

Greenhouse gas inventory report

Impact Festival
October 2022



ClimateSeed

December 2022

About ClimateSeed

ClimateSeed is the third party mandated by Impact Festival to measure its 2021 corporate GHG emissions.

ClimateSeed's core mission is to tackle climate change by assisting private and public organizations in their **Measure - Reduce - Contribute - Communicate** cycle. The company was born of an intrapreneurial project as the first *Social Business* of the BNP Paribas and launched during the Global Social Business Summit in 2018 with Nobel Peace Prize laureate Professor Yunus.

ClimateSeed, acquired by the AXA Impact Fund (managed by AXA IM) in June 2021, goes on its journey by working on three pillars: funding and assisting early-stage carbon reduction projects, distributing carbon credits from quality sequestration or avoidance projects to companies and funds, and assisting organizations with their GHG emissions measurement and reduction pathways. It is a certified provider of *Bilan Carbone Association* (now *Association pour la Transition Bas Carbone*) for the measure of greenhouse gas emissions and a member of working groups on the accounting methodology.



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Foreword

Climate change is one of the major challenges of our century. As highlighted by the Intergovernmental Panel on Climate Change (IPCC) in their last report, the rise of greenhouse gas (GHG) emissions leads to consequences such as an increase in the frequency and intensity of natural disasters, a rise in sea levels, a growing water resource shortage, a decline of agricultural yields, an increase of climate migrations, and even armed conflicts due to the shortage of resources. We already know that some issues will happen independently of our actions which is why it is important to prepare our society to face these issues, which is part of an **adaptation** strategy.

Furthermore, to avoid a worsening scenario, it is crucial to rapidly reduce anthropogenic GHG emissions by participating in **mitigation**. Indeed, the Paris Agreement, written during the 21st Conference Of the Parties at the United Nations Framework Convention on Climate Change (COP 21 - UNFCCC) in 2015, asserts that to avoid the worst consequences and irreversible retroactive loops (such as permafrost melting), we need to keep the GLOBAL temperature under $+2^{\circ}\text{C}$ (and even better, under $+1,5^{\circ}\text{C}$) compared to pre-industrial times (end of the 18th century).

Organizations are responsible for a large part of total anthropogenic GHG emissions and have the tools to tackle global warming. Beyond the obvious ethical reason, companies have several reasons to fight against climate change. End consumers are increasingly taking into account their environmental footprint in their purchase decisions. ESG investors pick more sustainable companies in their portfolios. Large corporations, in turn, start taking into account sustainability criteria to choose suppliers. More and more organizations report their carbon strategy on the Carbon Disclosure Project (CDP) and set reduction targets through the Science Based Targets initiative (SBTi). Besides, reducing emissions does not always come at a cost: optimizing energy consumption and travel to reduce CO_2e emissions are also sources of economic savings.

Measuring GHG emissions is the first step of a carbon strategy and should be seen as a way to monitor one's own progress against emissions reduction goals. While comparisons between companies of the same sector are tempting and common, there is still little transparency and little standardization on the exact methodology and emission factors, making most comparisons inaccurate. The GHG Protocol Corporate Standard, chosen for this study, does not recommend any specific set of emission factors. Such emission factors can vary from 1 to 4 in some cases (e.g. plane transportation taking into account the passenger class and radiative forcing effect).

Reducing emissions at an ambitious pace is essential to limit global warming in line with the global goals of the Paris Agreement. While setting science-based targets is relatively easy, changing the organization to actually reach those targets is a big challenge. It implies engaging all stakeholders: suppliers, employees, clients, and partners.

Contributing to emission reduction projects outside the value chain of the company through the voluntary carbon market is necessary to reach global carbon neutrality. Even if it does not necessarily reduce global gross emissions, it still delivers an important signal toward reaching global carbon net-zero emissions.



1 Introduction

1.1 About Impact Festival

The Impact Festival is one of Europe’s largest B2B events for Sustainable innovation. It serves as a platform for sustainable innovation by bringing together European GreenTech start-ups & scale-ups and key stakeholders to accelerate sustainable transformation.

