	961,00	1233	kgCO2e/unit	Base Carbone® V23.1	Dishwashers - Professional	1	20	60
Oven (nb)	865,00	1175	kgCO2e/unit	Base Carbone® V23.1	Oven - professional - steam combi electric	1	20	60

Sink (nb)	70,3	81,81	kgCO2e/unit	Based on Base Carbone® V23.1	EF "Steel or tinplate - new" (kgCO2e/kg) Assumption: 37 kg steel (stainless steel) Source : Gastro Mastro	1	30	100
Wrapping glass (kg)	0,81	1,306	kgCO2e/kg	Base Carbone® V23.1	Packaging glass (bottle, flask)	0,72	50	200

Category Other	**EF without end of life**	**EF with the end of life**	**Unit**	**Source**	**EF title and assumptions**	**Weighting >50% recycled materials**	**No. of "unknown" uses**	**No. of rental uses**
Screws and nails (kg)	1,90	2,21	kgCO2e/kg	Base Carbone® V23.1	Steel or tinplate - new	0,71	2	2
Glue (kg)	3,09	3,48	kgCO2e/kg	Base Carbone® V23.1	Medium adhesive mix	1	2	2
Paint (kg)	6,74	7,13	kgCO2e/kg	Base Carbone® V23.1	PU lacquer - black	1	2	2
Paint (m^2)	3,11	3,23	kgCO2e/sq.m	INIES version 4.1.33	Interior waterborne paint - default data	1	2	2
Cardboard (kg)	0,39	1,13	kgCO2e/kg	Base Carbone® V23.1	Cardboard - new	1,36	2	2
Cardboard (m^2)	0,39	1,13	kgCO2e/sq.m	Based on Base Carbone® V23.1	Assumption: heavy-duty triple-flute cardboard (commonly used for events) Grammage = 1000 g/m^2.	1,36	2	2

Paper (kg)	0,92	1,66	kgCO2e/kg	Base Carbone® V23.1	Paper - Medium - Out of use and end of life	1,03	2	2
Paper (m^2)	0,11	0,20	kgCO2e/sq.m	Based on Base Carbone® V23.1	Assumption: 120 g/m^2.	1,03	2	2
Plastic film (kg)	5,50	6,98	kgCO2e/kg	Base Carbone® V23.1	PET plastic film (not recyclable) - new	0,54	2	2
Nylon (kg)	7,63	8,02	kgCO2e/kg	Base Carbone® V23.1	Nylon	1	2	2
Cotton (kg)	16	16,39	kgCO2e/kg	Base Carbone® V23.1	Cotton yarn - EF partially aggregated	0,885	10	45

Reuse / rental

Climeet divides the emissions linked to the manufacture of the object or structure over its lifecycle according to the number of times it is reused. The user can specify for each item whether it is reused, rented or neither.
When the user enters "No" or "Unknown" in the "Reuse" section, all emissions from the manufacture of the object are accounted for.

When the user enters "rental", the tool divides the emissions by a hypothetical number of uses, which varies according to the item. These assumptions are set out in the table below. The number of uses varies between 2 and 250, depending on the object's lifespan. Example: paint has an estimated number of uses of 2, while a chair has an estimated number of uses of 80.

When the user enters "yes", and enters the number of reuses, the element's emissions are divided by the value entered.
If the "Number of reuses" box is left blank, emissions are divided by a hypothetical number of reuses, which varies according to the nature of the item, on the same principle as "rental". All these assumptions are recorded in the table above.

End-of-life integration

In order to have a complete scope of emissions calculation, we distinguish for each item an EF without end-of-life, and an EF with end-of-life. End-of-life emissions take into account emissions generated by the collection of the item and its end-of-life treatment (incineration, landfill, recycling).
When the user enters "No" or "Unknown" in "Reused?", Climeet uses the EF without end-of-life, as these items will normally be accounted for in the "Waste" section, which will calculate the emissions linked to their end-of-life.
When the user enters "Yes" or "Location" in "Reused?", Climeet uses the EF with the end-of-life date.

The EF with end-of-life is calculated in several ways, depending on the item. Some EFs already include it, such as all those in the INIES database and some in the Base Carbone. Database documentation specifies the scope of each EF and whether or not end-of-life is included.
For EFs not including end-of-life, end-of-life emissions have been calculated from the EFs in the "Waste" section, and the hypothetical weight in kg of each item. Item weights are either specified in database documentation or are estimated from average values of several references. The weight assumptions are recorded in the table above.

From recycled materials

The user can specify for each item whether more than 50% of it is made from recycled materials.
If the user enters "No" or "Unknown", the emission factor remains unchanged.
If "Yes" is entered, the EF is multiplied by a weighting factor. This percentage varies according to the nature of the materials making up the element. They are listed in the table below. For elements not made from the materials listed in the table, the EF remains unchanged in all cases.

Material	Weighting factor	Source	Assumptions
Wood	0,68	BEIS 2023	% difference between "Closed loop source" (113 kg CO2/t) and "Primarly material production" (312 kgCO2e/t)
Plastic	0,54	Base Carbone® V23.1	Ratio of "recycled plastic" EF to "new plastic" EF
PVC	0,61	Base Carbone® V23.1	Ratio of "recycled PVC" EF to "new PVC" EF
Steel	0,71	Base Carbone® V23.1	Ratio of "recycled steel" EF to "new steel" EF

Aluminium	0,54	Base Carbone® V23.1	Ratio of "recycled aluminum" EF to "new aluminum" EF
Glass	0,72	Base Carbone® V23.1	Ratio of "recycled glass" EF to "new glass" EF
Paper	1,03	Base Carbone® V23.1	Ratio of "recycled paper" EF to "new paper" EF
Cardboard	1,36	Base Carbone® V23.1	Ratio of "recycled cardboard" EF to "new cardboard" EF
Fabric	0,87	Higgs 2022	% difference between "primary polyester (knitted)" and "recycled polyester (knitted)".
Cotton	0,885	Higgs 2023	% difference between "primary cotton (knitted)" and "recycled cotton (knitted)".

Imperial system

The conversion ratios to imperial units are the same for all EFs in the "Equipment and built spaces" category, as shown below:

1	lbs (pounds)	0,454	kg
1	ft (Feet)	0,305	m
1	ft² (square Feet)	0,093	m²
1	yd² (square yard)	0,836	m²
1	ft3 (cubic Feet)	0,028	m3

Here are the various EFs shown above in imperial units:

Stands and structures	EF without end of life	EF with the end of life	Unit
Standard wood (lbs)	0,02	0,07	kgCO2e/lbs
Standard wood (ft3)	0,69	2,97	kgCO2e/ft3
Plywood (ft²)	0,65	1,68	kgCO2e/ft²
Plywood (lbs)	0,49	1,28	kgCO2e/lbs
Plywood (ft)	5,30	13,76	kgCO2e/ft
Medium (ft²)	1,48	3,44	kgCO2e/ft²
Medium (lbs)	0,45	1,04	kgCO2e/lbs

Melamine (ft^2)	1,23	2,85	$kgCO2e/ft^2$
Melamine (lbs)	0,44	1,03	kgCO2e/lbs
Melamine (ft)	10,06	23,40	kgCO2e/ft
Glass (lbs)	0,20	0,42	kgCO2e/lbs
Glass (ft^2)	1,67	1,69	$kgCO2e/ft^2$
Steel (lbs)	0,86	1,00	kgCO2e/lbs
Steel (ft)	1,45	1,56	kgCO2e/ft
Aluminium (lbs)	3,40	3,54	kgCO2e/lbs
Plastic (lbs)	0,81	1,48	kgCO2e/lbs
Plastic (ft^2)	0,05	0,09	$kgCO2e/ft^2$
Lighting bridge (ft)	15,98	16,65	kgCO2e/ft
Praticable / stage (ft^2)	15,37	16,18	$kgCO2e/ft^2$
Reception tent (ft^2)	4,07	4,38	$kgCO2e/ft^2$
Marquee (ft^2)	3,03	3,41	$kgCO2e/ft^2$

Category Electricity lighting	**EF without end of life**	**EF with the end of life**	**Unit**
Electric cable (ft)	0,116	0,177	kgCO2e/ft

Fabric category	**EF without end of life**	**EF with the end of life**	**Unit**
Needlepunched carpet (ft^2)	2,57	2,80	$kgCO2e/ft^2$
Needlepunched carpet (yd^2)	23,09	25,17	$kgCO2e/yd^2$
Needlepunched carpet (lbs)	15,52	16,92	kgCO2e/lbs
Velvet carpet (ft^2)	2,19	2,23	$kgCO2e/ft^2$
Velvet carpet (yd^2)	19,69	20,07	$kgCO2e/yd^2$
Velvet carpet (lbs)	14,24	14,51	kgCO2e/lbs

Lino (ft^2)	3,19	3,92	$kgCO2e/ft^2$
Lino (yd^2)	28,75	35,28	$kgCO2e/yd^2$
Lino (lbs)	4,00	4,91	kgCO2e/lbs
Rubber (ft^2)	4,09	4,97	$kgCO2e/ft^2$
Rubber (yd^2)	36,79	44,73	$kgCO2e/yd^2$
Rubber (lbs)	3,56	4,33	kgCO2e/lbs
Curtains (ft^2)	0,49	0,50	$kgCO2e/ft^2$
Curtains (yd^2)	4,40	4,51	$kgCO2e/yd^2$
Curtains (lbs)	10,19	10,45	kgCO2e/lbs
Brushed cotton(ft^2)	0,11	0,11	$kgCO2e/ft^2$
Brushed cotton (yd^2)	0,96	0,96	$kgCO2e/yd^2$
Brushed cotton (lbs)	0,91	0,92	kgCO2e/lbs

Category Signage	**EF without end of life**	**EF with the end of life**	**Unit**
Adhesive (ft)	0,006	0,007	kgCO2e/ft
Adhesive (ft^2)	0,036	0,041	$kgCO2e/ft^2$
Textile (lbs)	6,50	6,52	kgCO2e/lbs
Textile (ft^2)	0,665	0,666	$kgCO2e/ft^2$
PVC (lbs)	6,50	6,52	kgCO2e/lbs
PVC (ft^2)	0,665	0,666	$kgCO2e/ft^2$
PET (lbs)	0,812	1,48	kgCO2e/lbs
PET (ft^2)	0,050	0,091	$kgCO2e/ft^2$
Polypropylene (lbs)	0,236	0,907	kgCO2e/lbs
Polypropylene (ft^2)	0,01	0,05	$kgCO2e/ft^2$
Polyester (lbs)	6,21	6,89	kgCO2e/lbs

Polyester (ft^2)	0,318	0,353	$kgCO2e/ft^2$
Cardboard (lbs)	0,177	0,511	kgCO2e/lbs
Cardboard (ft^2)	0,036	0,105	$kgCO2e/ft^2$
Plastic (lbs)	0,812	1,48	kgCO2e/lbs
Plastic (ft^2)	0,050	0,091	$kgCO2e/ft^2$

Print category	**EF without end of life**	**EF with the end of life**	**Unit**
Printed poster (ft^2)	0,06	0,07	$kgCO2e/ft^2$
Printed poster (lbs)	1,99	2,33	kgCO2e/lbs
Book/catalogue (lbs)	1,66	2,00	kgCO2e/lbs

Video/sound category	**EF without end of life**	**EF with the end of life**	**Unit**
LED wall (ft^2)	35,21	37,44	$kgCO2e/ft^2$

Vegetation category	**EF without end of life**	**EF with the end of life**	**Unit**
Potting soil (lbs)	0,286	0,461	kgCO2e/lbs

Catering category	**EF without end of life**	**EF with the end of life**	**Unit**
Packaging glass (lbs)	0,37	0,59	kgCO2e/lbs

Category Other	**EF without end of life**	**EF with the end of life**	**Unit**
Screws and nails (lbs)	0,862	1,00	kgCO2e/lbs
Glue (lbs)	1,402	1,58	kgCO2e/lbs
Paint (lbs)	3,06	3,23	kgCO2e/lbs
Painting (ft^2)	0,289	0,300	kgCO2e/sq.m

Cardboard (lbs)	0,177	0,511	kgCO2e/lbs
Cardboard (ft²)	0,036	0,105	kgCO2e/sq.m
Paper (lbs)	0,417	0,75	kgCO2e/lbs
Paper (ft²)	0,010	0,018	kgCO2e/sq.m
Plastic film (lbs)	2,495	3,17	kgCO2e/lbs
Nylon (lbs)	3,461	3,64	kgCO2e/lbs
Cotton (lbs)	7,257	7,43	kgCO2e/lbs

Monetary data

As a last resort, when information is not available, the user can enter monetary data, which are converted using monetary emission factors from ADEME's Base Carbone®. The tool uses the most recent monetary EFs dating from 2023.
To take account of the 6.4% inflation between 2023 and 2025, the EF are divided by 1.064.
Base Carbone® EFs do not take end-of-life into account. Monetary EFs with end-of-life are constructed from monetary EFs without end-of-life multiplied by the ratio of EFs with end-of-life to EFs without end-of-life in the Physical section. In the same way as for physical data, the tool uses the EF without end-of-life when the user enters "No" or "Unknown" in "Reused?» and uses the EF with end-of-life if the user enters "Yes" or "Location".

