

Methodological Guide and Emission Factors

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Introduction

This methodological guide compiles all the Emission Factors (EF) used in Climeet and the various assumptions that are made to ensure a complete event footprint, no matter the situation. For each EF, the database, version, and title are indicated. Quantitative data is only provided for EFs stemming from open-source databases as per data usage and permission policies of concerned databases. EFs used in Climeet are represented in kg of CO2e and include all greenhouse gases from the Kyoto Protocol (1997) with a Global Warming Potential (GWP) over 100 years.
The last modification of this guide was in July 2024.
The next update of Climeet's EFs is scheduled for 2025.

Dedicated work-days

Before the Event

This section deals with emissions related to the event planning and design phase. The user provides the amount of work-days consumed by the organizing teams and intellectual service providers.
The Emission Factors (EF) used are in kgCO2e/work-day and are calculated according to the energy mixes of each country, with the latter needing to be specified.

The footprint of 1 work-day is based on the average carbon footprint of a Full-Time Equivalent (FTE) working in a service company in Belgium over a working year of 220 days in tCO2e/year. The footprint per FTE includes Scopes 1, 2, and 3, meaning all emissions related to an employee's energy use (electricity, heating, air conditioning), as well as their home-work travel and the purchase of consumables. This value comes from two benchmarks conducted by South Pole on about ten service companies, mainly Belgian. From this average data, the average EF of a Belgian employee per work-day was calculated, assuming an average FTE works 220 days per year.
This EF was then extrapolated to different countries based on the EF of each country's energy mix.

Emission category title	Data to be entered	EF Unit	EF source
Internal staff time (upstream design)	Number of work-days	kgCO2e/work-day	South Pole
Service provider time (upstream design)	Number of work-days	kgCO2e/work-day	South Pole

Assembly/Disassembly

It is difficult to obtain information related to the travel of assembly and disassembly teams of the event. Hence, using the EFs from the previous section per FTE, it was decided to approximate these emissions by calculating the number of work-days for assembly and disassembly.
The EF used varies depending on the country of the event, specified by the user in the general settings.

Service provider time (for assembly)	Number of Work-days	kgCO2e/work-day	South Pole
Service provider time (for disassembly)	Number of Work-days	kgCO2e/work-day	South Pole

Transport of Staff and Participants

Emissions related to the travel of organizing teams, service providers, and participants are calculated based on the kilometers traveled per person according to their mode of transport.

Combustion vehicles

For all combustion transport modes, the calculated emissions include upstream (vehicle manufacturing) and usage emissions. The EFs are in kgCO2e/person.km.

Electric Vehicles

The EF used for electric vehicles is divided between upstream emissions and usage emissions. The upstream emissions (vehicle manufacturing) are calculated from the EF "Private car - Mid-range - Compact vehicle - Electric - France" from the Base Carbone® V23.1, considering only the upstream part. The usage emissions are calculated from the average electric consumption of an electric car per person and per km and the CO2 intensity of the energy mix of the event country (source: IEA 2022, non-shareable base).

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

Carpooling

For carpooling, regardless of the motorization, the assumption is an average occupancy rate of 3 people versus 1.3 for an average vehicle for the emission factor from Base Carbone® V23.1. The carpooling EF is thus calculated from the EF of an average vehicle of the same type of motorization with a 1.3/3 ratio.

Bicycle/On Foot

Emissions related to the manufacturing of the bicycle are not taken into account. The emissions related to the travel are zero, so the EF used is zero.

Electric Bicycle

The EF used for the electric bicycle is divided between upstream emissions and usage emissions.
The upstream emissions are calculated from the EF "Electric-assisted bicycle - France" from Base Carbone® V23.1, considering only the upstream part. The usage emissions are calculated from the average electric consumption of an electric bicycle per person and per km and the CO2 intensity of the energy mix of the event country (source: IEA 2023, non-shareable base). The chosen average electric consumption is that of an average electric scooter in a conservative approach, and it is 0.014 kWh/km according to an electric bicycle and scooter manufacturer.

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

Train

For the train, the EF is based on the CO2 intensity of the energy mix of the country where the event takes place (source: IEA 2023, non-shareable base).

Sailboat

Emissions related to the manufacturing of the sailboat are not taken into account. The emissions related to the travel are zero, so the EF used is zero.

Mode of transportation	Electric consumption (kWh/ pers.km)	EF (kgCO2e/ pers.km)	Source	EF Title
Car		0,23	Base Carbone® V23.1	Car - average motorization - 2018 - France
Electric car	0,170	0,084	Base Carbone® V23.1	EF before: Personal car - main line - compact vehicle - electric - France Average electric consumption: 0,17 kWh/km Source: Selectra
Hybrid car		0,183	Base Carbone® V23.1	Personal car - main line - compact vehicle - Hybrid, full, P2
Carpooling		0,10	Based on Base Carbone® V23.1	Based on the EF of the Base Carbone® "Car - Average - 2018 - France", Assumption of 3 people, 1,3 for an average vehicle the ADEME study
Electric carpooling	0,074	0,036	Based on Base Carbone® V23.1	Based on the EF de « electric car », Assumption of 3 people, 1,3 for an average vehicle the ADEME study
Hybrid carpooling		0,079	Based on Base Carbone® V23.1	Based on the 'hybrid car' EF, 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 - mixt 2018" and EF "Motorcycle >250cm3 - mixt 2018"
Electric motorcycle/scooter	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
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
Bus		0,113	Base Carbone® V23.1	Autobus - Diesel - France
Minibus		0,041	Mobitool 2020	
Train		Depends on country of 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
Sailboat		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, and al., 2010	Source "Carbon emissions from international cruise ship passengers' travel to and from New Zealand" Howitt, Revol, Smith, 2010

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 473 km, a medium-haul flight for an outbound distance between 473 and 3700 km, and a long-haul flight for an outbound distance of over 3700 km.

A distinction is also made 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 (ratio of total aircraft footprint). The EFs take radiative forcing (condensation trails) into account but not in-flight services.

Mode of transportation	short-haul pers.kmkgC02e/pers.km	Medium-haul kgC02e/pers.km	Long-haul kgCO2e/pers.km	Source	EF Title

Plane - economy class	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

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:

Aircraft	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-Carbone-carbone

Mode of transport: Unknown

If the information regarding the mode of transport of participants is unavailable, the user also has the option of selecting "Unknown". Assumptions for the distribution of modes of transport have been made based on the distance travelled entered by the user. These assumptions are set out in the table below. In a conservative approach, when assumptions are made for a trip made by car, the tool uses only the EFs for a combustion-powered car. The EF used for trains is the EF train France.

Thus, 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 percentages of distribution of the modes of transport and the total distance entered.

Example: 100 participants travel within the country of the event (National), the tool assumes an average distance of 500 km one way, with 60% of participants travelling by car, 30% by train, 8% by economy plane and 2% by business plane. The EF used in France 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)	Neighboring 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%						
Bike/On foot	10%						
Train		30%	30%	10%			
Plane - economy			8%	72%	80%	50%	50%
Plane - business			2%	18%	20%	50%	50%
Unknown EF for France (kgCO2e/pers.km)	0,126	0,150	0,162	0,280	0,310	0,295	0,295

Freight

For the Freight section, the user is given the choice of entering data in kg, m³ or number of vehicles, depending on the information available.
When the unit entered is the number of vehicles, the user cannot input data for the "train", "container carrier" and "aircraft" categories.

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

Electric utility vehicle

For electric utility vehicles, manufacturing emissions are not included in the calculation.
The EF is calculated on the basis of the average electricity consumption of a commercial vehicle (according to Transport Media) and the EF of the energy mix of the country in which the event takes place.

Electric utility vehicle EF (kgCO2e/km) = Country energy mix EF (kgCO2e/kWh) x Average electric utility vehicle power consumption (kWh/km)

Electricity consumption per 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).

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

Refrigerated utility vehicle

For refrigerated utility vehicles, the carbon impact is divided between fuel consumption, driving and 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 utility vehicle 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 by a refrigerated utility vehicle.

EF refrigerated fuel consumption (kgCO2e/km) = EF of an average utility vehicle (kgCO2e/km) + EF of gasoline (kgCO2e/liter) x average fuel consumption of a refrigeration unit (liter/hour) / average speed of a refrigerated utility vehicle (km/h)
i.e. refrigeration EF (kgCO2e/km) = 0.27 + 3.1 x 2.5 / 57.3

Emissions linked to the leakage of 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 refrigerated utility 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 the refrigeration units of trucks of this size are 85% R134a and 15% R404a.

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

Per refrigerated utility vehicle and per km, we then obtain the EF linked to refrigerant gas leakage of 0.0066 kgCO2e/ km.

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

For the EF in kg of material, the ratio between utility vehicles and refrigerated utility vehicles regarding the EF in number of vehicles is transposed onto this EF in kg of material (excluding refrigerant fluids).

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

For the EF in kg of refrigerant-related material, we assume that an average utility vehicle 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 equipment, we use the road transport conversion factor used by market standards, which is 333 kg/m3 (source: DSV).

Electric refrigerated utility vehicle

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

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

The carbon impact associated with refrigerant leakage is calculated using the same methodology as for an internal combustion refrigeration utility vehicle. 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 utility vehicle in trucks and the EF of the utility vehicle in kg of equipment, as between the electricity consumption of the electric refrigerated utility vehicle 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, we use the same EF in kg and m3 of material to estimate the carbon impact of refrigerants as for the refrigerated utility vehicle.

Hydrogen utility vehicle

The EF of a hydrogen-powered commercial vehicle in kg of material is calculated from the EF of a hydrogen-powered commercial vehicle in number of vehicles (kgCO2e/km), which corresponds to a 3.5-ton truck, and the average empty weight of a commercial vehicle, 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 also split between the impact of fuel consumption and the impact of refrigerant leaks.
The impact of fuel consumption is calculated using BEIS data.
For the impact of refrigerants, the same emission factor per truck and per km as for the refrigerated utility vehicle is used, i.e. 0.0066 kgCO2e/km.

We assume that the average payload of a refrigerated truck weighing less than 33 tons is 9,380 kg (according to Petit Forestier for a 19-tonne refrigerated truck).
Per kg of equipment, we obtain: 7.1E-07 kgCO2e/kg.km.
For m3 of equipment, we use the same method as for the refrigerated utility vehicle.

Refrigerated truck >33t

The carbon impact of the refrigerated truck is also split between the impact of fuel consumption and the impact of refrigerant leaks.
The impact of fuel consumption is calculated using BEIS data.
For the impact of refrigerants, the same methodology is used for refrigerated utility vehicles and for <33t trucks, but with a different quantity of refrigerant per truck, and a different leakage rate. According to 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 equipment, we obtain: 9.74E-07kgCO2e/kg.km.
For m3 of equipment, we use the same method as for the refrigerated utility vehicle.

