

# Copenhagen Sustainability Guide

- How we calculate CO<sub>2</sub>-emissions

# The Copenhagen Sustainability Guide – how we calculate CO<sub>2</sub>-emissions

Date: 2025-05-08

Version: 1.3

## What is included, and what is not

First of all, the Copenhagen Sustainability Guide (CSG) will be further developed as data availability and data maturity is expected to increase in the coming years. Therefore, calculation precision and reporting boundaries can be expected to change as ongoing data developments are occurring. CSG is developed as part of Copenhagen CVB's road map to Net Zero congresses in 2050, with inspiration from [Net Zero Carbon Event Framework](#).

Currently the CSG includes direct and indirect CO<sub>2</sub>e emissions from the following main categories:

1. Transport to the event
2. Venue
3. Accommodation
4. Local Transportation
5. Food and Beverages
6. Digital attendance
7. Beyond Value Chain Mitigation effort (BVCM)

The following is NOT included in calculation and estimations:

- Contrails and other non-CO<sub>2</sub> effects from flying delegates are excluded from the presented figures. It is however calculated according to IFEU [LINK](#). This decision is made since the Danish Tourism Climate Accounting (DTCA), presented by VisitDenmark, is not including it in their main number due to academic uncertainty. If this defined boundary is changed, we will change accordingly. If organisers are interested in getting to know the value of contrails, we can inform about this, and the underlying figures are also shown in table 1.
- Accommodation emissions boundaries are aligned with the HCM1 tool and the Cornell Sustainability Hotel Benchmarking. This includes scope 1 and 2, including refrigerants, and value chain emissions from laundry services, if they are outsourced. It does not include other value chain emissions.
- Venue emissions are derived from proxies of different congress/event categories in the "Event Reporting Initiative" of Bellagroup. This includes scope 1 and 2 emissions and value chain emissions such as materials purchased, materials transported, and waste handled through the event venue. However, for instance, it does not include any materials and freight of any materials not purchased through the event venue.
- Emissions from any social venues are limited to emissions related to Food and Beverage production and local transportation.

Furthermore, there will be a continuous alignment process with accounting methodologies and reporting boundaries between the CSG and the DTCA. Currently, the calculations on direct

emissions from flying are aligned between the approaches, being the largest emission element for most events.

## Emission factors in general

Emission factors used throughout the CSG (and presented in this documentation) adhere to 2023 values and will be used to make the baseline 2024-year calculations being used for the first reporting. The following years' relevant emission factor will be yearly updated to make sure they reflect any changes in the societies' green transition.

## Travel to event - flying

We use analysis of emissions related to flying, in line with DTCA, derived from ICAO Emissions calculator (direct emissions derived in October 2023 - [link](#)). Furthermore, these are adjusted with indirect emissions from IFEU ([link](#)). We have calculated average flying emissions from delegates from different regions or countries. The reason we use region-level on long haul delegates is to limit the reporting burden, and the reason we use country-level on neighboring origins is both the expected relatively high level of presence, but also the fact that they often face a realistic choice of transport mode. For specifically Africa and Middle East we use own analysis from Wonderful Copenhagen due to lack of individual regional presence in the DTCA.

Middle East is in the questionnaire and calculations defined to include Turkey, Iran and all countries south of these on the Arabic Peninsula, excluding all parts of Egypt.

Below is presented the relevant values used for the calculations on flying from different countries or regions:

| Flight overview – roundtrip         | Direct CO <sub>2</sub> ECO    | Direct CO <sub>2</sub> PERMIUM | Indirect CO <sub>2</sub> ECO  | Contrail value                |
|-------------------------------------|-------------------------------|--------------------------------|-------------------------------|-------------------------------|
|                                     | [kg CO <sub>2</sub> e] – ICAO | [kg CO <sub>2</sub> e] - ICAO  | [kg CO <sub>2</sub> e] - IFEU | [kg CO <sub>2</sub> e] - IFEU |
| Denmark (aal-CPH)                   | 76                            | 0                              | 15                            | 0                             |
| Sweden (CRT/VDK)                    | 108                           | 0                              | 21                            | 51                            |
| Norway (CRT/VDK)                    | 137                           | 0                              | 27                            | 71                            |
| Germany (CRT/VDK)                   | 155                           | 0                              | 30                            | 80                            |
| Rest of Europe (CRT/VDK)            | 223                           | 0                              | 44                            | 275                           |
| North America (CRT/VDK)             | 778                           | 778                            | 154                           | 1167                          |
| South and Central America (CRT/VDK) | 1132                          | 1132                           | 223                           | 1698                          |
| Africa (WoCo)                       | 889                           | 889                            | 175                           | 1334                          |
| Middle East (WoCo)                  | 549                           | 549                            | 108                           | 825                           |
| Asia (CRT/VDK)                      | 656                           | 656                            | 129                           | 985                           |
| Australia and Pacific (CRT/VDK)     | 2231                          | 2231                           | 440                           | 3347                          |