As part of its sustainability efforts, the festival carries out carbon footprint assessments to consistently reduce its climatic impact and set an example to participating companies and other events.

1.2 GHG emissions inventory boundaries

Event name	Impact Festival
Temporal scope	October 3rd and 4th 2022
Operational boundaries	Full scope
Accounting Standard	GHG Protocol Corporate Standard (adapted to events)

Table 1: GHG emissions assessment parameters of Impact Festival

For two days, the 3rd and 4th of October, the Impact Festival hosted a total of 436 exhibitors and speakers and 1931 participants. The two days of preparation and the day of disassembly are also accounted for in the present assessment.

The event took place in SPACES Fredenhagen, in the suburbs of Frankfurt. The vast majority of participants came from Germany, about one-third specifically from Frankfurt or the surrounding areas. An estimated 6% of participants assisted from abroad.



1.3 Key figures

Type	Unit	Activity data
Total distance travelled by train - participants	<i>km</i>	1 625 000
Total distance travelled by car - participants	<i>km</i>	409 000
Total distance travelled by plane - participants	<i>km</i>	354 000
Total distance travelled by metro - participants	<i>km</i>	10 000
Distance of freight transport	<i>tonne – km</i>	3 158
Amount spent on services	<i>k€</i>	33
Electricity consumption	<i>kWh</i>	8 750
Meals served	<i>units</i>	3 425

Table 2: 2021 Activity data key figures



2 Executive Summary

GHG Emissions

292 tCO_2e
Total Emissions

123 $kgCO_2e$
per participant

equivalent to **110**
Round trips Frankfurt-New York

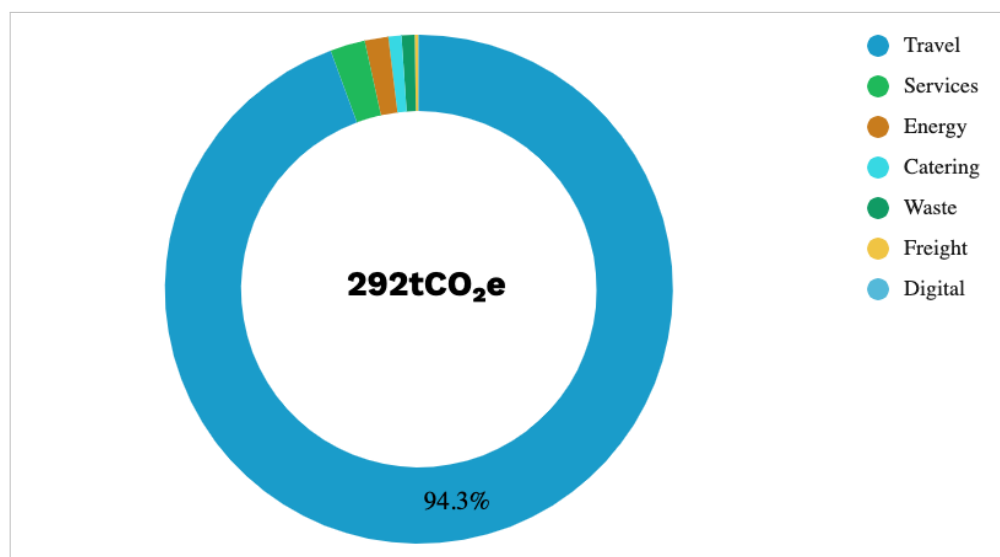


Figure 1: GHG emissions by activity

ClimateSeed estimates Impact Festival's GHG emissions to be **292** tCO_2e , (metric tonnes of CO_2e). The vast majority of these emissions originate from the category Travel, and more specifically participant travel. It is common for participant travel to be one of the largest sources of emissions for an event, particularly for one hosting international participants.

Participant travel alone accounts for **266** tCO_2e , and represents **91%** of the total GHG emissions. Most of the impact comes from national participants (67% of the total event emissions). This is not surprising, as they make up 94% of attendees. However, it is worth noting that the emissions ensuing from the travel from the rest of participants (the other 6%) account for **71** tCO_2e , meaning almost one fourth of all emissions.