EFs in kgCO2e/euro are converted into kgCO2e/dollar and kgCO2e/yuan using the OECD Purchasing Power Parity (PPP). PPP is a currency conversion rate that expresses the purchasing power of different currencies in a common unit. This rate expresses the ratio between the quantity of monetary units needed in different countries to purchase the same "basket" of goods and services.

Conversion rate EUR USD =1.459854 USD/EUR Source: https://data.oecd.org/conversion/purchasing-power-parities-ppp.htm Data 2022
Conversion rate EUR YUAN = 5.8234 YUAN/EUR Source: https://data.oecd.org/conversion/purchasing-power-parities-ppp.htm Data 2022

In the same way as for the emission factors for physical data, hypothetical reuse numbers are used when the user enters "yes" in the "reuse" section, depending on the materials' lifespan.

For rental items, a different approach is used, as the budget entered by the user already corresponds to a rental item, which is by nature lower than a purchase price, as it already incorporates the number of potential rentals of the object. When we compare purchase versus rental prices for furniture or electronics, we find an average factor of 20, which gives the theoretical number of reuses. However, these types of items have a higher number of reuses than 20, on the order of 80 or even 100. As a general rule, we are at least in the order of 4 times the cumulative rental price compared to the purchase price, given that rental companies seek to maximize the price difference between purchase and rental. We have therefore chosen to divide the "rental" budget by 4 in order to assess the real number of reuses possible with a rental item.

Stands and structures	EF without end of life	EF with the end of life	Unit	Source	EF title and assumptions	No. of reuses if "yes	Rental factor
Mostly wood	0,19	0,83	kgCO2e/euro	Based on Base Carbone® V23.1	Wood, cork (excluding furniture) / Basketry, wickerwork - 2023	3	4
Mostly metal	0,30	0,32	kgCO2e/euro	Based on Base Carbone® V23.1	Metal products, excluding machinery and equipment - 2023	10	4
Mostly Plastic	0,29	0,54	kgCO2e/euro	Based on Base Carbone® V23.1	Products - Plastics and rubber 2023	3	4
Unknown	0,26	0,56	kgCO2e/euro	Based on Base Carbone® V23.1	Average of other EFs	3	4

Stands and structures	EF without end of life	EF with the end of life	Unit	EF without end of life	EF with the end of life	Unit
Mostly wood	0,13	0,57	kgCO2e/dollar	0,03	0,14	kgCO2e/yuan
Mostly metal	0,20	0,22	kgCO2e/dollar	0,05	0,05	kgCO2e/yuan
Mostly plastic	0,20	0,37	kgCO2e/dollar	0,05	0,09	kgCO2e/yuan
Unknown	0,18	0,39	kgCO2e/dollar	0,04	0,10	kgCO2e/yuan

Equipment	EF without end of life	EF with the end of life	Unit	Source	Assumptions	EFs used in the end-of-life ratio	No. of reuses if "yes	Rental factor
Furniture	0,22	0,25	kgCO2e/euro	Based on Base Carbone® V23.1	Furniture - 2023	EF in the "Furniture" category	10	4
Electricity / Sound / Lighting	0,20	0,22	kgCO2e/euro	Based on Base Carbone® V23.1	Computer, electronic and optical products - 2023	EF in the "Electricity/Sound" and "Video" categories	20	4
Decorations	0,23	0,27	kgCO2e/euro	Based on Base Carbone® V23.1	Average between "Plastics and rubber products" and "Wood, cork (excluding wood)".	EF " plastic ", " rubber ", " Brushed cotton", " curtains ", " textile ".	3	4
Signage	0,29	0,3	kgCO2e/euro	Based on Base Carbone® V23.1	Service - Plastics and rubber (for vinyl, for example)	EF in the "Signage" category	3	4
Fabrics	1,07	1,1	kgCO2e/euro	Based on INIES v.4.1.33	Textile resilient flooring - default environmental data (v.1.2)" (production + installation emissions) (kgCO2e/m²) Assumption: price per m²: €25 Source : Prix Pose	EF needle-punched and velvet carpets	2	4
Paper	0,30	0,5	kgCO2e/euro	Based on Base Carbone® V23.1	Paper and cardboard - 2023	EF "paper »	2	4

Equipment	EF without end of life	EF with the end of life	Unit	EF without end of life	EF with the end of life	Unit
Furniture	0,15	0,17	kgCO2e/dollar	0,04	0,04	kgCO2e/yuan
Electricity / Sound / Lighting	0,14	0,15	kgCO2e/dollar	0,03	0,04	kgCO2e/yuan
Decorations	0,16	0,18	kgCO2e/dollar	0,04	0,05	kgCO2e/yuan
Signage	0,20	0,22	kgCO2e/dollar	0,05	0,06	kgCO2e/yuan
Fabric	0,73	0,78	kgCO2e/dollar	0,18	0,20	kgCO2e/yuan
Paper	0,21	0,37	kgCO2e/dollar	0,05	0,09	kgCO2e/yuan

Data specific to Climeet Designers d'espace

Users can specify the percentage of recycled materials used in a space catalog parameters. In the same way as Climeet Organizer, the emission factors are weighted by a certain factor, depending on the material. These weighting percentages are shown in the table above.

In a conservative approach, the EF used in Climeet Space Designers are those with end-of-life.

Please note that the EF units in the Caterer and Space Designer modules are not customizable and are in the metric system. These EFs will be incorporated into the Organizer module in the next update.

Certain materials and equipment are only available in the Climeet Designers d'Espace catalog, and are listed below:

Carpentry/structure category	EF without end of life	EF with the end of life	Unit	Source	EF title and assumptions	Weighting >50% recycled materials	No. of "unknown" uses	No. of rental uses
BA 13 / plaster (m²)	2,46	2,98	kgCO2e/sq. m	INIES v.4.1.33	Placodur BA 13 plasterboard (excluding framing)	1	20	100
Paint (m²)	3,11	3,23	kgCO2e/sq. m	INIES v.4.1.33	Interior waterborne paint - default data	1	2	2

Upholstery category	EF without end of life	EF with the end of life	Unit	Source	EF title and assumptions	Weighting >50% recycled materials	No. of "unknown" uses	No. of "rental" uses
Other floor covering (m²)	44,00	53,50	kgCO2e/sq. m	INIES v.4.1.33	Flexible rubber flooring - default environmental data (v.1.3)	1	2	5
Velum (m²) - PVC fabric	7,15	7,17	kgCO2e/sq. m	INIES v.4.1.33	PVC awning fabric - default environmental data (v.1.4)	0,61	2	6
Velum (m²) - acrylic fabric	3,73	3,83	kgCO2e/sq. m	Based on Higg 2021	Average calculated from 3 types of office in the FIRA benchmark (2011)	0,54	2	6

Furniture category	EF without end of life	EF with the end of life	Unit	Source	EF title and assumptions	Weighting >50% recycled materials	No. of "unknown" uses	No. of rental uses
Seating (nb)	24,8	28,3898	kgCO2e/unit	Base Carbone V23.1	Chair - wood textile	0,775	20	80
Buffet (off-wood) (nb)	128,1	155,12	kgCO2e/unit	Based on Base Carbone® V23.1	EF " Furniture - manufacturing "(kgCO2e/kg) Assumption: 70 kg	1	20	80

Wooden sideboard (nb)	48	56,54	kgCO2e/unit	Fira 2011	Average calculated from 3 types of office in the FIRA benchmark (2011)	0,68	20	80
Armchair (nb)	24,8	28,4	kgCO2e/unit	Base Carbone® V23.1	Equivalent to EF "wood textile chair	0,775	20	80
Display (nb)	80,2	130	kgCO2e/unit	Base Carbone® V23.1	Table - solid wood With end of life	0,68	20	80

Electricity category	**EF without end of life**	**EF with the end of life**	**Unit**	**Source**	**EF title and assumptions**	**Weighting >50% recycled materials**	**No. of "unknown" uses**	**No. of rental uses**
Cables (ml)	0,38	0,58	kgCO2e/m	Base Carbone V23.1	External power cable - main supply, copper conductor, PE insulation and PVC sheath	1	30	100
Non-LED spotlights (nb)	29,05	29,40	kgCO2e/unit	INIES v.4.1.33	Indoor recessed spotlights [P=13W to 20 W] - DEFAULT ENVIRONMENTAL DATA (v.1.1)	1	20	80
LED downlights (nb)	10,95	11,3	kgCO2e/unit	INIES v.4.1.33	14W LED indoor spotlight - DEFAULT ENVIRONMENTAL DATA (v.1.1)	1	20	80
Overhead LED spotlights (nb)	15,30	15,80	kgCO2e/unit	INIES v.4.1.33	Indoor LED spotlight [P. 14 à 30 W] [P. 14 à 30 W	1	20	80
Self-contained air conditioner (nb)	239,00	268,60	kgCO2e/unit	Base Carbone V23.1	Mobile air conditioner	1	20	80
LED ribbon / Flexled (ml)	20,01	20,70	kgCO2e/ml	Based on INIES v.4.1.33	LED strip [P. 40 W] [P. 40 W Assumption: a 40W LED strip measures an average of 1.2m By conservative approach to keep the EF LED strip in linear meter	1	20	80

Floral decoration category	EF without end of life	EF with the end of life	Unit	Source	EF title and assumptions	Weighting >50% recycled materials	No. of "unknown" uses	No. of "rental" uses
Cut flowers / bouquet (nb)	29,00	29,04	kgCO2e/unit	Royal Agricultural Society of England 2022		1	2	5
Green wall (m²)	45,00	48,86	kgCO2e/sq.m	Several manufacturers	Average based on data from several manufacturers	1	2	5
Plant - 5 kg (nb)	5,00	6,93	kgCO2e/unit	Based on Base Carbone V23.1	Potted shrub - permanent grassland, with clover, Northwest region - 5 kg plant Assumptions	1	2	5
Plant - 15 kg (nb)	15,00	20,79	kgCO2e/unit	Based on Base Carbone V23.1	Potted shrub - permanent grassland, with clover, North-West region - 15 kg plant Assumptions	1	2	5
Plant - 50 kg / Tree (nb)	50,00	69,30	kgCO2e/unit	Based on Base Carbone V23.1	Potted shrub - permanent grassland, with clover, north-west region - 50 kg plant Assumptions	1	2	5
Planter filling (m²)	22,80	34,38	kgCO2e/sq.m	Based on Base Carbone V23.1	"EF "Conventional Pelargonium" (kgCO2e/plant)		20	80
Garden scene (m²)	3,80	5,73	kgCO2e/sq.m	Based on Base Carbone V23.1	Assumption: 60 plants per m² (10 plants in a 0.15 m² planter)".	1		

Signage category	EF without end of life	EF with the end of life	Unit	Source	EF title and assumptions	Weighting >50% recycled materials	No. of "unknown" uses	No. of "rental" uses
Fabric (m²)	7,15	7,17	kgCO2e/sq.m	INIES v.4.1.33	PVC awning fabric - default environmental data (v.1.4)	0,87	1	2
Backlit fabrics (m²)	7,15	7,17	kgCO2e/sq.m	INIES v.4.1.33	PVC awning fabric - default environmental data (v.1.4)	0,87	1	2

Catering equipment category	EF without end of life	EF with the end of life	Unit	Source	EF title and assumptions	Weighting >50% recycled materials	No. of "unknown" uses	No. of "rental" uses
Water fountain (nb)	6,20	35,80	kgCO2e/unit	Based on Base Carbone V23.1	EF "Average new plastic" (kgCO2e/kg) Assumption: weight = 20 kg	0,54	30	100
Hood (nb)	60,43	75,98	kgCO2e/unit	Base Carbone V23.1	Decorative hood - extractable	1	20	60
Microwave (nb)	98,40	118,00	kgCO2e/unit	Base Carbone® V23.1	Microwave	1	20	60

Safety category	EF without end of life	EF with the end of life	Unit	Source	EF title and assumptions	Weighting >50% recycled materials	No. of "unknown" uses	No. of rental uses
CO2 extinguisher (nb)	Non-shareable	Non-shareable	kgCO2e/unit	Based on BC ADEME 23.1 and Ecoinvent 3.8	Assumption: 5kg of steel (Steel or tinplate - new - BC ADEME 23.1) and 6kg of liquid CO2 (carbon dioxide production, liquid - RER - carbon dioxide, liquid - Ecoinvent 3.8)	1	50	250

Data specific to Climeet Traiteur

Some equipment or objects are only present in Climeet Traiteur, in the "Equipment and built spaces" section of the Prestation tab. The calculation is performed in the same way as in Climeet Organizer for end-of-life and EF weighting if >50% recycled materials.
In Climeet Traiteur, the user can only choose between "Yes", "No" or "Unknown" in "Reused?" because, following Feedback from catering users, they have all the elements, and the "Rental" option is not applicable.