Table 1 - Emissions overview from average roundtrip delegate flying

The premium supplement will be according to input (% flying premium) given in the questionnaire.

Delegates outside Europe will all be assumed to use the plane as transport modes to the event, while European delegates, will use the “generic split” in transport modes derived from general analysis on business travel behavior or use “own assumption” if organiser has better primary data.

## Travel to event – other transportation

When travelling to the event from the following regions or countries, the following “generic split” from a 2022 analysis on business tourism in Copenhagen, is assumed, including roundtrip land travel distance.

| Transport modes | Train | Car | Plane | Other | Total | Land distance |
|-----------------|-------|-----|-------|-------|-------|---------------|
| Denmark         | 26%   | 59% | 7%    | 8%    | 100%  | 468           |
| Germany         | 20%   | 29% | 44%   | 7%    | 100%  | 1310          |
| Norway          | 3%    | 13% | 73%   | 11%   | 100%  | 1210          |
| Sweden          | 29%   | 30% | 33%   | 8%    | 100%  | 1564          |
| Rest of Europe  | 6%    | 8%  | 82%   | 4%    | 100%  | 2722          |

Table 2 - Split of transport modes from near markets and assumed land distance (km per roundtrip)

Furthermore, a split between electrical vehicles (EV) and fossil cars are assumed, based on the share of EV on the Danish roads, being 9,7% (2024 value).

If better data is available, own assumptions can be entered on the split between transport modes.

For emission factors on land-based transportation modes, the following is used from Klimakompasset:

- Train: 0,038 kg CO<sub>2</sub> per person.km
- Car – fossil: 0,1844 kg CO<sub>2</sub> per person.km
- Car – EV: 0,01767 kg CO<sub>2</sub> per person.km
- Other (proxy being a diesel bus): 0,11767 kg CO<sub>2</sub> per person.km

## Venue

Emissions related to the event venue are complex to map with precision and clear boundaries. If the venue you are using to host your event can deliver a post-event report with specific emission reporting including value chain emissions, these can be reported in the questionnaire. Please exclude F&B emissions, since this is reported elsewhere.

First, it is defined what type of event is being reported. The following types and definitions are used:

| Type              | Description                                                                                                                                                                 | Emission factors                     |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| <b>Conference</b> | A formal gathering of individuals to discuss specific topics, usually involving presentations, workshops, and networking opportunities.                                     | 5,77 [kg CO <sub>2</sub> / delegate] |
| <b>Congress</b>   | A large formal assembly of delegates or representatives from various organisations or countries, typically focused on deliberating important issues and reaching consensus. | 16,5 [kg CO <sub>2</sub> / delegate] |
| <b>Exhibition</b> | An event where products, services, or information are showcased on the public or targeted audiences, often involves displays and demonstrations.                            | 6 [kg CO <sub>2</sub> / delegate]    |
| <b>Meeting</b>    | A gathering of individuals to discuss specific matters, often with a structured agenda and outcomes in mind.                                                                | 3 [kg CO <sub>2</sub> / delegate]    |
| <b>Dinner</b>     | A social event where participants share a meal, often for networking or celebratory purposes.                                                                               | 2,7 [kg CO <sub>2</sub> / delegate]  |

Table 3 – event types relevant to proxy venue emissions.

Further, we use an average proxy emission per delegate attending the event, according to the chosen category. These category proxies are derived from Bellagroup’s “Climate Reporting Initiative” from averaging their 2024 reportings on a category level.

The relevant proxy emission will be further elaborated and raised with 15% for each of the venue related questions regarding certification, delivering of GHG event reporting and having a Carbon Transition plan, when not answering “yes”.