Refrigerant leaks

To summarize, here are the EFs linked to refrigerant leaks 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.

Type of vehicle	Regrigerant EF	Unit	Source	Assumption
Refrigerated utility vehicle	0,01	kgCO2e/ km	Based on BC ADEME V23.1 and tableur Bilan Carbone V8.9	
Electric refrigerated utility vehicle	0,01	kgCO2e/ km	Based on BC ADEME V23.1 and tableur Bilan Carbone V8.9	
Refrigerated truck < 33 T	0,01	kgCO2e/ km	Based on BC ADEME V23.1 and tableur Bilan Carbone V8.9	
Refrigerated truck > 33 T	0,03	kgCO2e/ km	Based on BC ADEME V23.1 and tableur Bilan Carbone V8.9	

Type of vehicle	Regrigerant EF	Unit	Source	Assumption
Refrigerated utility vehicle	0,00001	kgCO2e/kg.km	Based on BC ADEME V23.1 and tableur Bilan Carbone V8.9	Payload : 820 kg
Electric refrigerated utility vehicle	0,00001	kgCO2e/kg.km	Based on BC ADEME V23.1 and tableur Bilan Carbone V8.9	Payload : 820 kg
Refrigerated truck < 33 T	0,000001	kgCO2e/kg.km	Based on BC ADEME V23.1 and tableur Bilan Carbone V8.9	Payload : 9380 kg
Refrigerated truck > 33 T	0,000001	kgCO2e/kg.km	Based on BC ADEME V23.1 and tableur Bilan Carbone V8.9	Payload : 9380 kg

Type of vehicle	Regrigerant EF	Unit	Source	Assumption
Refrigerated utility vehicle	0,00269	kgCO2e/m3.km	Based on BC ADEME V23.1 and tableur Bilan Carbone V8.9	333 kg/m3
Electric refrigerated utility vehicle	0,00269	kgCO2e/m3.km	Based on BC ADEME V23.1 and tableur Bilan Carbone V8.9	333 kg/m3
Refrigerated truck < 33 T	0,00024	kgCO2e/m3.km	Based on BC ADEME V23.1 and tableur Bilan Carbone V8.9	333 kg/m3
Refrigerated truck > 33 T	0,00032	kgCO2e/m3.km	Based on BC ADEME V23.1 and tableur Bilan Carbone V8.9	333 kg/m3

EF per number of vehicles

Type of vehicle	EF (kgCO2e/km) or Electricity consumption (kWh/km)		Source	EF title and assumptions
Utility vehicle	0,26	kgCO2e/km	BEIS 2023	Utility vehicle - Average (up to 3.5 tons) - Petrol - Global

Electric utility vehicle	0,25	kWh/km	Transport Media	Average electricity consumption of an electric utility vehicle = 0.25 kWh/km
Refrigerated utility vehicle	0,41	kgCO2e/km	Based on BEIS 2023 CNR data and Base Carbone® V23.1	EF refrigerated utility fuel consumption + EF refrigerants
Electric refrigerated utility vehicle (electricity consumption only)	0,41	kWh/km	Based on BEIS 2023, Transport Media, CNR et Base Carbone® V23.1	Calculated from the EF of the utility vehicle and refrigerated utility vehicle and the consumption of the electric utility vehicle. + EF refrigerants
Refrigerated truck < 33 T	1,11	kgCO2e/km	BEIS 2023	HGVs refrigerated (all diesel) - Articulated (>3.5 - 33t), Average Laden + EF refrigerants
Refrigerated truck > 33 T	1,34	kgCO2e/km	BEIS 2023	HGVs refrigerated (all diesel) - Articulated (>33t), Average Laden + EF refrigerants
Truck < 33 T	0,95	kgCO2e/km	BEIS 2023	HGV (all diesel) - Articulated (>3.5 - 33t), Average Laden
Truck > 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

EF per kg of material

Type of vehicle	**Unit: kg of material**		**Source**	**EF title**
Utility vehicle	0,0009	kgCO2e/kg.km	BEIS 2023	utility vehicle - Average (up to 3.5 tons) - Petrol - Global
Electric utility vehicle	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 utility vehicle	0,0015	kgCO2e/kg.km	Based on BEIS 2023 CNR data and Base Carbone® V23.1	Calculated from the EF of the utility vehicle and refrigerated utility vehicle in number of trucks and the EF of the utility vehicle in kg + EF of refrigerants.

Electric refrigerated utility vehicle	0,0015	kWh/kg.km	Based on BEIS 2023, Transport Media, CNR and Base Carbone® V23.1	Calculated from the EF of the utility vehicle, the consumption of the electric refrigerated utility vehicle in number of trucks and the EF of the utility vehicle in kg.
Refrigerated truck < 33 T	0,0002	kgCO2e/kg.km	BEIS 2023	HGVs refrigerated (all diesel) - Articulated (>3.5 - 33t), Average Laden
Refrigerated truck> 33 T	0,0001	kgCO2e/kg.km	BEIS 2023	HGVs refrigerated (all diesel) - Articulated (>33t), Average Laden
Truck < 33 T	0,0001	kgCO2e/kg.km	BEIS 2023	HGV (all diesel) - Articulated (>3.5 - 33t), Average Laden
Truck > 33 T	0,0001	kgCO2e/kg.km	BEIS 2023	HGV (all diesel) - Articulated (>33t), Average Laden
Hydrogen 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 utility vehicle
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

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's EF in kgCO2e/km.kg is therefore multiplied by 1000.

Type of vehicle	Unit entered: m3 of material		Source
Utility vehicle	0,31	kgCO2e/m3.km	Based on BEIS 2023
Electric utility vehicle	0,30	kWh/m3.km	Based on BEIS 2023 et Transport Media
Refrigerated utility vehicle	0,50	kgCO2e/m3.km	Based on BEIS 2023, CNR and Base Carbone® V23.1
Electric refrigerated utility vehicle	0,49	kWh/m3.km	Based on BEIS 2023, Transport Media, CNR et Base Carbone® V23.1
Refrigerated truck< 33 T	0,06	kgCO2e/m3.km	Based on BEIS 2023
Refrigerated truck > 33 T	0,04	kgCO2e/m3.km	Based on BEIS 2023
Truck < 33 T	0,05	kgCO2e/m3.km	Based on BEIS 2023
Truck > 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
Plan	0,21	kgCO2e/m3.km	Based on BEIS 2023
Container ship	0,02	kgCO2e/m3.km	Based on BEIS 2023

Data specific to Climeet Space Designers

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 their booth or space. In the parameters, they can specify whether manufacturing is local, and choose a freight distance range in km.

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

Depending on the distance, assumptions are made about the distribution of freight transport modes, and the following EFs are obtained:

User-selected distance	EF (kgCO2e/m3.km)	Source	Transport mode assumptions
+/- 50km from the event	0,052	Based on BEIS 2023	100% truck <33t

+/- 200 km from the event	0,052	Based on BEIS 2023	100% truck <33t
+/- 600km from the event	0,052	Based on BEIS 2023	100% truck <33t
+/- 1000 km from the event	0,052	Based on BEIS 2023	100% truck <33t
+/- 3000km from the event	0,0915	Based on BEIS 2023	75% truck <33t / 25% plane
+/- 5000km from the event	0,131	Based on BEIS 2023	50 % truck <33t / 25% boat / 25% plane
+/- 10000km from the event	0,171	Based on BEIS 2023	75% plane / 25% boat

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 using an estimate with the number of kg, m3 or number of vehicles.

The EF used for fuel consumption are as follows:

Carburants	EF	Unit	Source	Hypothesis
Gasoline (liter)	2,70	kgCO2e/liter	Base Carbone® V23.1	Gasoline - Unleaded premium fuel (95, 95-E10, 98)
Diesel (liter)	3,10	kgCO2e/liter	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/liter	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

Material and space planning

Physical data

Most of the EFs for the "Equipment and space planning" category come from the Base Carbone® V23.1, and the INIES database version 4.1.33.
For small electronic items whose EF did not exist in Base Carbone® V23.1, the EF was calculated from monetary data.
For other items with no EF in the databases, the EF was calculated from the EF of the main material and the average weight of the item.

All EFs are shown in the table below.

Stands and structures

Category: Stands and structures	EF without end of life	EF with the end of life	Unit	Source	EF title and assumptions	EF ratio "made from >50% recycled materials"	No. of "unknown" uses	No. of "rental" uses
Wood (kg)	0,04	0,16	kgCO2e/kg	Base Carbone® V23.1	Short-life wood (furniture...) - manufacturing	0,68	2	10
Plywood (m²)	6,96	18,06	kgCO2e/m²	INIES version 4.1.33	Plywood panel made of okoume-peppercorns and phenolic resin (PF), manufactured in France, for multiple uses (v.1.2) *Carbon storage in wood not taken into account because lifespan <100 years	0,68	2	10
Medium (m²)	15,92	37,02	kgCO2e/m²	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
Melamine (m²)	13,21	30,71	kgCO2e/m²	INIES version 4.1.33	Fire-retardant melamine-surfaced particleboard type P2 (panels for interior fittings used in dry	0,68	2	10

					environments) [thickness 19 mm, up to 25 mm] (v.1.1) *Carbon storage in wood not taken into account because lifespan <100 years			
Glass (kg)	0,43	0,93	kgCO2e/kg	Base Carbone® V23.1	Glass - new	0,72	2	5
Steel (kg)	1,90	2,21	kgCO2e/kg	Base Carbone® V23.1	Steel or tinplate - new	0,71	20	100
Aluminum (kg)	7,49	7,80	kgCO2e/kg	Base Carbone® V23.1	Aluminum - new	0,54	20	100
Plastic(kg)	1,79	3,27	kgCO2e/kg	Base Carbone® V23.1	Plastic - PET - new	0,54	2	10
Bridge of light (ml)	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
Practicable / stage (m^2)	165,46	174,12	kgCO2e/m^2	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

Case of wood EFs 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 events. We have therefore chosen to remove sequestered emissions from the EFs in the INIES database, on the assumption that carbon storage is estimated at 1.850 kgCO2e/kg of product, according to the documentation in the Empreinte database. The mass of the Functional Unit used in the construction of the EFs is specified in the documentation of the INIES database, i.e.:

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

- Melamine: 13.5 kg of wood in the UF

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

Equipments

Category: Furniture	EF without end of life	EF with end of life	Unit	Source	EF title and assumptions	EF ratio “made from >50% recycled materials”	No. of "unknown" uses	No. of "rental" uses
Chair (no.)	24,8	28,39	kgCO2e/(no)	Base Carbone® V23.1	Chair - wood textile	0,775	20	80
Table (no.)	80,2	130	kgCO2e/unit	Base Carbone® V23.1	Table - solid wood	0,68	20	80
Sofa (no.)	182	200	kgCO2e/unit	Base Carbone® V23.1	Sofa - leather	1	20	80
Cabinet (no.)	907	1026	kgCO2e/unit	Base Carbone® V23.1	Cabinet - representative	0,68	20	80

Category: Electricity/sound /lighting/software	EF without end of life	EF with end of life	Unit	Source	EF title and assumptions	EF ratio “made from >50% recycled materials”	No. of "unknown" uses	No. of "rental" uses
Distribution board (no.)	680,00	687,40	kgCO2e/unit	Base Carbone® V23.1	Electrical panel - World	1	20	80
Power supply (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

Triplets (no.)	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 triplet in euros (7 euros on average).	1	30	100
Spots (no.)	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 (no.)	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 spots (no.)	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 (no.)	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

Category: Upholstery	**EF without end of life**	**EF with end of life**	**Unit**	**Source**	**EF title and assumptions**	**EF ratio "made from >50% recycled materials"**	**no. of "unknown" uses**	**no. of "rental" uses**
Needle punched carpet(m²)	27,61	30,10	kgCO2e/m²	INIES version 4.1.33	Flexible textile flooring - default environmental data (v.1.3)	0,54	2	2
Velvet carpet(m²)	23,55	24	kgCO2e/m²	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
Linoleum (m²)	34,38	42,20	kgCO2e/m²	INIES version 4.1.33	Flexible linoleum flooring - - default environmental data (v.1.3)	0,68	2	5
Rubber (m²)	44	53,50	kgCO2e/m²	INIES version 4.1.33	Flexible rubber flooring - - default environmental data (v.1.3)	1	2	5
Curtains (m²)	5,26	5,39	kgCO2e/m²	INIES version 4.1.33	Blackout curtain - default environmental data (v.1.1)	0,87	10	30

Scratch cotton (m²)	1,14	1,15	kgCO2e/m²	INIES version 4.1.33	Thermal and acoustic insulation for cotton fiber partitions [R=2.5m2.K/W] - default environmental data (v.1.2)Avec fin de vie	0,885	2	2

Category: Signage	**EF without end of life**	**EF with end of life**	**Unit**	**Source**	**EF title and assumptions**	**EF ratio "made from >50% recycled materials"**	**no. of "unknown" uses**	**no. of "rental" uses**
Adhesive (m)	0,06713	0,0686	kgCO2e/m	INIES version 4.1.33	Adhésif Vario® Multitape (v.1.3) Avec fin de vie	1	1	2
Adhesive(m²)	Not sharable	Not sharable	kgCO2e/m²	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/m²	INIES version 4.1.33	PVC awning fabric - default environmental data (v.1.4)	0,87	1	2
PVC (m²)	7,15	7,17	kgCO2e/m²	INIES version 4.1.33	PVC awning fabric - default environmental data (v.1.4)	0,61	1	2
PET (m²)	0,54	0,98	kgCO2e/m²	Based on Base Carbone® V23.1	EF "Plastic - PET - new" (kgCO2e/kg) 300g/m² assumption Source: Bretagne Matériaux	0,54	1	2
Polyester (m²)	4,16	4,53	kgCO2e/m²	Based on Higgs 2021	Assumption: 250g/m² polyester - Polyester fabric, woven	0,54	2	10
Polyester (kg)	13,70	15,18	kgCO2e/kg	Base Carbone® V23.1	Polyester fiber yarn	0,54	2	10
Polypropylene	11,00	11,37	kgCO2e/m²	Higgs 2022	Assumption: 250g/m².	0,54	2	10
Cardboard (kg)	0,39	1,13	kgCO2e/kg	Base Carbone® V23.1	Cardboard - new	1,36	2	2
Plastic (kg)	1,79	3,27	kgCO2e/kg	Base Carbone® V23.1	Plastic - PET - new	0,54	2	10

Category : Video	EF without end of life	EF with end of life	Unit	Source	EF title and assumptions	EF ratio “made from >50% recycled materials”	No. of "unknown" uses	No. of "rental" uses
Screen (no.)	371,00	422	kgCO2e/unit	Base Carbone® V23.1	Television - 40-49 inches	1	20	60
23-55 » Screen (no.)	265,00	265	kgCO2e/unit	Base Carbone® V23.1	23.8-inch screen	1	20	60
55-98 » Screen (no.)	371,00	422	kgCO2e/unit	Base Carbone® V23.1	Television - 40-49 inches	1	20	60
+98" Screen (no.)	1080,00	1118	kgCO2e/unit	Base Carbone® V23.1	2m² advertising screen without casing	1	20	60
Computer (no.)	169	189,00	kgCO2e/unit	Base Carbone® V23.1	Computer - Stationary - Office	1	20	60
Tablet (no.)	82,2	86	kgCO2e/unit	Base Carbone® V23.1	Tablet - detachable	1	20	60
Speaker (no.)	30,70	50 ;70	kgCO2e/unit	Base Carbone® V23.1	Voice-activated speaker	1	20	60
Camera (no.)	30,60	32,40	kgCO2e/unit	Base Carbone® V23.1	Camera - Reflex	1	20	60
Printer/Scanner (no.)	87,90	95,00	kgCO2e/unit	Base Carbone® V23.1	Printer - multifunction	1	20	60

Microphone (no.)	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 (no.)	165,06	169,06	kgCO2e/unit	Based on Base Carbone® V23.1	Computers and electronic equipment - Purchase amount - Assumption: €180 Source: Cdiscount		20	60
VR Headset (no.)	61,44	62,64	kgCO2e/unit	Based on Base Carbone® V23.1	Computers and electronic equipment - Purchase amount Assumption: €67 Source: Darty		20	60
Mixing console (no.)	169	189	kgCO2e/unit	Base Carbone® V23.1	Equivalent to "laptop" EF		20	60
LED wall (m²)	379,00	403	kgCO2e/m²	Base Carbone® V23.1	Liquid crystal display, light-emitting diode backlight, m2 (LCD LED), TW		20	60

Category : Plant	**EF without end of life**	**EF with end of life**	**Unit**	**Source**	**EF title and assumptions**	**EF ratio “made from >50% recycled materials”**	**no. of "unknown" uses**	**no. of "rental" uses**
Green plant- small (no.)	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
Green plant- medium (no.)	15,00	20,79	kgCO2e/unit	Based on Base Carbone® V23.1	EF " Potted shrub - permanent grassland, with clover, north-West region " (kgCO2e/kg)	1	2	5

					Assumption: 5 kg			
Green plant- large (no.)	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	2

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

Sink (no.)	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

Other	**EF without end of life**	**EF with end of life**	**Unit**	**Source**	**EF title and assumptions**	**EF ratio "made from >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
Cardboard (kg)	0,39	1,13	kgCO2e/kg	Base Carbone® V23.1	Cardboard - new	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

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 - Partially aggregated EF	0,885	10	45

Reuse / rental

Climeet divides the emissions linked to the manufacturing 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 manufacturing of the item 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 recorded 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 item'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, in the same way 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 end-of-life.

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 end-of-life is included.
For EFs where end-of-life is not included, end-of-life emissions have been calculated based on 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 they are made from more than 50% recycled materials. When the user selects "No" or "Unknown," the EF is not modified. If the user selects "Yes," the EF is then multiplied by a weighting factor. Depending on the nature of the materials composing the item, this percentage varies. These percentages are listed in the table below. For items not made from the materials listed in the table, the EF remains unchanged in all cases.

Material	EF ratio vs original	Source	Hypothesis
Wood	0,68	BEIS 2023	Difference between "Closed loop source" (113 kg CO2/t) and "Primary material production" (312 kg CO2e/t)
Plastic	0,54	Base Carbone® V23.1	Ratio between the EF of "recycled plastic" and "new plastic"
PVC	0,61	Base Carbone® V23.1	The relationship between recycled PVC and new PVC
Steel or tinplate	0,71	Base Carbone® V23.1	Relationship between 'recycled steel' and 'new steel'
Aluminum	0,54	Base Carbone® V23.1	The relationship between recycled aluminum and new aluminum
Glass	0,72	Base Carbone® V23.1	The relationship between recycled glass and new glass
Paper	1,03	Base Carbone® V23.1	The relationship between recycled paper and new paper
Card box	1,36	Base Carbone® V23.1	The relationship between recycled cardboard and new cardboard

Fabric	0,87	Higgs 2022	Percentage difference between "primary polyester (knitted)" and "recycled polyester (knitted)
Cotton	0,885	Higgs 2023	Percentage difference between "primary cotton (knitted)" and "recycled cotton (knitted)"

Monetary data

As a last resort, when information is not available, the user can input monetary data, which are converted using monetary emission factors from the ADEME's Footprint database. Since these factors date back to 2018, to account for recorded inflation between 2018 and 2024 of 18%, the factors are divided by 1.18.
The EFs in the Base Carbone® 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 between EFs with end-of-life and EFs without end-of-life from 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 'Rental'.

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

Similar to EFs for physical data, hypothetical reuse numbers are used when the user inputs "Yes" in the "Reuse" section, based on the lifespan of the materials.
For rental items, a different approach is used, as the budget entered by the user already corresponds to a rental item, which is inherently lower than a purchase price, as it already includes the number of potential rentals of the item. When we compare purchase prices with rental prices for furniture or electronics, we find on average a factor of 20, which gives the theoretical number of re-uses. However, items of this type have a

higher number of reuses than 20, around 80 or even 100. Generally speaking, we are at least 4 times the cumulative rental price compared with the purchase price, given that rental companies seek to maximize the price difference between purchase and rental. We have therefore chosen to divide the budget entered for 'rental' by 4 in order to assess the real number of possible re-uses of a rental item.