Although it is common for catering and freight to have a large impact for large events of this kind, both of these categories' impacts were well mitigated. Catering was mitigated through the prioritisation of vegan and vegetarian meals: the estimated impact linked to this category is of **2.4** tCO_2e , or about 0.8% of the event's carbon footprint. Freight-related emissions were mitigated by choosing suppliers that were no further than 45km away from the venue: the impact of this category was estimated to be about **0.7** tCO_2e , or about 0.2% of the event's carbon footprint.

Main suggestions for impact reduction

1. **Encouraging train as an alternative to driving** particularly for national participants, but also for international European participants.
2. **Encouraging economy class when flying is necessary.** For participants who must take a plane to assist, it could be possible to limit emissions by prioritizing economy tickets.

Main suggestions for improved data quality

1. **Creating a quick intuitive survey** in order to achieve a higher response rate.
2. **Asking more information from long-distance travelers** would be useful to know how long participants are staying in the country. Indeed, if the trip is also related to personal activities, only some emissions should be allocated to the event. To do so, if the survey is online, it could ask participants traveling more than 700km if they are staying for a longer period than just the event.



3 GHG assessment results

There are multiple ways to present the results of a GHG emissions inventory. It is indeed an accounting exercise that classifies emissions into categories or scopes. Several definitions of these categories lead to several result formats. In the case of events, ClimateSeed opts for reporting by activity. This one is more adapted to understanding emission sources and planning a reduction strategy than the classic 3 scopes approach.

Reporting by activity

- **3.1 Travel and Accomodation:** this section includes both participant and staff transportation. Emissions linked to hotel nights are also accounted for in travel.
- **3.2 Waste:** this category includes emissions linked to recyclable and non-recyclable waste including waste water.
- **3.3 Services:** this section includes GHG emissions from purchased services that have to be accounted for in a GHG measurement. Indeed, service providers are themselves responsible for emissions linked to their electricity or gas consumption, travel, and purchase of hardware and services...
- **3.4 Energy:** this section includes upstream emissions (extraction, refinery, transportation) and combustion-related emissions resulting from the use of fuels for the generation of energy (heating and electricity).
- **3.5 Catering:** this section includes the emissions linked to catering for both participants and staff are accounted for in this section.
- **3.6 Freight:** this section includes inbound, internal, and outbound transportation of goods.
- **3.7 Digital:** this category takes into account the electricity consumption of data centers, the manufacturing of hardware and the energy required for the transmission of data through the network.



3.1 Travel

This section is divided into a first sub-section describing participants' transportation and a second describing other travel-related activities: supplier travel, the shuttle bus, and hotel-related emissions.

Participant transportation

a) Activity data

The information concerning the cities and countries of origin and the means of transportation of participants (including exhibitors) was communicated by the Impact Festival. Geographical information was relatively complete; country of origin was recorded for 87% of participants and city of origin for 76%. Information related to means of transportation was only recorded for 29% of participants. This data was used to estimate the distances and means of transportation of all participants. It is worth mentioning that participants with recorded means of transportation data all had associated geographical data.

b) Methodology

In order to calculate the total distance traveled by all participants, the first step taken was to extrapolate the missing data concerning the **country of origin**, which concerned 336 participants. Thus, each was assigned a country based on country representation in the original data. In other words, because 94% of participants with country data were German, 94% of the 336 participants (314 participants) were assigned Germany. This exercise was repeated until a country was assigned to all 336 participants.

The next step was to extrapolate information concerning **cities of origin**. A similar method was used for this. Cities were assigned to participants based on the respective representation of the city in the original data for participants of the same country. It is worth noting that in order to accelerate the process the exact percentage was not always used; the overall effect of this choice in the carbon footprint assessment is negligible.

To illustrate, out of the nineteen Dutch participants whose city of origin was recorded, 42% came from Amsterdam, 10% from The Hague, 10% from Barendrecht, 10% from Meerssen, and the rest from multiple other cities. Thus, Amsterdam was assigned to 60% of Dutch visitors missing an assigned city were recorded as coming from Amsterdam, 20% from Barendrecht, 10% from The Hague, and 10% from Meerssen.