Finally, the proxy emission will be adjusted according to the event policies in place – with the most strict policies reducing proxy emission by 25% and the loosest policies increasing the proxy emissions by 25%. The levels in between equal 0% and 12,5% added proxy emissions.

If all event related questions fall out negatively, in a climate context, the total average proxy emission will be raised with 90%. If all event related questions fall out positively the total average proxy emission will be reduced by 25%.

These assumptions can hopefully be further elaborated and developed over time, ensuring a more precise and venue-relevant reporting.

### **Accommodation**

Accommodation emissions are also an area where the development of industry reporting standards and data transparency and availability are expected to raise the precision and comparability of emissions reporting.

Like venue emissions, we have structured accommodation emissions according to a proxy that is further elaborated according to answers given in the questionnaire.

For the proxy emission we use the Cornells Hotel Sustainability Benchmark (using the HCM tool). Since there, at present, is no specific Danish emission value, due to lack of reporting, we use an average emission per room night based on UK, France, Belgium, The Netherlands and Germany averaging 11,5 kg CO<sub>2</sub>/room-night.

Since these numbers are based on hotels actually doing climate reporting, we also assume, that the proxy emission is lower than any average hotel emission.

The proxy emissions are elaborated as followed:

- Room-nights on hotels outside of promoted hotels: +25% emissions.
- Room-nights on promoted hotels not being certified: +25% emissions.
- Room-night on promoted hotels being certified and potentially with other benefits (such as public GHG-reporting and public GHG-reduction targets) is reduced by 0-30% according to how large a share that has certification and other benefits.

If all accommodation related questions fall out negatively the total average proxy emission will be raised with 25%. If all accommodation related questions fall out positively the total average proxy emission will be reduced by 30%.

These assumptions can hopefully be further elaborated and developed over time, ensuring a more precise and accommodation-relevant reporting.

### **Local Transportation**

Local transportation is comprised of many potential transport modes from walking to bicycles, busses, trains, metro, taxis etc., and it is hard for organisers to monitor with precision. Therefore, we narrow the transport modes down to focusing on the overall division between public transportation, taxis and any arranged transportation, further distinguishing between electrical transportation and fossil transportation for taxis and arranged transportation.

To evaluate a relevant level of transportation we need to know distances between points of interest. This is based in the following assumptions:

- Venue-Arrival point distance (assuming all foreign physical delegates travel this distance twice)
- Venue-Hotel distance (assuming all physical delegates travel this distance twice for each average nights on hotel stay)
- Hotel-Social venue distance (assuming this distance is traveled twice per meal served at social venues)

In 2023 around 34% of taxis in Copenhagen were electrical undergoing a step raise. If delegates are encouraged to the sole use of electric taxis, whenever a taxi is needed, we add 10%p to this level.

If any transport is arranged (e.g. busses to social venue or from hotel to venue) what emission factor is used, is defined by whether the organiser answers “yes” or “no” to the question regarding ensuring all arranged transportation is electric.

Finally, the total transport load (the sum of person.km) is split into public transportation, taxis, arranged transportation and walking/biking.

Analysis suggests that 63% of business tourist in Copenhagen at least once, use public transportation. This does not equal that 63% of local transport is public transportation but is a number to lean on in this evaluation.

Relevant emission factors used to calculated local transportation are derived from Klimakompasset, except for electric busses that derive from [link](#).

- Public transportation (train as proxy): 0,038 kg CO<sub>2</sub> per person.km
- Fossil taxi (fossil car as proxy): 0,1844 kg CO<sub>2</sub> per person.km
- Electric taxi (electrical vehicle as proxy): 0,01767 kg CO<sub>2</sub> per person.km
- Arranged fossil transportation (diesel bus as proxy): 0,11767 kg CO<sub>2</sub> per person.km
- Arranged electrical transportation (electrical bus as proxy): 0,004 kg CO<sub>2</sub> per person.km
- Biking and Walking: 0 kg CO<sub>2</sub> per person.km

## **Food and Beverage**

According to the latest report on the global climate effect on Danes' general consumption from the Danish NGO Concito, food and beverage is estimated to constitute 20% of our total emissions being 2.500 kg CO<sub>2</sub> per year per person. On a daily basis this equals 6,85 kg CO<sub>2</sub> per day per person ([link](#)). This includes any food purchased but not eaten (wasted).