Stands and structures	EF without end-of-life	EF with end-of-life	Unit	Source	Assumption	Number of reuses if "yes"	"Rental" factor
Rather wood	0,42	1,83	kgCO2e/euro	Based on Base Carbone® V23.1	Service - Wood and Wooden Items	3	4
Rather metal	1,44	1,54	kgCO2e/euro	Based on Base Carbone® V23.1	Service - Metals (aluminum, copper, steel, etc.)	10	4
Rather plastic	0,68	1,24	kgCO2e/euro	Based on Base Carbone® V23.1	Service - Plastics and Rubber	3	4
Unknown	0,85	0,99	kgCO2e/euro	Based on Base Carbone® V23.1	Average of other	3	4

Stands and structures	EF without end-of-life	EF with end-of-life	Unit	EF without end-of-life	EF with end-of-life	Unit
Rather wood	0,29	1,26	kgCO2e/dollar	0,07	0,31	kgCO2e/yuan
Rather metal	0,99	1,06	kgCO2e/dollar	0,25	0,26	kgCO2e/yuan
Rather plastic	0,46	0,85	kgCO2e/dollar	0,12	0,21	kgCO2e/yuan
Unknown	0,29	0,12	kgCO2e/dollar	0,07	0,03	kgCO2e/yuan

Equipment	EF without end-of-life	EF with end-of-life	Unit	Source	Assumption	Number of reuses if "yes"	“Rental” factor
Furniture	0,51	0,59	kgCO2e/euro	Based on Base Carbone® V23.1	Service - Furniture and other manufactured goods	10	4
Electronics/sound/light/software	0,34	0,36	kgCO2e/euro	Based on Base Carbone® V23.1	Service - IT, electronic and optical products	20	4
Decorations	0,55	0,65	kgCO2e/euro	Based on Base Carbone® V23.1	Average between EF "Service - Plastics and rubber" and EF "Service - Wood and wood products".	3	4
Signage	0,68	0,7	kgCO2e/euro	Based on Base Carbone® V23.1	Service - Plastics and rubber (for vinyl, for example)	3	4
Upholstery/carpet	0,96	1,0	kgCO2e/euro	Based on INIES v.4.1.33	Flexible textile floor covering - default environmental data (v.1.2)" (emissions linked to production + installation) (kgCO2e/m²) Assumption: price per m²: €25 Source: Prix Pose	2	4
Paper	0,76	1,4	kgCO2e/euro	Based on Base Carbone® V23.1	Service - Paper and cardboard	2	4

Equipment	EF without end-of-life	EF with end-of-life	Unit	EF without end-of-life	EF with end-of-life	Unit
Furniture	0,35	0,40	kgCO2e/dollar	0,09	0,10	kgCO2e/yuan
Electronics/sound/light/software	0,23	0,25	kgCO2e/dollar	0,06	0,06	kgCO2e/yuan
Decorations	0,38	0,45	kgCO2e/dollar	0,09	0,11	kgCO2e/yuan
Signage	0,46	0,49	kgCO2e/dollar	0,12	0,12	kgCO2e/yuan
Upholstery/carpet	0,66	0,70	kgCO2e/dollar	0,17	0,17	kgCO2e/yuan
Paper	0,52	0,94	kgCO2e/dollar	0,13	0,24	kgCO2e/yuan

Data specific to Climeet Space Designers

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

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

Some materials or equipment are only available in the Climeet Space Designers' catalog, and are listed below:

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

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

Category: Furniture	EF without end of life	EF with end of life	Unit	Source	EF title and assumptions	EF ratio “made from >50% recycled materials”	No. of "unknown" uses	No. of "rental" uses
Chair (no.)	24,8	28,3898	kgCO2e/unit	Base Carbone V23.1	Chair - wood textile	0,775	20	80
Buffet (non-wood) (qty)	128,1	155,12	kgCO2e/unit	Based on Base Carbone® V23.1	EF "Furniture - manufacturing" (kgCO2e/kg)	1	20	80
Wooden buffet (qty)	48	56,54	kgCO2e/unit	Fira 2011	verage calculated from 3 types of office from FIRA benchmark	0,68	20	80
Armchair (no.)	24,8	28,4	kgCO2e/unit	Base Carbone® V23.1	Equivalent to EF "textile wood chair".	0,775	20	80
Display (qty)	80,2	130	kgCO2e/unit	Base Carbone® V23.1	Table - solid wood With end-of-life	0,68	20	80

Category: Electricity	EF without end of life	EF with end of life	Unit	Source	EF title and assumptions	EF ratio “made from >50% recycled materials”	No. of "unknown" uses	No. of "rental" uses
Cable (lm)	0,38	0,58	kgCO2e/m	Base Carbone V23.1	External power cable - main supply, copper conductor, PE	1	30	100
Non-led spotlights (qty)	29,05	29,40	kgCO2e/unit	INIES v.4.1.33	Indoor recessed spotlights [P=13W to 20 W] - DEFAULT	1	20	80
LED spotlights lower part (qty)	10,95	11,3	kgCO2e/unit	INIES v.4.1.33	indoor LED spotlight 14W - DEFAULT ENVIRONMENTAL	1	20	80

Upper part LED spotlights (qty	15,30	15,80	kgCO2e/unit	INIES v.4.1.33	LED indoor spotlight [P. 14 to 30 W]	1	20	80
Stand-alone air conditioner (qty)	239,00	268,60	kgCO2e/unit	Base Carbone V23.1	Mobile air conditioner	1	20	80
LED strips / Flexled (lm)	20,01	20,70	kgCO2e/lm	Based on INIES v.4.1.33	LED strip light [P. 40 W] Assumption: a 40W LED strip measures on average 1.2m Conservative approach to keep the EF LED strip in linear meter	1	20	80

Category floral decoration	**EF without end of life**	**EF with end of life**	**Unit**	**Source**	**EF title and assumptions**	**EF ratio "made from >50% recycled materials"**	**No. of "unknown" uses**	**No. of "rental" uses**
Cut flowers / Bouquet (qty)	29,00	29,04	kgCO2e/unit	Royal Agricultural Society of England		1	2	5
Vertical garden (m²)	45,00	48,86	kgCO2e/m²	Several manufacturers	Average obtained from the data of several manufacturers	1	2	5
Green plant - 5kg (qty)	5,00	6,93	kgCO2e/unit	Based on Base Carbone V23.1	Potted shrub - permanent grassland, with clover, north-	1	2	5
Green plant - 15kg (qty)	15,00	20,79	kgCO2e/unit	Based on Base Carbone V23.1	Potted shrub - permanent grassland, with clover, north-	1	2	5
Green plant - 50kg / Tree (qty)	50,00	69,30	kgCO2e/unit	Based on Base Carbone V23.1	Potted shrub - permanent grassland, with clover, north-	1	2	5
Planter filling (m²)	22,80	34,38	kgCO2e/m²	Based on Base Carbone V23.1	"EF "Conventional Pelargonium" (kgCO2e/plant)		20	80

Garden scene (m²)	3,80	5,73	kgCO2e/m²	Based on Base Carbone V23.1	Assumption: 60 plants per m² (10 plants in a 0.15 m²	1		

Category signage	**EF without end of life**	**EF with end of life**	**Unit**	**Source**	**EF title and assumptions**	**EF ratio "made from >50% recycled materials"**	**No. of "unknown" uses**	**No. of "rental" uses**
Fabrics (m²)	7,15	7,17	kgCO2e/m²	INIES v.4.1.33	PVC awning fabric - default environmental data (v.1.4)	0,87	1	2
Backlit fabric (m²)	7,15	7,17	kgCO2e/m²	INIES v.4.1.33	PVC fabric for blinds - default environmental data (v.1.4)	0,87	1	2

Category catering	**EF without end of life**	**EF with end of life**	**Unit**	**Source**	**EF title and assumptions**	**EF ratio "made from >50% recycled materials"**	**No. of "unknown" uses**	**No. of "rental" uses**
Water fountain (qty)	6,20	35,80	kgCO2e/unit	Based on Base Carbone V23.1	"EF "Average new plastic" (kgCO2e/kg)	0,54	30	100
Hood (qty)	60,43	75,98	kgCO2e/unit	Base Carbone V23.1	Decorative extractor hood	1	20	60
Microwave (qty)	98,40	118,00	kgCO2e/unit	Base Carbone® V23.1	Microwave	1	20	60

Category security	**EF without end of life**	**EF with end of life**	**Unit**	**Source**	**EF title and assumptions**	**EF ratio "made from >50% recycled materials"**	**No. of "unknown" uses**	**No. of "rental" uses**

CO2 fire extinguisher (qty)	not sharable	not sharable	kgCO2e/unit	Based on Base Carbone ADEME 23.1 et Ecoinvent 3.8	Assumption: 5kg of steel (Steel or tinplate - new - Base Carbone 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 Caterer

Some equipment or objects are only present in Climeet Caterer, in the "Equipment and space planning" 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 Caterer, 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 end of life**	**Unit**	**Source**	**EF title and assumptions**	**EF ratio "made from >50% recycled materials"**	**No. of "unknown" uses**
Coton towel (no.)	0,12	0,17	kgCO2e/unit	Based on Higgs 2021	Cotton fabric, knitted - assumption: 140g/m² and 30x30cm	0,885	5
Paper towel (no.)	0,0028	0,0050	kgCO2e/unit	Base Carbone V23.1	Paper - Medium - Out of use and end of life - assumption: 3g	1,03	0
Fabric tablecloth (m²)	2,33	2,42	kgCO2e/m²	Higg 2021	Cotton fabric, knitted - assumption: 250 g/m² and 30x30cm	0,87	5
Polyester tablecloth (m²)	10,10	10,47	kgCO2e/m²	Higg 2021	Polyester fabric, knitted - assumption: 250 g/m² and 30x30cm	0,54	5
Papper tablecloth (m²)	0,04	0,07	kgCO2e/m²	Base Carbone V23.1	Paper - Medium - Out-of-use and end-of-life and 45 g/m² density	1,03	0

Polyester motelon (m²)	4,16	4,56	kgCO2e/m²	Based on Higgs 2022	270g/m² polyester - Polyester fabric, woven	0,54	5
Solid tableware (no.)	non-shareable	non-shareable basis	kgCO2e/unit	EcoInvent 3.8	Ceramic tile production - RoW - ceramic tile - assumption: 200g	1	100
Cardboard tableware (no.)	0,0039	0,0113	kgCO2e/unit	Base Carbone V23.1	New cardboard - assumption: 10g per plate	1,36	0
Plastic tableware (no.)	0,05	0,12	kgCO2e/unit	Base Carbone V23.1	Plastic - PET - new - assumption: 50g	0,54	0
Solid cutlery (no.)	0,73	0,79	kgCO2e/unit	Base Carbone V23.1	Average EF steel and EF aluminum - assumption: 180g	1	100
Wood cutlery (no.)	0,0004	0,0016	kgCO2e/unit	Base Carbone V23.1	Short-life wood (furniture...) - manufacturing - assumed: 10g per plate	0,68	0
Plastic cutlery (no.)	0,01	0,02	kgCO2e/unit	Base Carbone V23.1	Plastic - PET - new - assumption: 10g	0,54	0
Tape (roll)	0,27	0,43	kgCO2e/unit	Base Carbone V23.1	EF "Plastics - average" - assumption: 0.111 kg per roll	1	0
Returnable glass (25cl)	0,04	0,09	kgCO2e/unit	DEFRA	EF calculated from returnable glass EF (50 cl)	0,54	
Returnable glass (33cl)	0,05	0,13	kgCO2e/unit	DEFRA	EF calculated from returnable glass EF (50 cl)	0,54	
Returnable glass (50cl)	0,07	0,19	kgCO2e/unit	DEFRA	Returnable EF = glass EF / 2 Container type: Glass - new	0,54	