When no data on the city of origin was available for visitors from that country, the capital of the country was assigned to the visitor. For instance, Shanghai for one Chinese visitor or Ankara for one Turkish visitor.

At this point, the distance from each city to the venue was calculated for each of the participants. Once this information was recorded, it was necessary to assign a **means of transportation**.

Given the large range of distances traveled by participants, extrapolations and hypotheses were carried out for 5 different groups to which the participants were assigned. The methodology for each group is described below :

- **Local participants:** Participants traveling less than 50km (1044 participants). Transportation means were assigned based on the share of answers for the available data of this group.



- **National participants:** Participants traveling more than 50km, from Germany (1317 participants). Transportation means were assigned based on the share of answers for the available data of this group.
- **European participants:** Participants traveling from abroad, but less than 700km (100 participants). Transportation means were assigned based on the share of answers for the available data of this group.
- **International participants traveling between 700 - 3 700km:** This category concerned 53 participants. All of them were considered to have traveled by plane.
- **Intercontinental participants traveling over 3700km:** This category only concerned 8 participants. All of them were considered to have traveled by plane.

Following this exercise, the associated emissions were calculated based on emission factors of the ADEME [1] and DEFRA [4].

The table below summarizes the data that was considered :

Group	Vehicle	Distance traveled	Unit
Local participants	Metro	10 300	km
	Car	6 000	km
National participants	Train	1 599 000	km
	Car	394 500	km
European participants	Train	26 300	km
	Airplane	16 600	km
	Car	8 300	km
International participants Traveling between 700 - 3 700km	Airplane	222 000	km
Intercontinental participants Traveling over 3 700km	Airplane	115 500	km

Table 3: Participant travel activity data

Other travel-related activities

a) Activity data

Impact festival shared information concerning the **trips carried out by suppliers** in cars, vans, and the metro. They also communicated information concerning two **shuttle bus services for participants**.

Concerning **hotel stays**, Impact Festival provided precise data for organizing staff and partial information that concerned participant hotel stays. A hypothesis was developed to estimate the number of participants staying in a hotel.

b) Methodology



Distances traveled by suppliers' staff members were calculated based on the place of departure. Specifically for cars, if the number of passengers per vehicle was not specified, an average of 2 people per car was used. Following these calculations, the data below were considered. Emission factors provided by the ADEME were used for most vehicles; an emission factor provided by Deutsche Bahn AG was used for public transit [2].

Vehicle	Distance traveled in km
Average car	3 483
SUV	2 320
Public transit	54

Table 4: Staff travel activity data

In order to consider the emissions from the electric shuttle bus, an estimate of 23 trips per bus was used, with an average of 15 people on the bus per trip. The emissions were then estimated using an emissions factor from the ADEME [1].

Based on Impact Festival's estimates, only 40% of the participants stayed in a hotel. It was then hypothesized that one-fourth of hotel users stayed for two nights, and three-fourths only stayed for one night. The result is a total of 1 184 hotel nights. An emission factor provided by DEFRA [4], specific to German hotels, was used to estimate the associated emissions.

Results

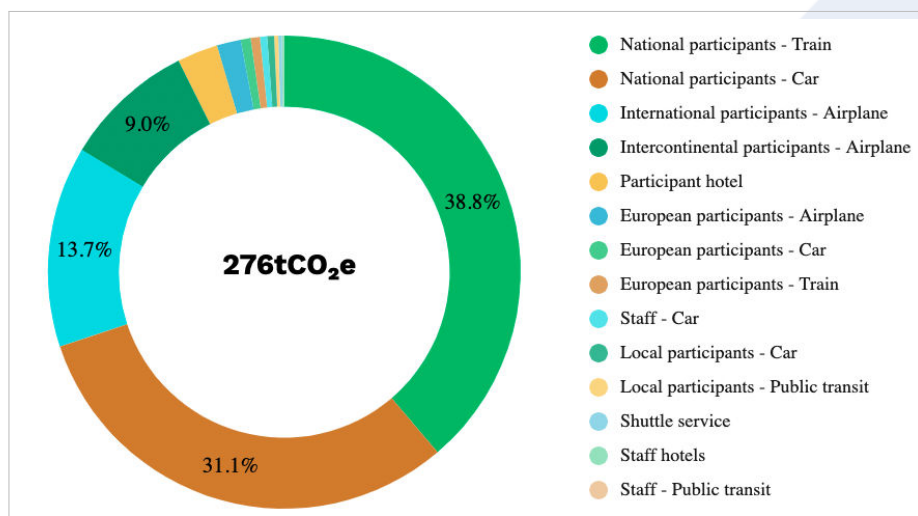


Figure 2: Travel-related GHG emissions

Travel-related emissions account for **276 tCO₂e**, and represent **94%** of total GHG emissions.