Further they are pointing at the need to limit this to 2 kg CO<sub>2</sub> per day per person in order to align with to goals of the Paris agreement. When defining 2 kg per day, they assume three main meals (of each 0,5 kg CO<sub>2</sub>) and snacks during day, that constitutes the rest ([link](#)).

We are using these thresholds to define the following average emissions from various food policies:

- We have no specific food policies = 1,7 kg CO<sub>2</sub> per main meal
- We promote healthy, organic, season-based and local produced/sourced food = 1,7 kg CO<sub>2</sub>
- We require to exclude red meat from the servings = 0,85 kg CO<sub>2</sub>
- We require to serve only vegetarian dishes = 0,65 kg CO<sub>2</sub>

- We require to serve only vegan dishes = 0,5 kg CO<sub>2</sub>

Furthermore, we are adding a correction to the above values, relating to the food waste policies that relate to the main venue based on literature and analysis such as food waste in the service sector ([link](#)).

- We are not aware of any specific food waste programmes = 1,05 correction
- There is a food waste programme, but it does not include measuring = no correction
- There is a food waste programme measuring food waste, but we will not receive any reportings = 0,975 correction
- There is a food waste programme measuring food waste and we will receive actual food waste figures = 0,95 correction

## Digital participants

We are using the emissions evaluated in a study published in august 2023 ([link](#)), concluding that digital participant has an emission on 1 kg CO<sub>2</sub> on average.

## Beyond Value Chain Mitigation – BVCM

Beyond Value Chain Mitigation (BVCM) is the financing of "green" actions outside of an organisation or an event's value chain, such as the purchase of carbon credits. BVCM can become a crucial element in financing the global green transition. According to acknowledged transition guidelines (such as SBTi) and marketing legislation (such as EU's Empowering Consumers for the Green Transition), BVCM does not give you the ability to claim that your event is carbon neutral, net-zero or has reduced climate impact. However, it enables you to take responsibility for your event's emissions while the event industry and the world are on a long-term net-zero transition. Instead of implying some sort of emission counterbalancing (often referred to as "offsetting"), organisations engaging in BVCM are encouraged, from a marketing perspective, to focus on describing the concrete actions they are taking and the expected results of their financing. Thus, it is important to stress that even though we include any BVCM engagement in the event reporting (level of CO<sub>2</sub>, monetary financing or internal carbon pricing), we will not subtract this from the event emissions.

Based on introductory questions regarding BVCM ambitions and the relevant choices for the reporting event, further elaborations will follow, identifying the level of BVCM engagement. In case of any BVCM engagement, we kindly ask for the opportunity to retrieve documentation for the reported engagement.

| Q1  | Which of the following statements are most aligned with your considerations regarding BVCM engagement for your event:                |
|-----|--------------------------------------------------------------------------------------------------------------------------------------|
| Q1A | I have no intention of encouraging delegates to engage in BVCM, nor will my organisation engage in any BVCM financing.               |
| Q1B | I will encourage delegates to engage in BVCM, but my own organisation will not engage in any BVCM financing.                         |
| Q1C | My organisation intends to engage in BVCM financing and has already found, or will find, the relevant BVCM supplier.                 |
| Q1D | My organisation considers BVCM financing and is keen to be introduced to a Danish BVCM supplier working on reforestation in Denmark. |

Table 4 - Introductory question regarding BVCM

### **Saved-% and performance index**

In accordance to answers given, four sustainability KPI's are presented in the final report on the CSG. Three regarding saving% on food and beverage, accommodation and venue. Further an index value on event emissions per delegate compared to the baseline year.

The three savings% is derived from the estimated emissions regarding the specific topic, compared to worst case choices.

The index is calculated based on the events emissions per delegate compared to the average of the 2024 event reporting's, forming the 2024 baseline from which the Net Zero roadmap is developed.

### **Invitation to comment**

If any user of the Copenhagen Sustainability Guide, or reader of this document, has any comments or suggestions that might improve our calculations or approach, please contact Senior Bid Manager Anne Dissing on e-mail: [adi@woco.dk](mailto:adi@woco.dk)