Category: Furniture	**EF without end of life**	**EF with end of life**	**Unit**	**Source**	**EF title and assumptions**	**EF ratio “made from >50% recycled materials”**	**No. of "unknown" uses**

Plastic chair (no.)	90,2	93,4	kgCO2e/unit	Base Carbone V23.1	EF "Chair - plastic" multiplied by the average EF between "steel" and "aluminium" and divided by the EF "plastic" (Base	0,71	80
Wooden chair (no.)	34,4	42,836	kgCO2e/unit	Base Carbone V23.1	Chair - plastic	0,54	80
Steel chair (no.)	18,6	19,7712	kgCO2e/unit	Base Carbone V23.1	Chair/wood	0,68	80
Plastic table (no.)	26,85	56,45	kgCO2e/unit	Based on Base Carbone V23.1	"EF "Plastic - PET - new" (kgCO2e/kg)	0,54	80
Wooden table (no.)	80,2	130	kgCO2e/unit	Base Carbone V23.1	assumption: 15 kg"	0,68	80
Steel table (no.)	95	104,33	kgCO2e/unit	Base Carbone V23.1	Table - solid wood	0,71	80
Cabinets (no.)	182	200	kgCO2e/unit	Base Carbone V23.1	"EF " Steel or tinplate - new " (kgCO2e/kg) assumption: 50 kg"	1	80
Non wooden buffet (no.)	79,45	95	kgCO2e/unit	Based on Base Carbone V23.1	Sofa - leather	0,71	60
Wooden buffet (no.)	128,1	155,12	kgCO2e/unit	Based on Base Carbone V23.1	EF "steel - tinplate - new" assumption: 50 kg	1	80
Buffet (no.)	48	56,54	kgCO2e/unit	Fira 2011	"EF " Furniture	0,68	80

Category: Decoration	**EF without end of life**	**EF with end of life**	**Unit**	**Source**	**EF title and assumptions**	**EF ratio “made from >50% recycled materials”**	**No. of "unknown" uses**
Fabric (m^2)	7,15	7,17	kgCO2e/m^2	INIES v.4.1.33	PVC fabric for blinds - default environmental data (v.1.4)	0,87	2

Metal (kg)	4,39	4,70	kgCO2e/kg	Based on Base Carbone V23.1	Average of "aluminium" and "steel" EFs	0,62	100
Protective cover (m^2)	3,85	4,22	kgCO2e/m^2	Based on Higg 2022	250g/m^2 polyester - Polyester fabric, woven	0,61	5

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

Energy

Known consumption

The user can input the exact consumption of energy used on the event site if this is known. They can input the quantities of fuel used by generators, depending on the type of fuel. You can also input the kWh consumed according to the 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	EF	Unit	Source	EF title
Petrol (l)	2,70	kgCO2e/liter	Base Carbone V23.1	Petrol - Unleaded premium fuel (95, 95-E10, 98)
Diesel (l)	3,10	kgCO2e/liter	Base Carbone V23.1	Road diesel - B7
Used cooking oil (l)	0,54	kgCO2e/liter	Base Carbone V23.1	HVO 100 - based on used edible oils (UOE) - no change in land use
Hydrogen green (kg)	1,14	kgCO2e/kg	Green Deal, NL 2023	Hydrogen green
Hydrogen gray (kg)	12,52	kgCO2e/kg	Green Deal, NL 2023	Hydrogen gray

Other consumption

Type of energy	EF	Unit	Source	EF title
Electricity	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 produced on-site	0,044	kgCO2e/kWh	Base Carbone V23.1	Electricity/photovoltaic/manufactured in China (Default used in France)
Fossil 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	0,002	kgCO2e/kWh	BEIS 2023	Wood logs
Unknown	0,27	kgCO2e/kWh	Based on BEIS 2023	Average of "gas" and "fuel oil" EFs in a conservative approach

Data specific to Climeet Space Designer

Energy consumption at event sites

Type of carburant	EF	Unit	Source	EF title
Gaz consumption	1,81	kgCO2e/liter	Base Carbone V23.1	Propane/seawater - Europe

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

Data specific to Climeet Caterer

Energy consumption at event sites

Wood/Charcoal (kg)	2,35	kgCO2e/kg	Base Carbone V23.1	Wood log/20% humidity

Energy consumption during production phase

The user can input the annual energy consumption in kWh and specify the type of energy. Climeet then uses the service turnover entered in the service parameters and the annual turnover entered in the general parameters to calculate the proportion of consumption to be allocated to the service. The EFs used are the same as in Climeet organizer.

Users can also input annual water consumption in liters.

Water consumption per year (liters)	0,000132	kgCO2e/liters	Base Carbone ADEME 23.1	Network water – excluding infrastructure

In the same way as for energy consumption, a pro rata for water consumption is calculated from the annual turnover and the turnover for the service and converted into kgCO2e using the EF above.

Known consumption

If the user does not know the exact energy consumption of their 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 reserved for the event, and the use of heating or air conditioning.

The final EF used is the sum of 3 EFs:

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

- the second EF is for heating. The user can specify whether heating was used, and if so, the type of heating (heat pump, electric heating, 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 is for air conditioning, where the user can specify whether it was used or not. The EF is also weighted according to the season entered.

Estimating total energy consumption for the event

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

Energy class	Energy consumption of your home per year	Meaning of the energy class	Assumption kWh/m²	Assumption kWh/m²/day (consumption spread over 230 days)
A	0 à 50 kWh/m²	Best-performing homes (often new, rarely renovated)	30	0,13
B	51 et 90 kWh/m²	Low-energy homes	70	0,30
C	91 à 150 kWh/m²	Standard gas-heated homes	120	0,52
D	151 à 230 kWh/m²	Standard homes heated with electricity	200	0,87
E	231 à 330 kWh/m²	Older homes heated with electricity (before the 1979 oil crisis)	300	1,30
F	331 à 450 kWh/m²	Older homes built between 1948 and 1975	400	1,74
G	451 kWh/m² et plus	Older homes that consume a lot of energy	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 depending on the energy letter entered by the user, we obtain the energy consumption for the event in kWh.
This energy consumption is divided 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	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: Ministry for Ecological Transition and Territorial Cohesion - Ceren			

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

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

EF specific electricity

The consumption of specific electricity corresponds to 29% of the total energy consumption estimated in the first part. The EFs used are those of the electricity mix of the country hosting the event, and depending on the case, those 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 EF for heating varies according to the type of heating entered by the user.

Type of heating	EF	Unit	Source	Title of EF
No heating	0,00	kgCO2e/kWh		
Heat pump	Non-shareable basis	kgCO2e/kWh	Ecoinvent 3.8	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)
Wodd	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 “heating oil” EFs using a conservative approach

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

	Season factor heating	Season factor cooling
Winter	1	0
Spring	0,5	0,5
Summer	0	1
Autumn	0,5	0,5

EF air conditioning

The user can specify whether air conditioning was used during the event. Air conditioning consumption in kWh corresponds to 29% of total energy consumption.
The EF used is that for electricity, from the IAE 2023 database. It is also weighted by the seasonality of the event.

For air conditioning, we must also take into account refrigerant losses linked to the use of air conditioning equipment. For this, we based our estimates on the advice of the Plan Général Carbone, which estimates an average cooling capacity of 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 calculated per day and divided by 230, the estimated number of days worked per year.

This quantity of refrigerant lost is then multiplied by the surface area of the hall in m² 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

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 on the basis of the power (W) and the number of hours of use entered by the user.
The EF varies according to the type of energy used by the equipment. These are the same EFs presented above.

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 input the type of meal (coffee break, breakfast, cocktail buffet or full meal) as well as the type of meal (red meat, poultry, vegetarian, fish, etc.).
The EF for 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 local and seasonal nature of the products.
The EF for cutlery depends on the materials used, and whether they are single-use or reused.

Full meal

Full meal	EF	Unit	Source	Title EF / Hypothesis

Classic	2,04	kgCO2e/meal	Base Carbone ADEME 23.1	Meal - medium
Mainly red meat	6,29	kgCO2e/meal	Base Carbone ADEME 23.1	Meal - classic (with beef)
Mainly vegetarian	0,51	kgCO2e/meal	Base Carbone ADEME 23.1	Meal - vegetarian
Mainly poultry or pork	1,35	kgCO2e/meal	Base Carbone ADEME 23.1	Meal - classic (with chicken)
Mainly fish	1,50	kgCO2e/meal	Based on Base Carbone ADEME 23.1	Based on a poultry meal, replacing poultry with fish
Mainly vegan	0,29	kgCO2e/meal	Based on Base Carbone ADEME 23.1	Based on a vegetarian meal, replacing eggs with vegetables

Snack break, breakfast and cocktail buffet

The EFs for breakfast, the cocktail buffet and the snack break are based on the EFs for a full meal, assuming that the quantities served are reduced.

It has been decided that a snack break corresponds to 10% of the quantity of a full meal, that breakfast corresponds to 40% of the quantity of a full meal, and that a cocktail buffet corresponds to 60% of the quantity of a full meal.

The EF for the snack break includes only the food served during the break, not the drinks, which are recorded under "Drinks". There is no snack break EF for the "mainly red meat", "mainly poultry" and "mainly fish" types.

EF snack break = 10% x EF full meal

Breakfast EF = 40% x Full meal EF

EF buffet/cocktail = 60% x EF full meal

Type of meal	Snack break	Breakfast	Cocktail-buffet	Unit	Source
Classic	0,20	0,82	1,22	kgCO2e/meal	Based on Base Carbone V23.1
Mainly red meat	NA	2,52	3,77	kgCO2e/meal	Based on Base Carbone V23.1
Mainly vegetarian	0,05	0,20	0,31	kgCO2e/meal	Based on Base Carbone V23.1

Mainly poultry or pork	NA	0,54	0,81	kgCO2e/meal	Based on Base Carbone V23.1
Mainly fish	NA	0,60	0,90	kgCO2e/meal	Based on Base Carbone V23.1
Mainly vegan	0,03	0,11	0,17	kgCO2e/meal	Based on Base Carbone V23.1

Seasonal products

The menu EF is weighted according to the seasonality of products. The user can input the percentage of seasonal products (0%, 25%, 50%, 75% or 100%) or "Unknown" if the information is not 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
In season (kgCO2e/kg)	0,51	0,47	0,98
Out of season (kgCO2e/kg)	1,88	0,67	2,55

Several assumptions were then made:
The EFs used correspond to meals with 50% seasonal vegetables
Vegetables represent 5% of the total impact of a traditional meal.