Category tableware	EF without end of life	EF with the end of life	Unit	Source	EF title and assumptions	Weighting >50% recycled materials	No. of "unknown" uses
Cotton towel (nb)	0,12	0,17	kgCO2e/unit	Based on Higgs 2021	Cotton fabric, knitted - assumption: 140g/m² and 30x30cm	0,885	5
Paper towel (nb)	0,0028	0,0050	kgCO2e/unit	Base Carbone V23.1	Paper - Medium - Excluding use and end of life - assumption: 3g	1,03	0
Tablecloth (cotton) (m²)	2,33	2,42	kgCO2e/sq.m	Higg 2021	Cotton fabric, knitted - Assumption: 250 g/m² - Knitted fabric	0,87	5
Polyester tablecloth (m²)	10,10	10,47	kgCO2e/sq.m	Higg 2021	Polyester fabric, knitted - assumption : 250 g/m² - knitted fabric	0,54	5
Paper tablecloths (m²)	0,04	0,07	kgCO2e/sq.m	Base Carbone V23.1	Paper - Medium - Out of use and end of life and 45 g/m² density	1,03	0
Polyester fleece (m²)	4,16	4,56	kgCO2e/sq.m	Based on Higgs 2022	270g/m² polyester - Polyester fabric, woven	0,54	5
Solid crockery (nb)	Non-shareable basis	Non-shareable basis	kgCO2e/unit	EcoInvent 3.8	Ceramic tile production - RoW - ceramic tile - assumption: 200g	1	100
Cardboard tableware (nb)	0,0039	0,0113	kgCO2e/unit	Base Carbone V23.1	New cardboard - assumption: 10g per plate	1,36	0
Plastic tableware (nb)	0,05	0,12	kgCO2e/unit	Base Carbone V23.1	Plastic - PET - new - assumption: 50g	0,54	0
Solid cutlery (nb)	0,73	0,79	kgCO2e/unit	Base Carbone V23.1	Average EF steel and EF aluminium - assumption: 180g	1	100
Wooden cutlery (nb)	0,0004	0,0016	kgCO2e/unit	Base Carbone V23.1	Short-life wood (furniture...) - manufacturing - assumption: 10g per plate	0,68	0
Plastic cutlery (nb)	0,01	0,02	kgCO2e/unit	Base Carbone V23.1	Plastic - PET - new - assumption: 10g	0,54	0
Scotch (roll)	0,27	0,43	kgCO2e/unit	Base Carbone V23.1	EF "Plastic - medium" - Assumption: 0.111 kg per roll	1	0
Returnable glass (25cl)	0,04	0,09	kgCO2e/unit	DEFRA	EF calculated from EF returnable glass (50 cl)	0,54	
Returnable glass (33cl)	0,05	0,13	kgCO2e/unit	DEFRA	EF calculated from EF returnable glass (50 cl)	0,54	
Returnable glass (50cl)	0,07	0,19	kgCO2e/unit	DEFRA	EF returnable = EF glass / 2 Container type : Glass - new "A 2010 study by the French Environment and Energy Management Agency (Ademe) acknowledges the benefits of this practice for the climate: "Returnable glass thus has an average 50% lower impact on the "greenhouse effect" indicator.	0,54	

					Source: Zero Waste France Container weight: necked wine bottle Source : Flaconste		

Category furniture	EF without end of life	EF with the end of life	Unit	Source	EF title and assumptions	Weighting >50% recycled materials	No. of "unknown" uses
Steel seat (nb)	90,2	93,4	kgCO2e/unit	Base Carbone V23.1	EF "Chair - plastic" multiplied by average EF between "steel" and "aluminum" and divided by EF "plastic" (Base Carbone® V23.1)	0,71	80
Plastic seat (nb)	34,4	42,836	kgCO2e/unit	Base Carbone V23.1	Chair - plastic	0,54	80
Wooden seat (nb)	18,6	19,7712	kgCO2e/unit	Base Carbone V23.1	Chair/wood	0,68	80
Plastic table (nb)	26,85	56,45	kgCO2e/unit	Based on Base Carbone V23.1	"EF " Plastic - PET - new " (kgCO2e/kg) assumption: 15 kg	0,54	80
Wooden table (nb)	80,2	130	kgCO2e/unit	Base Carbone V23.1	Table - solid wood	0,68	80
Steel table (nb)	95	104,33	kgCO2e/unit	Base Carbone V23.1	EF "Steel or tinplate - new" (kgCO2e/kg) assumption: 50 kg	0,71	80
Double sofa (nb)	182	200	kgCO2e/unit	Base Carbone V23.1	Sofa - leather	1	80
Barbecue (nb)	79,45	95	kgCO2e/unit	Based on Base Carbone V23.1	EF "steel - tinplate - new" assumption: 50 kg	0,71	60
Buffet (off-wood) (nb)	128,1	155,12	kgCO2e/unit	Based on Base Carbone V23.1	EF " Furniture - manufacturing "(kgCO2e/kg) assumption: 70kg	1	80
Buffet (nb)	48	56,54	kgCO2e/unit	Fira 2011	Average calculated from 3 types of office in the FIRA benchmark (2011)	0,68	80

Category decoration	EF without end of life	EF with the end of life	Unit	Source	EF title and assumptions	Weighting >50% recycled materials	No. of "unknown" uses
Fabric (m²)	7,15	7,17	kgCO2e/sq.m	INIES v.4.1.33	PVC awning fabric - default environmental data (v.1.4)	0,87	2
Metal (kg)	4,39	4,70	kgCO2e/kg	Based on Base Carbone V23.1	Average "aluminum" and "steel" EFs	0,62	100
Protective tarpaulin (m²)	3,85	4,22	kgCO2e/sq.m	Based on Higg 2022	250g/m² polyester - Polyester fabric, woven	0,61	5

Category Electrical equipment	EF without end of life	EF with the end of life	Unit	Source	EF title and assumptions	Weighting >50% recycled materials	No. of "unknown" uses
Kettle (nb)	9,91	10,30	kgCO2e/unit	Base Carbone® V23.1	Kettle	1	60
Oven (nb)	109,98	133,14	kgCO2e/unit	Based on Base Carbone V23.1	EF "Furniture - manufacturing" - assumption: 60 kg	1	60
Induction hobs (nb)	89,70	109,70	kgCO2e/unit	Base Carbone® V23.1	9000W induction hobs	1	60
Gas hobs (nb)	43,42	46,53	kgCO2e/unit	Base Carbone® V23.1	9000W gas hobs	1	60
Ceramic hobs (nb)	65,31	85,31	kgCO2e/unit	Base Carbone® V23.1	9000W glass-ceramic hobs	1	60
Microwaves (nb)	98,40	118,00	kgCO2e/unit	Base Carbone® V23.1	Microwave	1	60

Energy

Known consumption

The user can enter the exact energy consumption of the event site, if known.
It can enter fuel quantities for generators, according to fuel type. They can also enter the exact consumption by type of energy (electricity, gas, fuel oil, wood, etc.). If the type of energy is not known, the user has the option of entering "unknown". The EF used is then an average of the EFs for gas and fuel oil.

Fuel

Fuel type	EF	Unit	Source	PA title
Petrol (liters)	2,70	kgCO2e/litre	Base Carbone V23.1	Gasoline - Unleaded premium fuel (95, 95-E10, 98)
Diesel (liters)	3,10	kgCO2e/litre	Base Carbone V23.1	Road diesel - B7
Used cooking oil (liters)	0,54	kgCO2e/litre	Base Carbone V23.1	HVO 100 - based on used edible oils (HAU) - no change in land use
Green hydrogen (kg)	1,14	kgCO2e/kg	Green Deal, NL 2023	Hydrogen green
Gray hydrogen (kg)	12,52	kgCO2e/kg	Green Deal, NL 2023	Hydrogen gray

Imperial system

Metric EFs are converted to imperial using the following conversion ratio:

1	gal (gallon)	3,785	liter

Fuel type	EF	Unit	Source	PA title
Petrol (gal)	10,2	kgCO2e/gal	Based on Base Carbone V23.1	Gasoline - Unleaded premium fuel (95, 95-E10, 98)
Diesel (gal)	11,7	kgCO2e/gal	Based on Base Carbone V23.1	Road diesel - B7
Used cooking oil (gal)	2,1	kgCO2e/gal	Based on Base Carbone V23.1	HVO 100 - based on used edible oils (HAU) - no change in land use

The international unit of hydrogen is the kg, whatever the system used (metric or imperial).

Other consumption

Type of energy	EF	Unit	Source	PA title

Electricity (kWh)	Depending on the country of the event	kgCO2e/kWh	IEA 2022	CO2 intensity of the country's electricity mix (including upstream and direct emissions)
Renewable electricity generated on site (kWh)	0,044	kgCO2e/kWh	Base Carbone V23.1	Electricity/photovoltaic/manufactured in China (Default used in France)
Gas (kWh)	0,21	kgCO2e/kWh	BEIS 2023	Natural gas (Gross CV)
Gas (liters)	1,81	kgCO2e/litre	Base Carbone V23.1	Propane/marine-included - Europe
Gas (m3)	2,35	kgCO2e/m3	Based on BEIS 2023	Assumption: 11.2 kWh/m3 of gas Source : Hellowatt
Fuel oil (kWh)	0,33	kgCO2e/kWh	BEIS 2023	Fuel oil (Gross CV)
Fuel oil (liters)	3,3	kgCO2e/litre	Based on BEIS 2023	Assumption: 10 kWh/litre of fuel oil
Wood (kWh)	Non-shareable basis	kgCO2e/kWh	Ecoinvent 3.8	heat production, mixed logs, at wood heater 6kW - RoW - heat, central or small-scale, other than natural gas
Wood (m3)	Non-shareable basis	kgCO2e/m3	Based on Ecoinvent 3.8	Assumption: 1500 kWh/m3 of wood Source : conseils-thermiques.org EF Ecoinvent
Wood (kg)	2,35	kgCO2e/kg	Base Carbone V23.1	Wood log/20% moisture content
Wood chips (kWh)	0,002	kgCO2e/kWh	BEIS 2023	Wood logs
Wood chips (kg)	0,06	kgCO2e/kg	Based on BEIS 2023	Assumption: 3 kWh/kg of wood chips Source : conseils-thermiques.org EF wood logs from BEIS
Unknown (kWh)	0,27	kgCO2e/kWh	Based on BEIS 2023	Average "gas" and "oil" EFs in a conservative approach

Data specific to Climeet Space Designer

Energy consumption at event sites

The user can specify whether permanent or intermittent electrical boxes are used. For permanent cabinets, energy consumption is estimated by multiplying the power (W) by the operating time (hours). For intermittent cabinets, the same formula is used, dividing the operating time by 2.

Data specific to Climeet Traiteur

Energy consumption at event sites

Wood/charcoal (kg)	2,35	kgCO2e/kg	Base Carbone V23.1	Wood log/20% moisture content

Energy consumption in the production phase

The user can enter the annual energy consumption in kWh and specify the type of energy. Climeet then uses the sales figures entered in the service parameters and the annual sales figures entered in the general parameters to calculate the proportion of consumption to be attributed to the service. The EF used are the same as in Climeet organizer.

Users can also enter their annual water consumption in liters.

Annual water consumption (liters)	0,000132	kgCO2e/litre	BC ADEME 23.1	Network water - excluding infrastructure

In the same way as for energy consumption, a prorata for water consumption is calculated on the basis of annual sales and service sales, and converted into kgCO2e using the above EF.

Unknown consumption

If the user doesn't know the exact energy consumption of his event, Climeet can be used to estimate energy consumption based on the surface area occupied by the event, the energy class of the building, the number of days booked for the event, and the use of heating or air conditioning.

The final EF used is the sum of 3 EFs:

- the first EF for specific electricity consumption. The EF used is that of the carbon intensity of the electricity mix of the country hosting the event. The user can specify the percentage of renewable electricity generated on site, which weights the electricity EF as follows:
% of electricity generated on site x EF of renewable electricity + (1-% renewable) x EF electricity mix of the country hosting the event

- the second EF for heating. The user can specify whether heating was used, and if so, the type of heating (heat pump, electric, gas, oil, wood, etc.). Depending on the season of the event entered by the user in the general event parameters, the heating EF is weighted as specified in the table below.

- the third EF for air conditioning, where the user can specify whether it was used or not. The EF is also weighted according to the season entered.

Estimated total energy consumption for the event

From the ranges of annual energy consumption by building energy class, we obtain an average consumption value in kWh/m² per year. We then report this consumption per day, assuming it is spread over 230 days.