We then obtained the following weighting for the menu EFs, taking 50% seasonal produce as the basic reference. When the user enters "unknown", we take a conservative approach with a menu EF increased by 2%.

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

Tableware / cutlery

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

Tableware Cutlery	Weight of cutlery (kg/meal)	EF materials kgCO2e/kg	EF cutlery kgCO2e/meal	Source	Assumption
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, etc.) - manufactured - 200g of cutlery per meal
Reused	0,5	0,00	0,00		Assumption: cutlery is reused a very large number of times

Drinks

The carbon impact of beverages is broken down into the impact of producing the beverage 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 packaging has been removed from the beverage EFs, based on information provided by Agribalyse.
Example: for bottled water, the impact of packaging being 69.5% of the total EF, we have:
EF water without packaging = EF water total - 69.5% x EF water total

Type of beverage	EF Agribalyse (beverage + packaging)	EF Climeet	Unit	Source	EF title / Assumption
Water	0,45	0,14	kgCO2e /liter	Based on Agribalyse 3.1.1	"Bottled spring water
Coffee	0,59	0,59	kgCO2e /liter	Based on Agribalyse 3.1.1	- 69.5% of the impact is due to packaging".
Tea	0,05	0,05	kgCO2e /liter	Based on Agribalyse 3.1.1	Expresso coffee, non-instantaneous, unsweetened, ready to drink
Juice	0,8	0,72	kgCO2e /liter	Based on Agribalyse 3.1.1	Brewed tea, unsweetened

Soda	0,57	0,43	kgCO2e /liter	Based on Agribalyse 3.1.1	Multifruit juice - orange base, multivitamin - 10% of the impact is due to packaging
Beer/Cider	1,09	0,64	kgCO2e /liter	Based on Agribalyse 3.1.1	"Cola, sweetened (same value for "Carbonated drink, no fruit juice, sweetened" or "Tonic or bitter, sweetened")
Wine	1,14	0,82	kgCO2e /liter	Based on Agribalyse 3.1.1	- 25.1% of the impact is due to the packaging".
Strong alcohol	1,16	0,67	kgCO2e /liter	Based on Agribalyse 3.1.1	"Core market beer (4-5° alcohol)

The EFs for beverage containers are calculated from the EFs for the materials and the weight of a single standard container.

Type of container	**EF Climeet (kgCO2e/liter)**	**EF material (kgCO2e/kg)**	**Source**	**Container weight (kg /liter)**	**EF title / Assumption**
Glass	0,52	0,93	Base Carbone ADEME 23.1	0,564	Glass - new Assumption: weight of a necked bottle of wine Source: Verreries talançonnaises
Plastic	0,10	3,27	Base Carbone 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 Base Carbone ADEME 23.1	0,040	50% new aluminium and 50% recycled aluminium (according to Lumni enseignement, on average cans contain 50% recycled aluminium) Assumption: weight of an aluminium can 375mL

Returnable glass	0,26		Based on Base Carbone 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 effect" indicator. Source: Zerowaste
Reused container	0,00				Assumption: reused a very large number of times EF = 0
Returnable metal KEG	0,00				Assumption: reused a very large number of times EF = 0

Data specific to Climeet Caterer

The EFs used for each category of ingredients in the catalogue 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 for the ingredients in that category.

The EFs for each ingredient category are then weighted according to the parameters entered when the part 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 EF. This organic factor is calculated for each major ingredient category using Agribalyse 3.1 data, by comparing the EF of the organic product and the conventional product for the same ingredient.

These organic factors are shown in the table below:

Category	Organic factor
Meat	120%
Vegetable	52%

Milk	82%
Fruit	105%
Egg	86%
Average	89%

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

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

Category of ingredients	**EF (kgCO2e/kg)**	**Organic factor**	**Local factor**	**Transport share (Agribalyse)**	**Assumptions (source: Agribalyse 3.1.1)**
Pastas	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 cereal EF and Tofu EF
Vinegar	1,18	1	99%	3%	Vinegar
Condiments (salt, spices, herbs)	3,63	1	1	/	Average of salt EF, spices EF and non-fresh herbs EF
Sauce	6,37	1	1	/	Average EF sauces
Fresh vegetables	0,86	52%	85%	31%	Average raw non-frozen EF vegetables
Fresh herbs	0,73	105%	100%	0%	Fresh herbs
Potatoes and pulses	2,08	52%	100%	0%	Average EF pulses and EF 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 - excluding compotes and fruit EF outside Europe
Frozen fruit	1,55	105%	99%	2%	Average frozen fruit EF
Fresh fruit from outside Europe	4,33	89%	1	0	Average EF Mango, Banana, Litchi and Pineapple
Viennese pastries	3,29	1	96%	8%	Average EF 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 shortcrust, puff pastry, shortbread and phyllo EFs
Flour	2,57	1	96%	8%	Average EF flours, rice flour and soya flour
Bread	1,10	1	96%	8%	EF various types of bread
Milk	6,05	82%	94%	13%	Average EF powdered milk, sheep's milk, condensed milk and milk on average
Creams and cream-based specialities	3,57	1	94%	13%	Cream, 30% fat, semi-thick, UHT
Cheese	5,69	1	94%	13%	Average cheese EF
Yoghurt/dessert cream	1,70	1	94%	13%	Yoghurt/dessert cream
Eggs	3,19	1	94%	13%	Raw egg
Butter	7,82	1	94%	13%	Butter, 82% fat, sweet
Vegetable oil	5,75	1	94%	13%	Average EF for soya, peanut, palm and sunflower oils
Animal fat/Lard	1,67	1	94%	13%	Average EF for fat and other fats categories
Small fish (e.g. herring, sardines, anchovies)	2,15	1	84%	32%	Average EF herring, anchovy, sardine and mackerel
Other fish	8,11	1	97%	5%	Average raw fish EF excluding small fish

Molluscs and crustaceans	9,22	1	94%	12%	Average EF for the shellfish category
Poultry	5,74	120%	99%	1%	Average raw meat category - Chicken, turkey, capon
Beef	27,40	120%	99%	1%	Average raw meat category - Beef
Veal	18,54	120%	99%	1%	Average raw meat category - Veal
Pork	8,36	120%	99%	1%	Medium category Raw meat - Pork
Mutton	33,01	120%	99%	1%	Medium category Raw meat - Mutton
Lamb	32,84	120%	99%	1%	Medium category Raw meat - Lamb
Duck	6,38	120%	99%	1%	Medium category Raw meat - Duck
Cold meats	9,33	120%	99%	1%	Medium category Charcuterie
Fruit juices	1,08	1	90%	19%	Multifruit juice - Orange base, multivitamin
Alcohol	1,14	1	91%	17%	Average EF core market 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 with a minimum cocoa content of 40%, pastry, bar
Chocolate spread	9,90	1	98%	4%	Spreads
Sweets	5,17	1	98%	4%	Average EF 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 similar sugars (without honey, white sugar, brown sugar) and compote research
Coffee	10,09	1	98%	4%	Coffee

Plant milk	0,40	1	100%	0%	Average EF between plain soya drink and almond drink
Vegetable meat	4,56	1	100%	0%	Average between farmed meat and plant-based meat according to scientific studies
Vegetable eggs	0,18	1	100%	0%	According to Yumgo and a Carbone 4 study
Vegetable 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).

Accommodation

The impact of accommodation is broken down into the impact of the accommodation and the impact of transport between the event venue and the accommodation.
The EF for accommodation varies according to the type of accommodation and its geographical area.

Hotels

Hotel EFs are calculated using values from the Cornell Hotel Sustainability Benchmarking Index 2023 database and are expressed in kgCO2e/room.
The EFs for hotels 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).
The other Scope 3 emissions, such as those from people travelling to the hotel, employee commuting, the 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, internally calculated regional average
Antarctica - medium hotel	46	CHSB 2023, internally calculated regional average
Asia - medium hotel	73	CHSB 2023, internally calculated regional average
Caribbean - medium hotel	91	CHSB 2023, internally calculated regional average
Latin America - medium hotel	32	CHSB 2023, internally calculated regional average
Middle East - medium hotel	91	CHSB 2023, internally calculated regional average

Eastern Europe and Eurasia - mid-range hotel	49	CHSB 2023, internally calculated regional average
Nordic countries - mid-range hotel	46	CHSB 2023, internally calculated regional average
North America - mid-range hotel	18	CHSB 2023, internally calculated regional average
Western Europe - mid-range hotel	25	CHSB 2023, internally calculated regional average
Pacific - mid-range hotel	66	CHSB 2023, internally calculated regional average
World - mid-range hotel	46	CHSB 2023, internally calculated regional average
France - 2 star hotel	2	CHSB 2023, M1, mean
Africa - 2 star hotel	18	CHSB 2023, internally calculated regional average
Antarctica - hotel 2 stars	13	CHSB 2023, internally calculated regional average
Asia - hotel 2 stars	24	CHSB 2023, internally calculated regional average
Caribbean - hotel 2 stars	51	CHSB 2023, internally calculated regional average
Latin America - hotel 2 stars	12	CHSB 2023, internally calculated regional average
Middle East - hotel 2 stars	22	CHSB 2023, internally calculated regional average
Eastern Europe and Eurasia - hotel 2 stars	13	CHSB 2023, internally calculated regional average
Nordic countries - hotel 2 stars	13	CHSB 2023, internally calculated regional average
North America - 2 star hotel	14	CHSB 2023, internally calculated regional average
Western Europe - hotel 2 stars	4	CHSB 2023, internally calculated regional average
Pacific - hotel 2 stars	24	CHSB 2023, internally calculated regional average
World - 2 star hotel	19	CHSB 2023, internally calculated regional average
France - hotel 3 stars	7	CHSB 2023, M1, mean
Africa - hotel 3 stars	22	CHSB 2023, internally calculated regional average
Antarctica - 3 star hotel	24	CHSB 2023, internally calculated regional average
Asia - 3 star hotel	46	CHSB 2023, internally calculated regional average
Caribbean - 3 star hotel	51	CHSB 2023, internally calculated regional average
Latin America - 3 star hotel	15	CHSB 2023, internally calculated regional average
Middle East - 3 star hotel	48	CHSB 2023, internally calculated regional average
Eastern Europe and Eurasia - 3 star hotel	13	CHSB 2023, internally calculated regional average
Nordic countries - 3 star hotel	24	CHSB 2023, internally calculated regional average
North America - 3 star hotel	18	CHSB 2023, internally calculated regional average
Western Europe - 3 star hotel	13	CHSB 2023, internally calculated regional average
Pacific - 3 star hotel	34	CHSB 2023, internally calculated regional average
World - 3 star hotel	28	CHSB 2023, internally calculated regional average