Energy class	Your home's energy consumption per year	Meaning of energy class	kWh/m² assumption	Assumption kWh/m²/day (consumption spread over 230 days)
A	0 to 50 kWh/sq.m	Best-performing homes (often new, rarely renovated)	30	0,13
B	51 and 90 kWh/sq.m	Low-energy housing	70	0,30
C	91 to 150 kWh/sq.m	Standard gas-heated homes	120	0,52
D	151 to 230 kWh/sq.m	Standard electrically heated homes	200	0,87

E	231 to 330 kWh/sq.m	Older homes heated by electricity (before the 1979 oil crisis)	300	1,30
F	331 to 450 kWh/sq.m	Older homes built between 1948 and 1975	400	1,74
G	451 kWh/m² and more	Older homes with high energy consumption	550	2,39
Unknown	Average at 250 kWh/m² per year	Source: Habitat Presto	250	1,09
	Table source: EDF			

By multiplying by the surface area in m² and the number of days booked, and according to the energy letter entered by the user, we obtain the energy consumption of the event in kWh. This energy consumption is broken down between use for specific electricity, heating and air conditioning. This breakdown is based on the following data:

Breakdown of energy consumption by use in commercial buildings - France - 2020			
Usage	TWH total	kWh/m² (kWh/m²)	Share
Heating	87,5	89,0	42%
Domestic hot water	22,1	22,5	11%
Cooking	10,8	11,0	5%
Specific electricity	56,9	57,8	27%
Air conditioning	21,5	21,9	10%
Other uses	10,4	10,6	5%
Total *excluding other uses*	198,9	202,2	95%
Total	209,3	212,8	100%
Source: Ministère de la transition écologique et de la cohésion des territoires - Ceren			

Based on this breakdown by use, we then estimate the percentage of energy consumption corresponding to electricity, heating and air conditioning.

Category	**Share of total energy consumption**	**Assumption based on usage breakdown table**	**Source**
Electricity	29%	"Specific electricity (based on 100% of total without other uses)	Ministry of Ecological Transition and Territorial Cohesion
Heating	61%	Sum of "heating" uses + "domestic hot water" + "cooking" (based on 100% of the total without other uses)	Ministry of Ecological Transition and Territorial Cohesion
Air conditioning	11%	"Air conditioning (based on 100% of total without other uses)	Ministry of Ecological Transition and Territorial Cohesion

EF specific electricity

Specific electricity consumption corresponds to 29% of the total energy consumption estimated in the first part. The EF used is that of the electricity mix of the country hosting the event, and depending on the case, that of the renewable electricity produced on site.

EF heating

The energy consumption allocated to heating corresponds to 61% of the total energy consumption estimated in the first part.
The heating EF varies according to the type of heating set by the user.

Type of heating	EF	Unit	Source	PA title
No heating	0,00	kgCO2e/kWh		
Heat pump	EF adapted to country	kgCO2e/kWh	Based on Ecoinvent 3.8	From EF "heat production, air-water heat pump 10kW - Europe without Switzerland - heat, air-water heat pump 10kW "*.
Electric heating	Depending on the country of the event	kgCO2e/kWh	IEA 2022	CO2 intensity of the country's electricity mix
Gas	0,21	kgCO2e/kWh	BEIS 2023	Natural gas (Gross CV)
Fuel oil	0,33	kgCO2e/kWh	BEIS 2023	Fuel oil (Gross CV)
Wood	Non-shareable basis	kgCO2e/kWh	Ecoinvent 3.8	heat production, mixed logs, at wood heater 6kW - RoW - heat, central or small-scale, other than natural gas
Wood chips	0,02	kgCO2e/kWh	BEIS 2023	Wood logs
Unknown	0,27	kgCO2e/kWh	Based on BEIS 2023	Average "gas" and "oil" EFs in a conservative approach

*The "heat pump" EF is adapted according to the event country entered in the event parameters. The "heat pump" EF is therefore calculated as follows:
EF "PAC" * (EF electricity country / EF average electricity Europe excluding Switzerland)

If the user enters "electric heating" or "heat pump" as the heating mode, the electricity EF used will also be weighted according to the percentage of renewable energy produced on site. This weighting only applies to these two heating modes, as they are the only ones to use electricity.

The EF is also weighted according to the season of the event, based on internal assumptions.

	Season" heating factor	Season" factor for air conditioning
Winter	2	0,25
Spring	1	1
Summer	0,25	2
Autumn	1	1

EF air conditioning

The user can specify whether air conditioning was used during the event. Air-conditioning consumption in kWh corresponds to 11% of total energy consumption.
In the same way as for specific electricity consumption and electric heating, the electricity EF used is weighted according to the percentage of renewable energy produced on site, using the following formula: % electricity produced on-site x EF renewable electricity + (1-% renewable) x EF electricity mix of the country hosting the event.
Air-conditioning emissions are also weighted according to the seasonality of the event.

For air-conditioning, we also need to take into account the loss of refrigerants associated with the use of air-conditioning equipment. For this, we have based ourselves on the advice of the Plan Général Carbone, which estimates an average cooling capacity of around 100W/m². According to Base Carbone resources®, the quantity of refrigerant as a function of cooling capacity is 0.3 kg/kW, and the annual leakage rate is 10%. This gives an annual refrigerant loss of 0.003 kg/m².year. This value is expressed per day, divided by 230, the estimated number of days worked per year.

This quantity of refrigerant lost is then multiplied by the m² surface area of the hall and the number of days booked, to give the quantity lost over the entire event. This quantity is then converted into CO2e equivalent using the emission factor for R410a, the refrigerant most commonly used in commercial air-conditioning systems.
EF R410a = 1920 kgCO2e/kg

Imperial system

The user can also enter the surface area occupied by the event in ft². This area is then converted into m² and used in the calculation as explained above.

ft² to m² conversion	1	ft²	0,093	m²

Additional equipment

The user also has the option of entering additional equipment used during the event (e.g. electrical boxes), to complete the average energy consumption estimated in the first part.
Equipment consumption in kWh is estimated from the wattage and number of hours of use entered by the user.
Power can be expressed in W, kVA or BTU/h for the imperial system.
Power ratings expressed in kVA or BTU/h are converted back into W, then transformed into kWh based on the number of hours.
The EF varies according to the type of energy used by the equipment. These are the same EFs presented above.

Conversion kVA to W	1	kVA	1000	W
Converting BTU/h to W	1	BTU/h	0,000293	W

Catering

Meals

The carbon impact of a meal is broken down into the impact of the menu and the impact of the cutlery.
The user can enter the type of meal (coffee break, breakfast, cocktail or meal/buffet) as well as the type of meal (red meat, poultry or pork, vegetarian, fish, etc.). The type of meal will influence the quantity served per person, which is why we group sit-down meals together with buffets, and separate cocktails where the quantities served are smaller.
The EF of the menu depends mainly on the nature of the meal, and is weighted according to the type of meal, in relation to the quantities served, and the seasonality of the products.
The EF of cutlery depends on the cutlery's materials, and whether it is single-use or reusable.

Meal/buffet

Meal/buffet	EF	Unit	Source	Title EF / Assumptions
Classic	2,04	kgCO2e/meal	BC ADEME 23.1	Meals - medium
Red meat (main protein)	6,29	kgCO2e/meal	BC ADEME 23.1	Meal - classic (with beef)
Vegetarian	0,51	kgCO2e/meal	BC ADEME 23.1	Meals - vegetarian
Poultry or pork (main protein)	1,35	kgCO2e/meal	BC ADEME 23.1	Meal - classic (with chicken)
Fish (main protein)	1,50	kgCO2e/meal	Based on BC ADEME 23.1	Based on poultry meals, replacing poultry with fish
Vegan	0,29	kgCO2e/meal	Based on BC ADEME 23.1	Based on a vegetarian meal, replacing eggs with vegetables

Snack, breakfast and cocktail breaks

The EFs for breakfast, cocktails and snacks are based on the EFs for meals/buffets, on the assumption that the quantities served are reduced.
It was decided that a snack break corresponded to 10% of a full meal, breakfast to 40% of a full meal, and a cocktail to 60% of a full meal.
The snack-break PA includes only the food served during the break, and not the drinks, which are recorded under "Drinks". There is no snack-break PA for the "mainly red meat", "mainly poultry" and "mainly fish" types.
EF break-snack = 10% x EF full meal
EF breakfast = 40% x EF full meal
EF cocktail = 60% x EF full meal

Type of meal	Snack break	Breakfast	Cocktail	Unit	Source
Classic	0,20	0,82	1,22	kgCO2e/meal	Based on Base Carbone V23.1
Red meat (main protein)	NA	2,52	3,77	kgCO2e/meal	Based on Base Carbone V23.1

Vegetarian	0,05	0,20	0,31	kgCO2e/meal	Based on Base Carbone V23.1
Poultry or pork (main protein)	NA	0,54	0,81	kgCO2e/meal	Based on Base Carbone V23.1
Fish (main protein)	NA	0,60	0,90	kgCO2e/meal	Based on Base Carbone V23.1
Vegan	0,03	0,11	0,17	kgCO2e/meal	Based on Base Carbone V23.1

Seasonal products

The EF menu is weighted according to product seasonality. The user can enter the percentage of seasonal products (0%, 25%, 50%, 75% or 100%) or "Unknown" if no information is available.

According to the Agribalyse 3.1.1 data analysis, a seasonal product has an impact of around 40% of its out-of-season equivalent.

	Raw tomato	Raw strawberry	Total
Seasonal (kgCO2e/kg)	0,51	0,47	0,98
Off-season (kgCO2e/kg)	1,88	0,67	2,55

Several assumptions were then made:

- The EF used correspond to meals with 50% seasonal vegetables
- Vegetables account for 5% of the total impact of a conventional meal

We then obtain the following menu EF weighting, taking 50% seasonal products as the basic reference. When the user enters "unknown", a conservative approach is taken, with a menu EF increased by 2%.

0% seasonal produce	+2%
25% seasonal produce	+1%
50% seasonal produce	0%
75% seasonal produce	-1%
100% seasonal produce	-2%
Unknown	2%

Tableware and cutlery

The EFs for tableware and cutlery are calculated from the EF of the cutlery material and the hypothetical weight of cutlery for a meal, which is 200g.

Tableware and cutlery	Cutlery weight (kg/meal)	EF materials kgCO2e/kg	EF covered kgCO2e/meal	Source	Assumptions

Recycled cardboard	0,2	0,67	0,13	Base Carbone V23.1	Recycled cardboard - 200g of cutlery per meal
Cardboard	0,2	0,39	0,08	Base Carbone V23.1	New cardboard - 200g of cutlery per meal
Plastic	0,2	3,27	0,65	Base Carbone V23.1	New PET plastic - 200g of cutlery per meal
Wood	0,2	0,04	0,01	Base Carbone V23.1	Short-life wood (furniture...) - manufacturing - 200g of cutlery per meal
Reused (stainless steel type)	0,5	0,00	0,00		Assumption: cutlery is reused a very large number of times Production-related emissions are negligible

Drink

The carbon impact of beverages is broken down into the impact of beverage production and the impact of the container.
The EF of the beverage depends on the type of beverage according to the following categories.

The impact of the packaging has been removed from the EF drink, according to information provided by Agribalyse.
Example: for bottled water, with packaging accounting for 69.5% of the total EF, we have:
EF water without packaging = EF water total - 69.5% x EF water total

The user can enter beverage quantities in liters, fluid oz. or number of bottles for certain beverages. The reference unit is the liter.

Convert fl oz to liters	1	fl oz	0,03	liter

Liters per bottle of water/juice/soda	1	Litre/bottle
Liters per bottle of wine/strong spirits	0,75	Litre/bottle

Beverage type	EF Agribalyse (beverage + packaging)	EF drink Climeet	Unit	Source	PA title / Assumptions
Water	0,45	0,14	kgCO2e/litre	Based on Agribalyse 3.1.1	Bottled spring water - 69.5% of the impact is due to packaging
Café	0,59	0,59	kgCO2e/litre	Agribalysis 3.1.1	Espresso coffee, non-instant, unsweetened, ready-to-drink
Tea	0,05	0,05	kgCO2e/litre	Agribalysis 3.1.1	Brewed tea, unsweetened
Juice	0,8	0,72	kgCO2e/litre	Based on Agribalyse 3.1.1	Multifruit juice - orange base, multivitamin - 10% of impact due to packaging

Soda	0,57	0,43	kgCO2e/litre	Based on Agribalyse 3.1.1	Cola, sweetened (same value for "Carbonated beverage, without fruit juice, sweetened" or "Tonic or bitter, sweetened") - 25.1% of the impact is due to packaging
Beer/Cider	1,09	0,64	kgCO2e/litre	Based on Agribalyse 3.1.1	Heart of the market" beer (4-5° alcohol) - 41.7% of the impact is due to packaging
Wine	1,14	0,82	kgCO2e/litre	Based on Agribalyse 3.1.1	Dry white wine 11° (same value for "Sparkling white wine") - 27.8% of the impact is due to packaging
Strong alcohol	1,16	0,67	kgCO2e/litre	Based on Agribalyse 3.1.1	Pure alcohol (same value for "Vodka", "Whisky", "Rum", "Gin") - 42% of the impact is due to packaging

Beverage type	**EF Climeet beverage (fl oz)**	**Unit**	**EF Climeet beverage (number of bottles**	**Unit**
Water	0,004	kgCO2e/fl oz	0,14	kgCO2e/bottle
Café	0,017	kgCO2e/fl oz		kgCO2e/bottle
Tea	0,001	kgCO2e/fl oz		kgCO2e/bottle
Juices	0,021	kgCO2e/fl oz	0,72	kgCO2e/bottle
Soda	0,013	kgCO2e/fl oz	0,43	kgCO2e/bottle
Beer/Cider	0,019	kgCO2e/fl oz		kgCO2e/bottle
Wine	0,024	kgCO2e/fl oz	0,62	kgCO2e/bottle
Strong alcohol	0,020	kgCO2e/fl oz	0,50	kgCO2e/bottle

The EFs for beverage containers are calculated from the EFs for materials and the weight of a single standard container.
Container EFs include end-of-life emissions. It is therefore not necessary to enter the quantities of empty containers in the "Waste" section.

Container type	**EF Climeet (kgCO2e/liter)**	**EF material (kgCO2e/kg)**	**Source**	**Container weight (kg/liter)**	**EF title Assumptions**
Glass	0,52	0,93	BC ADEME 23.1	0,564	Glass - new Assumption: weight of a necked bottle of wine Source: Verreries talançonnaises
Plastic	0,10	3,27	BC ADEME 23.1	0,032	Plastic - PET - new Assumption: weight of a 1L PET bottle Source : Fidel Fillaud
Tetrapak cardboard	0,03		ACV Tetrapak		Tetra Gemina® Aseptic 1000 Square - Volume: 1000 ml - Opening: HeliCap™ 27
Metal	0,24	5,99	Based on BC ADEME 23.1	0,040	50% new aluminum and 50% recycled aluminum

					(according to Lumni enseignement, the average can contain 50% recycled aluminum). Assumption: weight of an aluminum can 375mL
Returnable glass	0,26		Based on BC ADEME 23.1		EF returnable glass = EF glass/2 According to an ADEME study, returnable glass has on average 50% less impact on the "greenhouse efEFct" indicator. Source : Zerowaste
Reused container	0				Assumption of 0 because of a large number of reuses
Returnable keg	0				Assumption of 0 because of a large number of reuses

Container type	**EF Climeet in fl oz**	**EF Climeet in number of water/juice/soda bottles**	**EF Climeet in number of bottles of wine/strong spirits**
Glass	0,0155	0,52452	0,39339
Plastic	0,0031	0,10464	0,07848
Tetrapak cardboard	0,0009	0,030	0,0225
Metal	0,0070		
Returnable glass	0,0078	0,26226	0,196695
Reused container	0,00	0,00	0,00
Returnable keg	0,00	0,00	0,00

Data specific to Climeet Traiteur

The EFs used for each ingredient category in the catalog are calculated from data in the Agribalyse 3.1.1 database.
To simplify the integration of catering data, ingredients are grouped by broad category in Climeet, and the associated EFs are the average of the Agribalyse EFs of the ingredients belonging to that ingredient category.

The EFs for each ingredient category are then weighted according to the parameters entered when the recipe was created. The user can specify the proportion of organic products in the recipe, and the proportion of local products.

Depending on the ingredient category, an organic factor can be applied to the Climeet emission factor. This organic factor is calculated for each major ingredient category from

Agribalyse 3.1 data, by comparing the emission factor for the same ingredient from organic and conventional farming.
These organic factors are listed in the table below:

Category	BIO factor
Meat	120%
Vegetable	52%
Milk	82%
Fruit	105%
Egg	86%
Average	89%

The user has the choice of specifying the proportion of organic products between "mostly", "totally" or "negligible/don't know". If the user chooses "negligible/don't know", no organic factor is applied to the recipe ingredients. If the user chooses "totally", the organic factor for each ingredient category is applied. If the user chooses "majority", the organic factor for each ingredient is applied to 75% of the ingredient's weight.

The local factor is calculated on the basis of the share of transport in the various EFs in the Agribalyse 3.1 database.
Local factor % = 1- transport share %/2
To weight the room's EF according to the local factor, the same methodology is applied as for the bio factor, depending on what the user chooses.

Ingredient category	EF (kgCO2e/kg)	BIO factor	Local factor	Transport share (Agribalyse)	Assumptions (source: Agribalyse 3.1.1)
Pasta	1,88	1	95%	9%	Average raw pasta EF
Rice	2,60	105%	99%	2%	Average raw rice EF
Cereals/Tofu	1,57	1	95%	9%	Average EF Cereals and EF Tofu
Vinegar	1,18	1	99%	3%	Vinegar
Condiments (salt, spices, herbs)	3,63	1	1	/	Average EF salt, EF spices and EF non-fresh herbs
Sauce	6,37	1	1		Average EF sauces
Fresh vegetables	0,86	52%	85%	31%	Average EF raw vegetables, not frozen
Fresh herbs	0,73	105%	100%	0%	Fresh herbs
Potatoes and pulses	2,08	52%	100%	0%	Average EF for pulses and EF for potatoes and tubers
Frozen or canned vegetables	1,61	89%	100%	0%	Frozen or canned vegetables
Nuts and oilseeds	5,16	52%	100%	0%	Average EF for nuts and oilseeds
Fresh fruit Europe/Canned fruit	0,86	52%	89%	23%	Average raw fruit EF - without compotes,

					without fruit EF outside Europe
Frozen fruit	1,55	105%	99%	2%	Average frozen fruit EF
Fresh fruit outside Europe	4,33	89%	1	0	Average EF Mango, Banana, Litchi and Pineapple
Viennese pastries	3,29	1	96%	8%	Average PA for Bread and Viennese pastries - No bread, No pre-packaged products
Cakes and pastries	3,14	1	96%	8%	Average EF cakes
Prepared pasta (shortcrust, puff pastry, shortbread)	4,45	1	96%	8%	Average EF for shortcrust, puff pastry, shortbread and phyllo doughs
Flour	2,57	1	96%	8%	Average for EF flours, rice flour and soy flour
Bread	1,10	1	96%	8%	EF different types of bread
Milk	1,29	82%	94%	13%	Average milk EF
Milk powder	10,83	82%	94%	13%	Average EF milk powder
Creams and cream-based specialties	3,57	1	94%	13%	Cream of milk, 30% fat, semi-thick, UHT
Cheese	5,69	1	94%	13%	Average EF cheese
Yogurt/Cream dessert	1,70	1	94%	13%	Yogurt/cream dessert
Eggs	3,19	1	94%	13%	Raw egg
Butter	7,82	1	94%	13%	82% MF butter, soft
Vegetable oil	5,75	1	94%	13%	Average EF for soybean, peanut, palm and sunflower oils
Animal fat/Lard	1,67	1	94%	13%	Average EF for fat and other fat categories
Small fish (e.g. herring, sardines, anchovies)	2,15	1	84%	32%	Average EF for herring, anchovy, sardine and mackerel
Other fish	8,11	1	97%	5%	Average raw fish EF excluding small fish
Shellfish	9,22	1	94%	12%	Average PA for shellfish category
Poultry	5,74	120%	99%	1%	Medium category Raw meat - Chicken, Turkey, Capon
Beef	27,40	120%	99%	1%	Average raw meat category - Beef
Veal	18,54	120%	99%	1%	Average category Raw meat - Veal
Pork	8,36	120%	99%	1%	Average category Raw meat - Pork
Sheep	33,01	120%	99%	1%	Average category Raw meat - Mutton
Lamb	32,84	120%	99%	1%	Average raw meat category - Lamb
Duck	6,38	120%	99%	1%	Medium category Raw meat - Duck

Delicatessen	9,33	120%	99%	1%	Average Charcuterie category
Fruit juices	1,08	1	90%	19%	Multifruit juice - orange base, multivitamin
Alcohol	1,14	1	91%	17%	Average EF for core beer, dry white wine and pure alcohol
Ice cream and sorbet	1,57	1	98%	4%	Average category Ice cream and sorbet
Chocolate	17,11	1	98%	4%	Dark chocolate, minimum 40% cocoa solids, bar
Spreads	9,90	1	98%	4%	Spreads
Sweets	5,17	1	98%	4%	Average EF for sweets and non-chocolate confectionery
White sugar	0,61	1	98%	4%	White sugar
Brown sugar	1,11	1	98%	5%	Brown sugar
Honey	1,15	1	98%	4%	Honey
Fruit jams	1,49	1	98%	4%	Fruit jams
Other sweet products/Fruit desserts	0,93	1	98%	4%	Average between sweet products, honey and honey-like sugars (without honey, white sugar, brown sugar) and compote research
Café	10,09	1	98%	4%	Café
Plant milk	0,40	1	100%	0%	Average PA for plain soy beverage and almond beverage
Vegan meat	4,56	1	100%	0%	Average between cultivated and plant-based meat according to scientific studies
Vegan egg	0,18	1	100%	0%	According to Yumgo and a Carbone 4 study
Vegan cheese	2,84	1	98%	3%	Source : Violife

For plant meat, the EF is calculated using data from three scientific studies: Tuomisto et al. (2014), Mattick et al. (2015b) and Santo et al. (2020).

Accomodation

The impact of accommodation is broken down into the impact of lodging and the impact of transport to and from the event.
The EF varies according to the type of property and its geographical location.

Hotels

Hotel EFs are calculated using values from the Cornell Hotel Sustainability Benchmarking Index 2023 database and are in kgCO2e/night (rooms x nights).
Hotel EFs take into account emissions from scopes 1 and 2 (fuel and electricity consumed on site, refrigerant gases), and part of scope 3 (laundry and outsourced refrigerant gases - e.g. air conditioning).
Other Scope 3 emissions, such as those from travel to the hotel, employee commuting, production of purchased products and consumables, waste management, product use, and other outsourced activities, are excluded from the EFs.

Hotel category and region	EF (kgCO2e/night)	Source and assumptions
France - medium hotel	12	CHSB 2023, M1, mean
Africa - medium hotel	77	CHSB 2023, regional average calculated internally
Antarctica - medium hotel	46	CHSB 2023, regional average calculated internally
Asia - medium hotel	73	CHSB 2023, regional average calculated internally
Caribbean - medium hotel	91	CHSB 2023, regional average calculated internally
Latin America - medium hotel	32	CHSB 2023, regional average calculated internally
Middle East - medium hotel	91	CHSB 2023, regional average calculated internally
Eastern Europe and Eurasia - medium hotel	49	CHSB 2023, regional average calculated internally
Nordic countries - medium hotel	46	CHSB 2023, regional average calculated internally
North America - medium hotel	18	CHSB 2023, regional average calculated internally
Western Europe - medium hotel	25	CHSB 2023, regional average calculated internally
Pacific - medium hotel	66	CHSB 2023, regional average calculated internally
World - medium hotel	46	CHSB 2023, regional average calculated internally
France - 2-star hotel	2	CHSB 2023, M1, mean
Africa - 2-star hotel	18	CHSB 2023, regional average calculated internally
Antarctica - 2-star hotel	13	CHSB 2023, regional average calculated internally
Asia - 2-star hotel	24	CHSB 2023, regional average calculated internally
Caribbean - 2-star hotel	51	CHSB 2023, regional average calculated internally
Latin America - 2-star hotel	12	CHSB 2023, regional average calculated internally

Middle East - 2-star hotel	22	CHSB 2023, regional average calculated internally
Eastern Europe and Eurasia - 2-star hotel	13	CHSB 2023, regional average calculated internally
Nordic countries - 2-star hotel	13	CHSB 2023, regional average calculated internally
North America - 2-star hotel	14	CHSB 2023, regional average calculated internally
Western Europe - 2-star hotel	4	CHSB 2023, regional average calculated internally
Pacifique - 2-star hotel	24	CHSB 2023, regional average calculated internally
World - 2-star hotel	19	CHSB 2023, regional average calculated internally
France - 3-star hotel	7	CHSB 2023, M1, mean
Africa - 3-star hotel	22	CHSB 2023, regional average calculated internally
Antarctica - 3-star hotel	24	CHSB 2023, regional average calculated internally
Asia - 3-star hotel	46	CHSB 2023, regional average calculated internally
Caribbean - 3-star hotel	51	CHSB 2023, regional average calculated internally
Latin America - 3-star hotel	15	CHSB 2023, regional average calculated internally
Middle East - 3-star hotel	48	CHSB 2023, regional average calculated internally
Eastern Europe and Eurasia - 3-star hotel	13	CHSB 2023, regional average calculated internally
Nordic countries - 3-star hotel	24	CHSB 2023, regional average calculated internally
North America - 3-star hotel	18	CHSB 2023, regional average calculated internally
Western Europe - 3-star hotel	13	CHSB 2023, regional average calculated internally
Pacifique - 3-star hotel	34	CHSB 2023, regional average calculated internally
World - 3-star hotel	28	CHSB 2023, regional average calculated internally
France - 4-star hotel	12	CHSB 2023, M1, mean
Africa - 4-star hotel	75	CHSB 2023, regional average calculated internally
Antarctica - 4-star hotel	43	CHSB 2023, regional average calculated internally
Asia - 4-star hotel	69	CHSB 2023, regional average calculated internally
Caribbean - 4-star hotel	61	CHSB 2023, regional average calculated internally
Latin America - 4-star hotel	30	CHSB 2023, regional average calculated internally
Middle East - 4-star hotel	83	CHSB 2023, regional average calculated internally
Eastern Europe and Eurasia - 4-star hotel	35	CHSB 2023, regional average calculated internally
Nordic countries - 4-star hotel	43	CHSB 2023, regional average calculated internally
North America - 4-star hotel	28	CHSB 2023, regional average calculated internally
Western Europe - 4-star hotel	22	CHSB 2023, regional average calculated internally
Pacifique - 4-star hotel	48	CHSB 2023, regional average calculated internally
World - 4-star hotel	49	CHSB 2023, regional average calculated internally
France - 5-star hotel	25	CHSB 2023, M1, mean