France - 4 star hotel	12	CHSB 2023, M1, mean
Africa - 4 star hotel	75	CHSB 2023, internally calculated regional average
Antarctica - 4 star hotel	43	CHSB 2023, internally calculated regional average
Asia - 4 star hotel	69	CHSB 2023, internally calculated regional average
Caribbean - 4 star hotel	61	CHSB 2023, internally calculated regional average
Latin America - 4 star hotel	30	CHSB 2023, internally calculated regional average
Middle East - 4 star hotel	83	CHSB 2023, internally calculated regional average
Eastern Europe and Eurasia - 4 star hotel	35	CHSB 2023, internally calculated regional average
Nordic countries - 4 star hotel	43	CHSB 2023, internally calculated regional average
north America - 4 star hotel	28	CHSB 2023, internally calculated regional average
Western Europe - 4 star hotel	22	CHSB 2023, internally calculated regional average
Pacific - 4 star hotel	48	CHSB 2023, internally calculated regional average
World - 4 star hotel	49	CHSB 2023, internally calculated regional average
France - 5 star hotel	25	CHSB 2023, M1, mean
Africa - 5 star hotel	107	CHSB 2023, internally calculated regional average
Antarctica - 5 star hotel	78	CHSB 2023, internally calculated regional average
Asia - 5 star hotel	123	CHSB 2023, internally calculated regional average
Caribbean - 5 star hotel	148	CHSB 2023, internally calculated regional average
Latin America - 5 star hotel	68	CHSB 2023, internally calculated regional average
Middle East - 5 star hotel	118	CHSB 2023, internally calculated regional average
Eastern Europe and Eurasia - 5 star hotel	60	CHSB 2023, internally calculated regional average
Nordic countries - 5 star hotel	78	CHSB 2023, internally calculated regional average
North America - 5 star hotel	56	CHSB 2023, internally calculated regional average
Western Europe - 5 star hotel	50	CHSB 2023, internally calculated regional average
Pacific - 5 star hotel	98	CHSB 2023, internally calculated regional average
World - 5 star hotel	90	CHSB 2023, internally calculated regional average

Other types of accommodation

For other types of accommodation, the EFs are calculated based on an estimate of energy consumption per m², and the average surface area per m².

According to Habitat Presto data (see Energy), the average consumption is 250 kWh/m²/year or 1.09 kWh/m²/day.

This assumes 10 hours of consumption per day.

Type of accommodation	Number of m²	Assumption	kWh/day
Tent	3	Internal estimate	1
Bungalow	40	Internal estimate	18
Flat rental	79	Source : Wikipédia	36
House for rent	115	Source : Wikipédia	52
Guest room	18	Source : Wikipédia	8

Based on the estimated daily consumption by type of dwelling, the EF for the electricity mix by region of the world corresponding to the country of the event entered in the parameters is then applied. Regional EFs are calculated from the average EFs for the countries in the region (source: IEA 2023, non-shareable database).

Travel between accommodation and event

The user indicates a range of km for the distance between accommodation and the event venue, as well as the associated mode of transport.
The EFs for the modes of transport are the same as those used in the "Participant transport" section.
The distance used in the calculation is the average value of the km range, as detailed below:

Indication of the distance between the hotel and the event venue	Distance	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

Goodies

In the vast majority of cases, goodies represent a negligible proportion of an event's emissions. To simplify data collection, users can input the corresponding monetary data for goodies that are not listed on Climeet as a last resort.

Physical data

In the Goodies section, items such as badges and textile goodies can be entered as physical data. Other goodies must be entered in the budget section. Remember that it is essential to include data in physical quantities whenever possible, before using monetary data.

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

Badges

Title	EF with end-of-life	Unit	Source	EF title Assumption	Assumption for end-of-life calculation
Nylon wristband without RFID chip (no.)	0,016	kgCO2e/unit	Based on Base Carbone ADEME 23.1	Nylon Assumption: weight =2g	EF Residual waste (Base Carbone 23.1)
Nylon wristband with RFID chip (no.)	0,032	kgCO2e/unit	Based on Base Carbone ADEME 23.1	Nylon Assumption: weight = 4g	EF Residual waste (Base ADEME 23.1)
Choker (no.)	0,080	kgCO2e/unit	Based on Base Carbone ADEME 23.1	50% Nylon + 50% metal hook EF "Nylon" + EF "new steel	EF Residual waste (Base ADEME 23.1)
Badge paper/cardboard (no.)	0,006	kgCO2e/unit	Based on Base Carbone ADEME 23.1	Cardboard- new Weight: 5g	EF Paper/Cardboard (Base ADEME 23.1)
PVC badge (no.)	0,017	kgCO2e/unit	Based on Base Carbone ADEME 23.1	Plastic PVC new Weight: 5g	EF plastic (Base ADEME 23.1)
Plastic protection (badge holder) (no.)	0,017	kgCO2e/unit	Based on Base Carbone ADEME 23.1	Plastic PVC new Weight: 5g	EF plastic (Base ADEME 23.1)

Textile

Title	EF with end-of-life	Unit	Source	EF title Assumption	Assumption for end-of-life calculation
Cotton T-shirt (no.)	7	kgCO2e/unit	Base Carbone 23.1	Cotton T-shirt	According to Base Carbone documentation 23.1
Synthetic T-shirt (no.)	6	kgCO2e/unit	Base Carbone 23.1	Synthetic T-shirt	According to Base Carbone documentation 23.1

Cotton cap (no.)	1,65	kgCO2e/unit	Based on Base Carbone 23.1	EF « cotton » Assumption: 100g	EF textiles - used household linen - average end-of-life chain - impacts (Base Carbone 23.1)
Synthetic cap (no.)	1,06	kgCO2e/unit	Based on Base Carbone 23.1	EF « polyester » Assumption: 70g	EF textiles - used household linen - average end-of-life chain - impacts (Base Carbone 23.1)
Cotton tote bag (no.)	2,45	kgCO2e/unit	Based on Base Carbone 23.1	EF « cotton » Assumption: 100g	EF textiles - used household linen - average end-of-life chain - impacts (Base Carbone 23.1)
Tote bag synthetic (no.)	1,52	kgCO2e/unit	Based on Base Carbone 23.1	EF « polyester » Assumption: 100g	EF textiles - used household linen - average end-of-life chain - impacts (Base Carbone 23.1)

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

Finally, if the goodies do not correspond to the first categories, the user can input the weight of goodies according to the main material.

Raw materials

Title	EF with end-of-life	Unit	Source	EF title Assumption	Assumption for end-of-life calculation
Cotton (kg)	16,5	kgCO2e/kg	Base Carbone 23.1	Cotton thread	EF textiles - used household linen - average end-of-life sector - impacts (Base Carbone 23.1)
Cardboard (kg)	1,13	kgCO2e/kg	Base Carbone V23.1	Cardboard - new	EF Paper/cardboard (Base Carbone 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 23.1)
Metal (kg)	4,70	kgCO2e/kg	Based on Base Carbone V23.1	Average of "new steel" and "new aluminium".	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

Monetary data

The conversion of EFs in kgCO2e/euro into kgCO2e/dollar and kgCO2e/yuan is carried out using the same conversion factor used in the 'Equipment and spatial planning' 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 monetary factors have also been weighted by a factor of 1.18 to take account of the 18% inflation between 2018 and 2024, as the EFs in Base Carbone V23.1 date from 2018.

The monetary factors include end-of-life emissions and are based on the monetary service EFs from the Carbon V23.1 database multiplied by the ratios between EFs with end-of-life and EFs without end-of-life, as presented above.

Type of goodies	EF with end-of-life	Unit	Source	EF title Hypothesis	EFs used in the with/without end-of-life ratio
Textiles	0,59	kgCO2e/euro	Based on Base Carbone ADEME 23.1	Service - Textiles and clothing	EF "textile"
Paper	1,37	kgCO2e/euro	Based on Base Carbone ADEME 23.1	Service - Paper and cardboard	EF paper
Wood	1,83	kgCO2e/euro	Based on Base Carbone ADEME 23.1	Service - Wood and wood products	EF wood
Electronics	0,84	kgCO2e/euro	Based on Base Carbone ADEME 23.1	IT and electronic equipment - Amount of purchases	EF from "video" category
Glass	3,27	kgCO2e/euro	Based on Base Carbone ADEME 23.1	Service - Mineral products (cement, glass, etc.)	EF glass

Plastic	1,24	kgCO2e/euro	Based on Base Carbone ADEME 23.1	Service - Plastics and rubber	EF plastic
Recycled plastic	0,12	kgCO2e/euro	Based on Base Carbone ADEME 23.1	= EF plastic /10 Assumption: ratio 10 between the impacts of new and recycled plastic	EF plastic/10
Food	0,85	kgCO2e/euro	Based on Base Carbone ADEME 23.1	Service - Processed food products	EF Service - Processed food products
Other	1,06	kgCO2e/euro	Based on Base Carbone ADEME 23.1	Average for all goodies	Average for all goodies

Type of goodies	**EF with end-of-life**	**Unit**	**EF with end-of-life**	**Unit**
Textiles	0,40	kgCO2e/US dollar	0,10	kgCO2e/yuan
Paper	0,94	kgCO2e/US dollar	0,24	kgCO2e/yuan
Wood	1,26	kgCO2e/US dollar	0,31	kgCO2e/yuan
Electronics	0,57	kgCO2e/US dollar	0,14	kgCO2e/yuan
Glass	2,24	kgCO2e/US dollar	0,56	kgCO2e/yuan
Plastic	0,85	kgCO2e/US dollar	0,21	kgCO2e/yuan

Recycled plastic	0,08	kgCO2e/US dollar	0,02	kgCO2e/yuan
Food	0,58	kgCO2e/US dollar	0,15	kgCO2e/yuan
Other	0,72	kgCO2e/US dollar	0,18	kgCO2e/yuan

Waste

The EFs for waste vary according to the type of waste and the associated end-of-life.

Depending on the type of waste, certain treatment methods do not apply. For example, the tool does not have an EF for recycling residual waste, as this process is not applicable to this type of waste. For WEEE (electronic waste), there is only an EF for average end-of-life. For organic waste, the user can choose between "unknown - end of life", "methanisation", "incineration", "composting" or “landfill”.