Africa - 5-star hotel	107	CHSB 2023, regional average calculated internally
Antarctica - 5-star hotel	78	CHSB 2023, regional average calculated internally
Asia - 5-star hotel	123	CHSB 2023, regional average calculated internally
Caribbean - 5-star hotel	148	CHSB 2023, regional average calculated internally
Latin America - 5-star hotel	68	CHSB 2023, regional average calculated internally
Middle East - 5-star hotel	118	CHSB 2023, regional average calculated internally
Eastern Europe and Eurasia - 5-star hotel	60	CHSB 2023, regional average calculated internally
Nordic countries - 5-star hotel	78	CHSB 2023, regional average calculated internally
North America - 5-star hotel	56	CHSB 2023, regional average calculated internally
Western Europe - 5-star hotel	50	CHSB 2023, regional average calculated internally
Pacifique - 5-star hotel	98	CHSB 2023, regional average calculated internally
World - 5-star hotel	90	CHSB 2023, regional average calculated internally

Other types of accommodation

For other housing types, EFs are calculated on the basis of estimated energy consumption per m², and the average m² surface area.
According to Habitat Presto data (see Energy), average consumption is 250 kWh/m²/year or 1.09 kWh/m²/day.
We assume 10 hours of consumption per day.

Accommodation type	Number of m²	Assumptions	kWh/day
Tent	3	Internal estimate	1
Bungalow	40	Internal estimate	18
Apartment rental	79	Source : Wikipedia	36
House for rent	115	Source : Wikipedia	52
Guest room	18	Source : Wikipedia	8

Based on estimated daily consumption by type of dwelling, we then apply the EF of the electricity mix by world region corresponding to the country of the event entered in the parameters. Regional EFs are calculated from the average EFs of the countries belonging to the region (source: IEA 2022, non-shareable basis).

Accommodation-event travel

The user specifies a range of km for the distance between home and the event venue, and the associated mode of transport.
The EF of the modes of transport are the same as those used in the "Transportation of participants" section.
The distance used in the calculation is the average value of the km range, as detailed below:

Indication of distance between hotel and event venue	Distance used by tool	Unit
On site (no transport)	0,00	km/pers
Very close (< 1 km)	0,50	km/pers
Quite close (1 - 5 km)	3,00	km/pers
Somewhat distant (5 - 10 km)	7,50	km/pers
Very distant (> 10 km)	20,00	km/pers

Imperial system

The distance ranges proposed in the imperial system are as follows. However, Climeet uses the same distance as in the metric system for the calculation.

Indication of distance between hotel and event venue	Distance used by tool	Unit
On site (no transport)	0,00	km/pers
Very close (< 1 mile)	0,50	km/pers
Quite close (1 - 3 miles)	3,00	km/pers
Somewhat distant (3 - 6 miles)	7,50	km/pers
Very distant (> 6 miles)	20,00	km/pers

Goodies

The user can enter goodie data in 3 different ways. You can enter the number of goodies for a specific item from the list of goodies most frequently distributed at events. If no exact match can be found, the goodies can be entered in total weight according to the main material of the goody. Finally, as a last resort, he can enter the budget allocated according to the main material of the goody. We recommend using the 3rdmethod only as a last resort, as monetary EFs are much more uncertain. We remind you that it is imperative to integrate data in physical quantities whenever possible, before using monetary data.

Physical data

Among the physical data, we distinguish between goodies by number and those by weight, expressed in kg or lbs.

The EF also includes end-of-life emissions. These emissions are calculated on the basis of the materials of the various items, and weight assumptions where applicable. End-of-life EFs are those used in the "Waste" section of the "average end-of-life - unknown" column in kgCO2e/kg.

Badges

Title	EF with the end of life	Unit	Source	EF title Assumptions	Assumption for end-of-life calculation
Nylon wristband without RFID chip (nb)	0,016	kgCO2e/unit	Based on BC ADEME 23.1	Nylon Assumption: weight = 2g	EF Residual waste (BC ADEME 23.1)
Nylon wristband with RFID chip (nb)	0,032	kgCO2e/unit	Based on BC ADEME 23.1	Nylon Assumption: weight = 4g	EF Residual waste (BC ADEME 23.1)
Lanyard (nb)	0,080	kgCO2e/unit	Based on BC ADEME 23.1	50% Nylon + 50% metal hook EF "Nylon" + EF "new steel Total weight: 15g	EF Residual waste (BC ADEME 23.1)
Paper/cardboard badges (nb)	0,0414	kgCO2e/unit	Based on Infopro LCA digital	Cardboard - new Weight: 9g	Included in the LCA EF
PVC badge (nb)	0,0418	kgCO2e/unit	Based on Infopro LCA digital	50% recycled PVC plastic Weight: 8g	Included in the LCA EF
Plastic protection (badge holder) (nb)	0,017	kgCO2e/unit	Based on BC ADEME 23.1	Plastic PVC new Weight: 5g	EF Plastic (BC ADEME 23.1)

Goodies

Title	EF with the end of life	Unit	Source	EF title Assumptions	Assumption for end-of-life calculation
Cotton T-shirt (nb)	7	kgCO2e/unit	BC ADEME 23.1	Cotton T-shirt	According to BC ADEME documentation 23.1
Synthetic T-shirt (nb)	6	kgCO2e/unit	BC ADEME 23.1	Synthetic T-shirt	According to BC ADEME documentation 23.1
Cotton cap (nb)	1,65	kgCO2e/unit	Based on BC ADEME 23.1	EF "cotton Assumption: 100g	EF textiles - used household linen - average end-of-life chain - impacts (BC ADEME 23.1)
Synthetic cap (nb)	1,06	kgCO2e/unit	Based on BC ADEME 23.1	EF "polyester Assumption: 70g	EF textiles - used household linen - average end-of-life chain - impacts (BC ADEME 23.1)
Tot bag cotton (nb)	2,45	kgCO2e/unit	Based on BC ADEME 23.1	EF "cotton Assumption: 100g	EF textiles - used household linen - average end-of-life chain - impacts (BC ADEME 23.1)
Tot bag synthetic (nb)	1,52	kgCO2e/unit	Based on BC ADEME 23.1	EF "polyester Assumption: 100g	EF textiles - used household linen - average end-of-life chain - impacts (BC ADEME 23.1)
Mug (nb)	Non-shareable base	kgCO2e/unit	Based on Ecoinvent 3.8	EF "Ceramic tile production - RoW - ceramic tile assumption: weight = 300g".	EF end of life ceramic - end of average (BC ADEME 23.1)

To calculate the end-of-life of textile items not included in Base Carbone V23.1, the end-of-life EF for used textiles and household linen (end-of-average) from BC 23.1 was used, based on the weight assumptions for each item.

Finally, if the goodies don't correspond to the first categories, the user can enter the goodies in weight of goodies according to the main material.

Raw materials

Title	EF with the end of life	Unit	Source	EF title Assumptions	Assumption for end-of-life calculation
Cotton (kg)	16,5	kgCO2e/kg	BC ADEME 23.1	Cotton thread	EF textiles - used household linen - average end-of-life chain - impacts (BC ADEME 23.1)
Cardboard (kg)	1,13	kgCO2e/kg	Base Carbone V23.1	Cardboard - new	EF Paper/cardboard (BC ADEME 23.1)
Paper (kg)	1,66	kgCO2e/kg	Base Carbone V23.1	Paper - Medium - Out of use and end of life	EF Paper/cardboard (BC ADEME 23.1)
Glass (kg)	0,93	kgCO2e/kg	Base Carbone V23.1	Glass - new	End of life included in EF
Wood (kg)	0,16	kgCO2e/kg	Base Carbone V23.1	Short-life wood (furniture...) - manufacturing	EF Wood waste (BC ADEME 23.1)
Metal (kg)	4,70	kgCO2e/kg	Based on Base Carbone V23.1	Average of "new steel" and "new aluminum".	End of life included in EF
Plastic (kg)	3,27	kgCO2e/kg	Base Carbone V23.1	Plastic - PET - new	End of life included in EF
Recycled plastic (kg)	0,327	kgCO2e/kg	Based on Base Carbone V23.1	=EF plastic /10 Assumption: ratio 10 between the impacts of new and recycled plastic	End of life included in EF
Food (kg)	5,21	kgCO2e/kg	Based on Agribalyse 3.1	Average EF of different types of food products most common in goodies (dry cookie, aperitif cookie, jam, candy, pâté, terrine, honey, chocolate)	No end-of-life (food product consumed)
Leather (kg)	13,90	kgCO2e/kg	Based on Base Carbone V23.1	From EF "leather shoes", assumption weight of a pair of shoes = 1 kg (500g per shoe)	End-of-life textiles (BC ADEME 23.1)
Ceramic (kg)	Non-shareable base	kgCO2e/kg	Ecoinvent 3.8	Ceramic tile production - RoW - ceramic tile	EF end of life ceramic - end of average (BC ADEME 23.1)

Electronics (kg)	51,75	kgCO2e/kg	Based on Base Carbone V23.1	Average based on EF in kgCO2e/kg obtained from the documentation of the Footprint Database for the various IT items (obtained via kg/product and kgCO2e/product).	EF - WEEE - average end-of-life (BC ADEME 23.1)
Other (kg)	9,39	kgCO2e/kg	Based on Base Carbone V23.1, Ecoinvent 3.8	Average of all EF goodies in kg	

Imperial system

Goodies can also be entered in lbs and are converted to kg using the following conversion factor:

1	lbs (pounds)	0,454	kg

Title	EF with the end of life	Unit
Cotton (lbs)	7,48	kgCO2e/lbs
Cardboard (lbs)	0,51	kgCO2e/lbs
Paper (lbs)	0,75	kgCO2e/lbs
Glass (lbs)	0,42	kgCO2e/lbs
Wood (lbs)	0,07	kgCO2e/lbs
Metal (lbs)	2,14	kgCO2e/lbs
Plastic (lbs)	1,48	kgCO2e/lbs
Recycled plastic (lbs)	0,15	kgCO2e/lbs
Food (lbs)	2,37	kgCO2e/lbs
Leather (lbs)	6,30	kgCO2e/lbs
Ceramic (lbs)	Non-shareable basis	kgCO2e/lbs
Electronics (lbs)	23,47	kgCO2e/lbs
Other (lbs)	4,26	kgCO2e/lbs

Monetary data

The conversion of EF in kgCO2e/euro to kgCO2e/dollar and kgCO2e/yuan is carried out using the same conversion factor used in the "Equipment and built spaces" section.
EUR USD conversion rate =1.459854 USD/EUR
Source: https://data.oecd.org/conversion/purchasing-power-parities-ppp.htm 2022 data

Conversion rate EUR YUAN = 5.8234 YUAN/EUR Source: https://data.oecd.org/conversion/purchasing-power-parities-ppp.htm Data 2022

The tool uses the new monetary EF from the Base Empreinte, dating from 2023.
The monetary factors have also been weighted by a factor of 1.064 to take account of the 6.4% inflation between 2023 and 2025, as the EFs in Base Carbone V23.1 date from 2023.
Monetary factors include end-of-life emissions and are derived from the monetary service EFs in the Carbon V23.1 database, multiplied by the ratios of end-of-life and non-end-of-life goodie EFs presented above.
The "textile" EF becomes the "cotton" EF.

Type of goodies	EF with the end of life	Unit	Source	EF title Assumptions	EF used in the with/without end-of-life ratio
Cotton	0,33	kgCO2e/euro	Based on BC ADEME 23.1	Textile, clothing, leather and leather products - 2023	The EF of "textile" goodies
Cardboard	0,60	kgCO2e/euro	Based on BC ADEME 23.1	Paper and board - 2023	EF paper/cardboard
Paper	0,60	kgCO2e/euro	Based on BC ADEME 23.1	Paper and board - 2023	EF paper/cardboard
Wood	0,83	kgCO2e/euro	Based on BC ADEME 23.1	Wood, cork (excluding furniture) / Basketry, wickerwork - 2023	EF wood
Electronics	0,22	kgCO2e/euro	Based on BC ADEME 23.1	Computer, electronic and optical products - 2023	EF video category
Glass	1,70	kgCO2e/euro	Based on BC ADEME 23.1	Other non-metallic mineral products - 2023	EF glass
Plastic	0,54	kgCO2e/euro	Based on BC ADEME 23.1	Rubber and plastic products - 2023	EF plastic
Recycled plastic	0,05	kgCO2e/euro	Based on BC ADEME 23.1	=EF plastic /10 Assumption: ratio 10 between the impacts of new and recycled plastic Source: ADEME New PEDBD plastic: 2090 kgCO2e/tonne and recycled: 202 kgCO2e/tonne	EF plastic/10
Food	0,51	kgCO2e/euro	Based on BC ADEME 23.1	Food, beverage and tobacco products - 2023	EF service processed food products

Leather	0,33	kgCO2e/euro	Based on BC ADEME 23.1	Textile, clothing, leather and leather products - 2023	The EF of "textile" goodies
Metal	0,32	kgCO2e/euro	Based on BC ADEME 23.1	Metal products, excluding machinery and equipment - 2023	EF metal
Ceramics	0,22	kgCO2e/euro	Based on BC ADEME 23.1	Other manufactured products - 2023	EF ceramic
Other	0,54	kgCO2e/euro	Based on BC ADEME 23.1	Average of all goodies	Average of all goodies

Type of goodies	**EF with the end of life**	**Unit**	**EF with the end of life**	**Unit**
Cotton	0,22	kgCO2e/US dollar	0,06	kgCO2e/yuan
Cardboard	0,41	kgCO2e/US dollar	0,10	kgCO2e/yuan
Paper	0,41	kgCO2e/US dollar	0,10	kgCO2e/yuan
Wood	0,14	kgCO2e/US dollar	0,14	kgCO2e/yuan
Electronics	0,15	kgCO2e/US dollar	0,04	kgCO2e/yuan
Glass	1,16	kgCO2e/US dollar	0,29	kgCO2e/yuan
Plastic	0,37	kgCO2e/US dollar	0,09	kgCO2e/yuan
Recycled plastic	0,04	kgCO2e/US dollar	0,01	kgCO2e/yuan
Food	0,35	kgCO2e/US dollar	0,09	kgCO2e/yuan
Leather	0,224	kgCO2e/US dollar	0,06	kgCO2e/yuan
Metal	0,22	kgCO2e/US dollar	0,05	kgCO2e/yuan
Ceramics	0,153	kgCO2e/US dollar	0,4	kgCO2e/yuan
Other	0,37	kgCO2e/US dollar	0,09	kgCO2e/yuan

Waste

Waste EFs vary according to waste type and associated end-of-life.

Depending on the type of waste, certain treatment methods are not applicable. For example, there is no EF for recycling residual waste, as this type of waste does not fall into this category. For WEEE (electronic waste), there is only a EF for average end-of-life. For organic waste, the user can choose between "unknown - average end-of-life", "methanization", "incineration", "composting" or "landfill".

Waste can be entered in kg, m3, liters or bags, depending on the type of data available to the user. These units are also available in the imperial system.
The EFs in kgCO2e/kg come from the Empreinte database and are then converted into kgCO2e/m3, kgCO2e/litre and kgCO2e/bag according to the following conversion factors:

Density table by waste type

Residuals	250	kg/m3
Cardboard/paper	150	kg/m3
Plastic	100	kg/m3
Metals	750	kg/m3
Glass	500	kg/m3
Organic	400	kg/m3
Electronics	600	kg/m3
Wood	400	kg/m3

Converting m3 to liters	1	m3	1000	liters
Converting liters into bags	1	bag	110	liters

Unknown/medium end of life

Type of waste	EF in kg	EF in m3	EF in liters	EF in bag	EF source (kg)	EF title Assumptions
Wood	0,12	48,80	0,05	5,37	BC ADEME 23.1	Building waste/class B wood/end-of-life - impacts
Residual waste	0,39	96,50	0,10	10,62	BC ADEME 23.1	Residual household waste / average end-of-life - impacts
Paper / Cardboard	0,74	110,55	0,11	12,16	BC ADEME 23.1	Cardboard packaging - average end-of-life chain - impacts
Plastics	1,48	147,90	0,15	16,27	BC ADEME 23.1	Packaging - petroleum-based rigid plastic PET other packaging - end-of-life average value chain - impacts
Metals	0,31	233,25	0,23	25,66	BC ADEME 23.1	Aluminium packaging end of life average sector - impacts
Glass	0,50	248,00	0,25	27,28	BC ADEME 23.1	Glass packaging end of life average sector - impacts
Organic waste	0,69	276,80	0,28	30,45	BC ADEME 23.1	EF landfill to be conservative
Electronic waste	2,00	1197,00	1,20	131,67	BC ADEME 23.1	Average WEEE (default) - Average EOL - Impacts

Incineration

Type of waste	EF in kg	EF in m3	EF in liters	EF in bag	Source	EF title Assumptions
Wood	0,07	27,60	0,03	3,04	BC ADEME 23.1	Packaging/wood/incineration - Impacts
Residual waste	0,37	93,50	0,09	10,29	BC ADEME 23.1	Residual household waste / incineration - impacts
Paper / Cardboard	0,12	18,00	0,02	1,98	BC ADEME 23.1	Cardboard packaging - incineration - impacts

Plastics	2,14	213,90	0,21	23,53	BC ADEME 23.1	Packaging - PET petrosourced plastic - incineration - impacts
Metals	0,11	82,50	0,08	9,08	BC ADEME 23.1	Packaging/Aluminium/Incineration - Impacts
Glass	0,13	65,00	0,07	7,15	BC ADEME 23.1	Glass packaging incineration - impacts
Organic waste	0,05	18,00	0,02	1,98	BC ADEME 23.1	Putrescible waste - Incineration - Impacts
Electronic waste	NA	NA	NA	NA		

Landfill

Type of waste	EF in kg	EF in m3	EF in liters	EF in bag	Source	EF title Assumptions
Wood	0,93	370,10	0,37	40,71	BEIS 2023	Wood - Building materials - Landfill
Residual waste	0,41	103,00	0,10	11,33	BC ADEME 23.1	Residual household waste / storage - impacts
Paper / Cardboard	0,95	142,50	0,14	15,68	BC ADEME 23.1	Packaging/cardboards/storage - impacts
Plastics	0,04	4,10	0,00	0,45	BC ADEME 23.1	Packaging - PET petroleum plastic - storage - Impacts
Metals	0,04	30,75	0,03	3,38	BC ADEME 23.1	Packaging/Aluminium/Storage - Impacts
Glass	0,04	20,50	0,02	2,26	BC ADEME 23.1	Glass packaging storage - impacts
Organic waste	0,69	276,80	0,28	30,45	BC ADEME 23.1	Putrescible waste - Storage - Impacts
Electronic waste	NA	NA	NA	NA		

Recycling

Type of waste	EF in kg	EF in m3	EF in liters	EF in bag	Source	EF title Assumptions
Wood	0,02	8,51	0,01	0,94	BEIS 2023	Wood - Building materials - Closed loop recycling
Residual waste	NA	NA	NA	NA		Not applicable
Paper / Cardboard	0,99	148,80	0,15	16,37	BC ADEME 23.1	Cardboard packaging - recycling - impacts
Plastics	0,66	214,00	0,21	23,54	BC ADEME 23.1	Packaging - rigid plastic PET other packaging - recycling - Impacts
Metals	0,87	654,75	0,65	72,02	BC ADEME 23.1	Aluminium packaging - recycling - impacts
Glass	0,64	319,50	0,32	35,15	BC ADEME 23.1	Glass packaging recycling - impacts
Organic waste	NA	NA	NA	NA		
Electronic waste	NA	NA	NA	NA		

Methanization

Type of waste	EF in kg	EF in m3	EF in liters	EF in bag	Source	EF title Assumptions
Organic waste	0,173	69,20	0,07	7,61	BC ADEME 23.1	Kitchen waste - Methanization - Impacts

Composting

Type of waste	EF in kg	EF in m3	EF in liters	EF in bag	Source	EF title Assumptions
Wood	0,0089	3,56	0,004	0,39	BEIS 2023	Wood - Building materials - Composting
Organic waste	0,0089	3,56	0,004	0,39	BEIS 2023	Organic: food and drink waste/garden waste/mixed food and garden waste

Imperial system

Waste can also be entered in imperial units. The EFs are based on metric EFs and the following conversion factors:

Conversion ft3 to m3	1	ft3	0,028	m3
Conversion gal to liters	1	gal	3,79	liters
Conversion lbs to kg	1	lbs	0,45	kg
Conversion US short ton to kg	1	US short ton	907	kg

Unknown/medium end of life

Type of waste	EF in lbs	EF in ft3	EF in gal	EF in US tone
Wood	0,06	1,38	0,18	110,71
Residual waste	0,18	2,73	0,37	350,27
Paper / Cardboard	0,33	3,13	0,42	668,78
Plastics	0,67	4,19	0,56	1342,11
Metals	0,14	6,60	0,88	282,21

Glass	0,22	7,02	0,94	450,09
Organic waste	0,31	7,84	1,05	627,95
Electronic waste	0,90	33,90	4,53	1810,34

Incineration

Type of waste	EF in lbs	EF in ft3	EF in gal	EF in US tone
Wood	0,03	0,78	0,10	63
Residual waste	0,17	2,65	0,35	339
Paper / Cardboard	0,05	0,51	0,07	109
Plastics	0,97	6,06	0,81	1941
Metals	0,05	2,34	0,31	100
Glass	0,06	1,84	0,25	118
Organic waste	0,02	0,51	0,07	41
Electronic waste	NA	NA	NA	NA

Landfill

Type of waste	EF in lbs	EF in ft3	EF in gal	EF in US tone
Wood	0,42	10,48	1,40	840

Residual waste	0,19	2,92	0,39	374
Paper / Cardboard	0,43	4,04	0,54	862
Plastics	0,02	0,12	0,02	37
Metals	0,02	0,87	0,12	37
Glass	0,02	0,58	0,08	37
Organic waste	0,31	7,84	1,05	628
Electronic waste	NA	NA	NA	NA

Recycling

Type of waste	**EF in lbs**	**EF in ft3**	**EF in gal**	**EF in US tone**
Wood	0,01	0,24	0,03	19,3
Residual waste	NA	NA	NA	NA
Paper / Cardboard	0,45	4,21	0,56	900,181
Plastics	0,97	6,06	0,81	1941,924
Metals	0,40	18,54	2,48	792,196
Glass	0,29	9,05	1,21	579,855
Organic waste	NA	NA	NA	NA
Electronic waste	NA	NA	NA	NA

Methanization

Type of waste	EF in lbs	EF in ft3	EF in gal	EF in US tone
Organic waste	0,078	1,96	0,26	157

Composting

Type of waste	EF in lbs	EF in ft3	EF in gal	EF in US tone
Organic waste	0,0040	0,10	0,01	8,1
Wood	0,0040	0,10	0,01	8,1

Data specific to Climeet Space Designer

Storage

In the service calculation, the user can specify the surface area in m² used to store the various fittings used during the service, as well as the number of days of storage. It is assumed that most of these buildings are poorly insulated, such as warehouses. We take the energy consumption of a building with energy letter E, i.e. 130 kWh/m².day (according to the table in "Energy").
By multiplying by the surface area and number of days, we obtain an estimate of the storage's energy consumption in kWh, converted into kgCO2e using the EF of the energy mix of the country hosting the event, as specified in the service parameters.

Auxiliary services

The user can choose between two approaches to estimating emissions linked to ancillary services: a less robust monetary approach, and an approach based on work-days, depending on the information available.
Auxiliary services do not cover all the services provided by space planners, and the associated emissions are usually negligible in relation to the total footprint.
The monetary EFs have also been weighted by a factor of 1.18 to take account of 18% inflation between 2018 and 2024.

Monetary approach

Services	EF	Unit	Source	Assumptions
Security	0,144	kgCO2e/€/ year	Based on BC ADEME 23.1	Service - Services (printing, advertising, architecture and engineering, multi-technical building maintenance, guarding, cleaning, security, travel agency, other business services)
Hosts	0,144	kgCO2e/€/ year	Based on BC ADEME 23.1	Service - Services (printing, advertising, architecture and engineering, multi-technical building maintenance, guarding, cleaning, security, travel agency, other business services)
Manager	0,144	kgCO2e/€/ year	Based on BC ADEME 23.1	Service - Services (printing, advertising, architecture and engineering, multi-technical building maintenance, guarding, cleaning, security, travel agency, other business services)
Catering	0,271	kgCO2e/€/ year	Based on BC ADEME 23.1	Service - Accommodation and catering
Entertainment	0,229	kgCO2e/€/ year	Based on BC ADEME 23.1	Service - Sports, leisure and recreational activities

Cleaning	0,144	kgCO2e/€/year	Based on BC ADEME 23.1	Service - Services (printing, advertising, architecture and engineering, multi-technical building maintenance, guarding, cleaning, security, travel agency, other business services)
Photography/Film	0,263	kgCO2e/€/year	Based on BC ADEME 23.1	Service - Films, sound recordings, television and radio

Work-days approach

The work-day emission factors are the same as those used in the "dedicated man-time" section. They are adapted according to the country entered in the service parameters.