Unknown/average end of life

Type of waste	EF	Unit	Source	Title of EF Assumption
Wood	0,12	kgCO2e/kg	Base Carbone ADEME 23.1	Building waste/class B wood/end-of-life - impacts
Residual waste	0,39	kgCO2e/kg	Base Carbone ADEME 23.1	Residual household waste / average end-of-life - impacts
Paper / Cardboard	0,74	kgCO2e/kg	Base Carbone ADEME 23.1	Cardboard packaging - average end-of-life sector - impacts
Plastics	1,48	kgCO2e/kg	Base Carbone ADEME 23.1	Packaging - petroleum-based rigid plastic PET other packaging - average end-of-life sector - impacts
Metal	0,31	kgCO2e/kg	Base Carbone ADEME 23.1	Aluminium packaging - average end-of-life sector - impacts
Glass	0,50	kgCO2e/kg	Base Carbone ADEME 23.1	Glass packaging - average end-of-life sector - impacts
Organic waste	0,69	kgCO2e/kg	Base Carbone ADEME 23.1	EF landfill to be conservative
Electronic waste (WEEE)	2,00	kgCO2e/kg	Base Carbone ADEME 23.1	Average WEEE (by default) - Average end-of-life sector - Impacts

Incineration

Type of waste	EF	Unit	Source	Title of EF Assumption
Residual waste	0,07	kgCO2e/kg	Base Carbone ADEME 23.1	Packaging/Wood/Incineration - Impacts

Paper / Cardboard	0,37	kgCO2e/kg	Base Carbone ADEME 23.1	Residual household waste / incineration - impacts
Plastics	0,12	kgCO2e/kg	Base Carbone ADEME 23.1	Cardboard packaging - incineration - impacts
Metal	2,14	kgCO2e/kg	Base Carbone ADEME 23.1	PET petroleum-based plastic packaging - incineration - impacts
Glass	0,11	kgCO2e/kg	Base Carbone ADEME 23.1	Packaging/Aluminium/Incineration - impacts
Organic waste	0,13	kgCO2e/kg	Base Carbone ADEME 23.1	Glass packaging - incineration - impacts
Electronic waste (WEEE)	0,05	kgCO2e/kg	Base Carbone ADEME 23.1	Putrescible waste - Incineration - Impacts
Residual waste	NA	kgCO2e/kg		

Landfill

Type of waste	EF	Unit	Source	Title of EF Assumption
Residual waste	0,93	kgCO2e/kg	BEIS 2023	Wood - Building materials - Landfill
Paper / Cardboard	0,41	kgCO2e/kg	Base Carbone ADEME 23.1	Residual household waste/storage - impacts
Plastics	0,95	kgCO2e/kg	Base Carbone ADEME 23.1	Packaging/cardboard/storage - impacts
Metal	0,04	kgCO2e/kg	Base Carbone ADEME 23.1	Packaging - PET petroleum-based plastic - storage - Impacts
Glass	0,04	kgCO2e/kg	Base Carbone ADEME 23.1	Packaging/Aluminium/Storage - impacts
Organic waste	0,04	kgCO2e/kg	Base Carbone ADEME 23.1	Glass packaging - storage - impacts
Electronic waste (WEEE)	0,69	kgCO2e/kg	Base Carbone ADEME 23.1	Putrescible waste - Storage - Impacts
Residual waste	NA	kgCO2e/kg		

Recycling

Type of waste	EF	Unit	Source	Title of EF Assumption
Residual waste	0,02	kgCO2e/kg	BEIS 2023	Wood - Building materials - Closed cycle recycling
Paper / Cardboard	NA	kgCO2e/kg		not applicable
Plastics	0,99	kgCO2e/kg	Base Carbone ADEME 23.1	Cardboard packaging - recycling - impacts
Metal	0,66	kgCO2e/kg	Base Carbone ADEME 23.1	Packaging - Rigid plastic PET Other packaging - Recycling - Impacts
Glass	0,87	kgCO2e/kg	Base Carbone ADEME 23.1	Aluminium packaging - recycling - impacts
Organic waste	0,64	kgCO2e/kg	Base Carbone ADEME 23.1	Glass packaging - recycling - impacts
Electronic waste (WEEE)	NA	kgCO2e/kg		
Residual waste	NA	kgCO2e/kg		

Methanisation

Type of waste	EF	Unit	Source	Title of EF Assumption
Organic waste	0,173	kgCO2e/kg	Base Carbone ADEME 23.1	Kitchen waste - Methanisation - Impacts

Composting

Type of waste	EF	Unit	Source	Title of EF Assumption
Wood	0,0089	kgCO2e/kg	BEIS 2023	Wood - Building materials - Composting
Organic waste	0,173	kgCO2e/kg	BEIS 2023	Organic: food and drink waste/garden waste/mixed food and garden waste

Data specific to Climeet Space Designer

Storage

When calculating storage related emissions, 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 the number of days, we obtain an estimate of the energy consumption of the storage facility in kWh, converted into kgCO2e using the EF for the energy mix of the country hosting the event, as specified in the service parameters.

Other services

The user can choose between two approaches for estimating the emissions linked to other services: a less robust monetary approach, and an approach based on work-days, depending on the information available.

Other services do not cover all the services provided by space designers, and the associated emissions are generally negligible in terms of the total footprint.

The monetary EFs have also been weighted by a factor of 1.18 to take account of the 18% inflation between 2018 and 2024.

Monetary approach

Services	EF	Unit	Source	Assumption
Caretaking	0,144	kgCO2e/€	Based on Base Carbone ADEME 23.1	Service - Services (printing, advertising, architecture and engineering, multi-technical building maintenance, security, cleaning, security, travel agency, other business services)
Hosts	0,144	kgCO2e/€	Based on Base Carbone ADEME 23.1	Service - Services (printing, advertising, architecture and engineering, multi-technical building maintenance, security, cleaning, security, travel agency, other business services)
Stage manager	0,144	kgCO2e/€	Based on Base Carbone ADEME 23.1	Service - Services (printing, advertising, architecture and engineering, multi-technical building maintenance, security, cleaning, security, travel agency, other business services)
Caterer	0,271	kgCO2e/€	Based on Base Carbone ADEME 23.1	Service - Accommodation and catering

Entertainment	0,229	kgCO2e/€	Based on Base Carbone ADEME 23.1	Service - Sports, leisure and recreational activities
Cleaning	0,144	kgCO2e/€	Based on Base Carbone ADEME 23.1	Service - Services (printing, advertising, architecture and engineering, multi-technical building maintenance, security, cleaning, security, travel agency, other business services)
Photography/film	0,263	kgCO2e/€	Based on Base Carbone 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 work-days" 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 display.
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:

- The footprint of website data storage
- The footprint of data transfer over the network
- The footprint of 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 weight of data on a web page is estimated at 2.21 MB/web page (Source: http Archive, 2021). This weight of data is then converted into kWh of electricity consumed to run the data centers.
Electricity consumption is estimated at 0.002 kWh/GB stored, according to Carbon Brief.

Then, depending on whether the storage is local or on Cloud servers, different EFs are used.
If the storage is local, the tool uses the EF of the electricity mix in the country where the event is taking place.
If the storage is on Cloud servers, the following EFs are used:

Type of cloud	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, a UK website that calculates the carbon footprint of a web page, on average a visit to a website worldwide emits 0.5gCO2e.
According to Sustainable Web Design, the worldwide 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 for the electricity mix in 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. A laptop and a desktop computer are used as references. According to Researchgate data on IT equipment used in the United States in 2017, the average power consumption of a desktop computer is 85W, and that of a laptop is 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. By 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 using IEA country data, 2022.

Eco-design of a website

Users can specify whether they are visiting 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. To take a conservative approach, we have used 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: :

- The footprint of storing the application's data
- The footprint of data transfer over the network
- The footprint associated with displaying the application

The data storage footprint is calculated on the basis of the weight of the application (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 an ABI Research study carried out in 2012.
The data weight is then converted into kWh of electricity consumed using the Carbon Brief conversion factor (in kWh/GB stored). Finally, in the same way as for websites, either the EF for the electricity mix in the country of the event is used if the storage is local, or the EF for 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 electricity consumption conversion factor (kWh/visit) and the country of the event.
If the user specifies that the application is eco-designed, 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 electricity consumption (kWh/min) and the viewing area.

Livestreams (webinars, videoconferences)

For the carbon footprint associated with storing 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 linked to the storage of videoconferencing data as a function of video quality :

Video quality	Electricity consumption of servers per hour	Unit	Source	Assumption
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 as HD
Audio only	0,02	kWh/h	Based on Greenspector and IEA Website	EF obtained from the HD EF in kWh/h and GB/h and the Audio EF only in GB/h (rule of 3)
Audio + screen sharing	0,04	kWh/h	Based on Greenspector and IEA Website	EF obtained from the HD EF in kWh/h and GB/h and the Audio EF only in GB/h (rule of 3)

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

For the carbon footprint of data transfer, we estimate the total weight of data that has passed through the network as a function of the duration of the livestream 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	Electricity consumption of servers per hour	Unit	Source	Assumption
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 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 electricity consumption of the IT equipment connected during the livestream, based on the number of people connected, the duration of the livestream, the video quality and the videoconferencing application.

Power consumption for viewing a video on a laptop per hour, depending on video quality:

Video quality	Electricity consumption of servers per hour	Unit	Source	Assumption
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	Same as HD
Audio only	0,001	kWh/h	Based on Greenspector and Ilounge	EF calculated from HD EF in GB/h and kWh/h and Audio EF 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.

We therefore apply a ratio based on the application entered by the user, calculated using data from a Greenspector study carried out in 2021:

Videoconferencing application	Ratio of electricity consumption for viewing	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 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 footprint of the livestreams.

Virtual environments (metaverse, exhibitions)

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

Duration used by Climeet (hours) as a function of the duration entered by the user:

Duration indicated by the user	Duration (hours)
less than an hour	0,5
around one hour	1
several hours	3
one day	6

Social networks

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

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

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

The carbon footprint of data transfer to 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 for the electricity mix of the country hosting the event.

The footprint associated with viewing a post is calculated on the basis of the number of views of the post, the viewing time, the type of social network and the viewing zone.
The total viewing time is first estimated by multiplying the number of views by the viewing time of the post.
If the user has not filled in the viewing time, the tool defaults to a value of 15 seconds, according to the 2022 Social Booster article, which is based on the average length of videos on Tiktok and Instagram.
The total viewing time is then converted into gCO2e depending on the social network according to Greenspector data from 2020, based on the use of applications 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, 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 is applied.

Shared files

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

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

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

Emails

The carbon footprint of an email is calculated based on the weight of the email, the number of recipients, and varies according to the electricity mix of the country hosting the event.
The EFs used vary according to the weight of the email.

Email weight	EF	Unit	Source
Text only	4	gCO2e/email	Base Carbone ADEME 21.1, 2012
With attachment/image (< 1 MB)	20	gCO2e/email	Energuide For a 1 MB email over its entire lifecycle
With attachment/image (> 1 MB)	35	gCO2e/email	Base Carbone 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.