Digital

The carbon impact of digital can be broken down into three components: data storage, data transfer over the network, and data visualization.
For each digital category, the total footprint is the sum of these three footprints, calculated separately.

Websites

The carbon footprint of a website is broken down into three components:

- Website data storage footprint
- The footprint of data transfer over the network
- The footprint associated with viewing the website

To calculate the carbon footprint associated with data storage, we first estimate the weight in MB of the website, based on the number of web pages filled in by the user. The data weight of a web page is estimated at 2.21 MB/web page (Source: http Archive, 2021). This data weight is then converted into kWh of electricity consumed to run the data centers.
Electricity consumption is estimated at 0.002 kWh/Go stored, according to Carbon Brief.

Then, depending on whether storage is local or on Cloud servers, different EFs are used.
If the storage is local, the tool takes the EF of the electricity mix of the country of the event.
If the storage is on Cloud, we take the following EF:

Cloud type	EF	Unit	Source
Cloud - AWS	0,21	kgCO2e/kWh	Based on U.S. Environmental Protection Agency
Cloud - Azure	0,03	kgCO2e/kWh	Based on U.S. Environmental Protection Agency
Cloud - Google	0,03	kgCO2e/kWh	Based on U.S. Environmental Protection Agency
Cloud - Unknown	0,57	kgCO2e/kWh	Based on U.S. Environmental Protection Agency

To calculate the carbon footprint of website data transfer, we estimate the energy consumption represented by a visit to the website.
According to Website Carbon, an English website that calculates the carbon footprint of a web page, on average, a visit to a website worldwide emits 0.5 gCO2e.
According to Sustainable Web Design, the global EF of the electricity mix is 442gCO2e/kWh.
This gives an average value for **electricity consumption linked to a website visit of 0.00113 kWh/visit.**
Then, depending on the country of the event, this electricity consumption is converted into kgCO2e using the EF of the electricity mix of the country of the event.

Finally, the tool estimates the carbon footprint associated with viewing the website. This is done by estimating the electricity consumption of IT equipment, based on the time spent on the website. Laptop and desktop computers are used as a reference. According to Researchgate data on computer equipment used in the USA in 2017, on average the power

used by a fixed computer is 85W, and that of a laptop 22W. Averaging the two values gives a per-minute electricity consumption of 0.001 kWh.
According to Orson.io, the average time spent by French people on a website in 2021 is 2 minutes and 17 seconds, or 137 seconds. Multiplying the total number of visitors by this average visit time and by the average consumption per minute of a computer, we obtain the electricity consumption associated with viewing the website in kWh.
This electricity consumption is then converted into kgCO2e, using the EF of the electricity mix corresponding to the viewing area entered by the user. Regional averages have been calculated from IEA country data, 2022.

Eco-design of a website

The user can specify whether it is a website.
According to Websitecarbone, the average reduction in the carbon footprint of a website visit is between 20% and 50%. Wholegraindigital lists the main eco-design actions for websites, the vast majority of which reduce the amount of data transmitted over the network. We have therefore chosen to apply a reduction ratio to the carbon footprint of data transfer. For a conservative approach, we've taken a reduction factor of 0.8 (to achieve a 20% reduction).

The sum of the three carbon footprints corresponds to the total carbon footprint of the websites.

Applications

The carbon footprint of an application is broken down into three components:

- Application data storage footprint
- The footprint of data transfer over the network
- Application visualization footprint

The data storage footprint is calculated on the basis of the application's weight (in MB). Either the user knows this and enters it directly, or if the weight is unknown, the tool uses the average value of 0.023 GB, according to a 2012 ABI Research study.
The weight of data is then converted into kWh of electricity consumed, using Carbon Brief's conversion factor (in kWh/GB stored). Finally, in the same way as for websites, either the EF of the electricity mix in the country of the event is used if the storage is local, or the EF of the type of Cloud entered.

For the data transfer footprint, the calculation is the same as for website data transfer, based on the total number of visitors to the application, the power consumption conversion factor (kWh/visit) and the country of the event.
If the user specifies an eco-designed application, this footprint is weighted by a factor of 0.8, using the same methodology as for a website.

For the footprint associated with viewing the application, the calculation is the same as for the website in a conservative approach, based on the total number of visitors to the application, an average time of 137 seconds per visit, the factor for converting viewing time into power consumption (kWh/min) and the viewing area.

Livestreams (webinars, videoconferences)

For the carbon footprint associated with the storage of livestream data, we estimate the electricity consumption of the servers, depending on the video/audio quality and the duration in minutes of the livestream.

Energy consumption per hour for videoconferencing data storage, depending on video quality :

Video quality	Server electricity consumption per hour	Unit	Source	Assumptions
SD	0,12	kWh/h	IEA Website	
HD	0,48	kWh/h	IEA Website	
UHD/4K	1,14	kWh/h	IEA Website	
Don't know	0,48	kWh/h	IEA Website	Same value as HD
Audio only	0,02	kWh/h	Based on Greenspector and IEA Website	EF obtained from EF HD in kWh/h and GB/h and EF Audio only in GB/h (rule of 3)
Audio + screen sharing	0,04	kWh/h	Based on Greenspector and IEA Website	EF obtained from EF HD in kWh/h and GB/h and EF Audio + screen sharing in GB/h (rule of 3)

The value corresponding to the quality entered by the user is multiplied by the livestream duration in minutes to obtain electricity consumption in kWh.
In the same way as for websites and the application, we multiply by the EF of the electricity mix of the country of the event if the storage is local, or by the EF of the Cloud entered by the user.

For the carbon footprint of data transfer, we estimate the total weight of data that fessed through the network as a function of the livestream duration in minutes, the total number of people connected, and the weight of data per hour as a function of the video quality of the livestream (table below).

Weight of data transferred during a videoconference as a function of video quality:

Video quality	Data consumption per hour	Unit	Source	Assumptions
SD	0,70	GB/h	Ilounge	
HD	1,50	GB/h	Ilounge	
UHD/4K	7,00	GB/h	Ilounge	
Don't know	1,50	GB/h	IEA Website	Same value as HD
Audio only	0,07	GB/h	Greenspector 2021	
Audio + screen sharing	0,11	GB/h	Greenspector 2021	

In the same way as for websites and applications, this total weight of data is converted into electricity consumption, then into kgCO2e, based on the EF of the electricity mix of the country hosting the event.

For the carbon footprint associated with viewing the livestream, we estimate the total power consumption of the IT equipment connected during the livestream, depending on the number of people connected, the livestream duration, the video quality, and the videoconferencing application.

Laptop video viewing power consumption per hour, depending on video quality:

Video quality	PC electricity consumption per viewing hour	Unit	Source	Assumptions
SD	0,018	kWh/h	Greenspector	
HD	0,020	kWh/h	Greenspector	
UHD/4K	0,023	kWh/h	Greenspector	
Don't know	0,020	kWh/h	Based on Greenspector	Average SD, HD and UHD/4K values
Audio only	0,001	kWh/h	Based on Greenspector and Ilounge	EF calculated from EF HD in GB/h and kWh/h and EF Audio only in GB/h (rule of 3)
Audio + screen sharing	0,001	kWh/h	Based on Greenspector	EF calculated from HD EF in GB/h and kWh/h and Audio EF + screen sharing in GB/h (rule of 3)

Depending on the videoconferencing application used, this power consumption may vary, with some applications consuming more energy than others.
We therefore apply a ratio according to the application entered by the user, calculated on the basis of data from a Greenspector study carried out in 2021:

Videoconferencing application	Viewing electricity consumption ratio	Source
Google Meet	0,67	Ratio calculated from Greenspector data
Microsoft Teams	0,69	Ratio calculated from Greenspector data
Big Blue Buttons	0,71	Ratio calculated from Greenspector data
Skype	0,85	Ratio calculated from Greenspector data
Zoom	0,92	Ratio calculated from Greenspector data
StarLeaf	1,25	Ratio calculated from Greenspector data
Discord	1,77	Ratio calculated from Greenspector data
Other	1,00	Ratio calculated from Greenspector data - average value

We then convert the total electricity consumption of the livestream's viewing equipment into kgCO2e using the EF of the electricity mix associated with the viewing region.

The sum of the three carbon footprints gives the total livestream footprint.

Virtual environments (metaverse, exhibitions)

The carbon footprint of a virtual environment is also broken down into 3 components (storage, transfer and viewing). We apply the same calculation methodology as for the website, applying a factor of 3 in a conservative approach.

Duration used by Climeet (hours) based on the duration entered by the user:

User-defined duration	Duration (hours)
less than an hour	0,5
around an hour	1
several hours	3
one day	6

Social networking

The carbon footprint of a social network post's data storage is calculated according to file type (image/gif or video), which determines an average weight of stored data.

image/gif	5	Mo	Based on the maximum size of an image on X (e.g. Twitter): 5 MB Source : Graphiste Blog X has been chosen as a reference because it is the social network with the lowest limit.
video	500	Mo	Based on the maximum size of a video on X (e.g. Twitter): 512 MB Source : Topovidéo X has been chosen as a reference because it is the social network with the lowest limit.

This average weight is then converted into electricity consumption using Carbon brief's conversion factor (kWh/Go stored). The display area of the post then shows the EF of the region's electricity mix.

The carbon footprint of data transfer on the network is calculated using the same methodology as for the website and the number of visits, by converting the number of views of a post into electricity consumption (kWh/visit), then into kgCO2e using the EF of the electricity mix of the country of the event.

The footprint associated with viewing a post is calculated from the number of views of the post, the duration of viewing, the type of social network, and the viewing zone.
First, we estimate the total viewing time by multiplying the number of views by the viewing time of the post.

If the user hasn't filled in the viewing time, the tool defaults to 15 seconds, according to Social Booster's 2022 article, which is based on the average length of videos on Tiktok and Instagram. Total viewing time is then converted into gCO2e according to social network from 2020 Greenspector data, based on app usage for 1 minute in France on a Galaxy S7 smartphone.

Social network	EF	Unit	Source
Facebook	0,70	gCO2e/min	Greenspector
Instagram	1,90	gCO2e/min	Greenspector
LinkedIn	0,70	gCO2e/min	Greenspector
X (ex Twitter)	0,80	gCO2e/min	Greenspector
Snapchat	2,00	gCO2e/min	Greenspector
Tiktok	4,90	gCO2e/min	Greenspector
Youtube	0,60	gCO2e/min	Greenspector
Other	2,10	gCO2e/min	Average value Greenspector

As these EFs are based on French electricity, we apply the ratio between the EF of the electricity mix in the viewing area entered by the user and the EF of the French electricity mix to the result obtained.

Shared files

The footprint of a shared file is split between data storage and data transfer over the network. It is calculated from the total weight of the data, and the type of data storage on the servers. Total data weight is calculated by multiplying the number of file shares by the average file weight, as estimated by the table below:

Average file size entered by user	Weight used by Climeet	Unit
Very small files (< 1 MB)	0,0005	Go
Small files (< 10 MB)	0,005	Go
Medium file (< 100 MB)	0,05	Go
Large files (< 1 GB)	0,5	Go
Very large files (> 1 GB)	10	Go

Next, the electricity consumption associated with data storage is calculated using the following conversion factor: 0.000392 kWh/Go (source: U.S. Environmental Protection Agency).
Similarly, the electricity consumption involved in transferring data to the network is calculated using the factor: 0.001 kWh/Go (source: U.S. Environmental Protection Agency).
The two electricity consumptions are added together and converted into kgCO2e, either if the storage is local, by the EF of the electricity mix of the country of the event, or if the storage is Cloud-based, by the EFs presented above (source: U.S. Environmental Protection Agency).

Emails

The carbon footprint of an email is calculated from the weight of the email, the number of recipients, and varies according to the electricity mix in the country of the event.
The EF used varies according to the weight of the email.

Email weight	EF	unit	Source
Text only	4	gCO2e/email	BC ADEME 21.1, 2012
With attachment/image (< 1 MB)	20	gCO2e/email	Energuide For a 1 MB e-mail over its entire lifecycle
With attachment/image (> 1 MB)	35	gCO2e/email	BC ADEME 21.1, 2012

These EFs are based on French data. The ratio between the EF of the event country's electricity mix and the EF of the French electricity mix is applied to the result obtained.