The majority of emissions come from non-local national participants: 193 tCO₂e or in other words, two thirds of the event emissions. It's worth noting that this section includes about 64% of participants.



Within this 64% however, car users have a much higher impact. Indeed the 261 national participants arriving by car (10% of all participants) account for 29% of all event emissions.

Also worth noting is the high impact of intercontinental and international participants. Only 8 participants (less than 1% of participants) traveled over 3 700km, but account for 25 tCO₂e (8% of the event emissions). 54 participants (2% of participants) traveled between 700 and 3 700km, they represent 13% of all emissions.

The following figure illustrates the impact of each kind of transportation means and relates it to the percentage of participants and their used means of transportation:

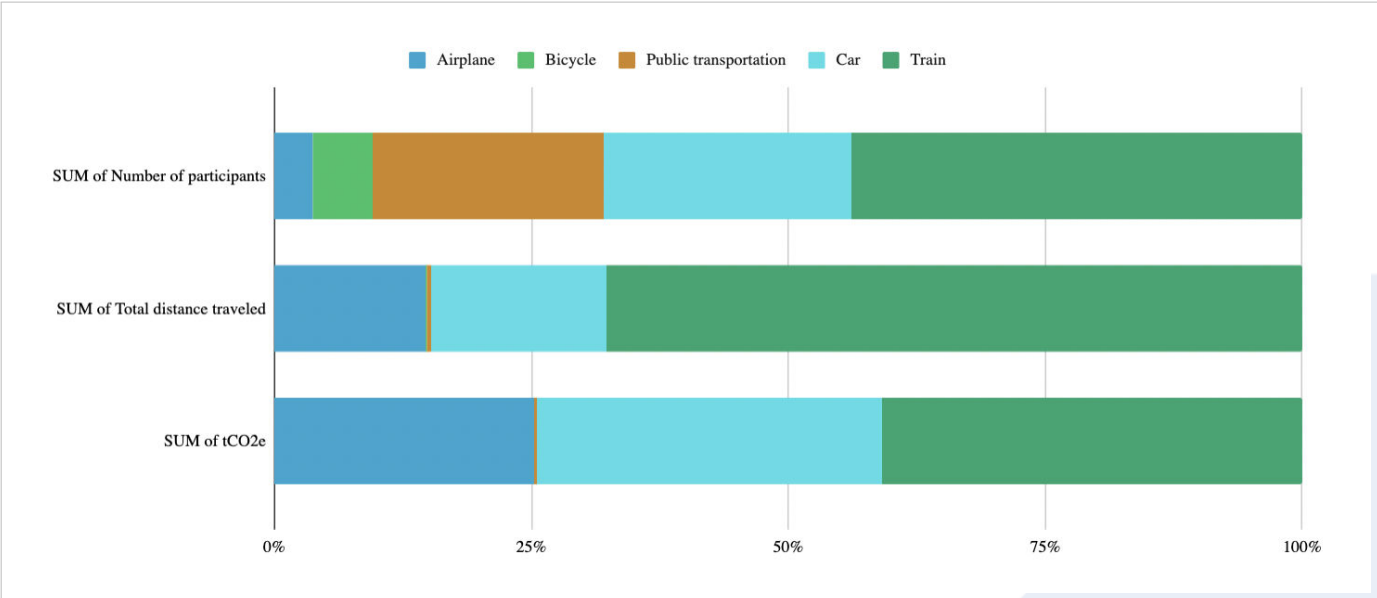


Figure 3: GHG emissions by distance traveled and number of participants



3.2 Waste

a) Activity data

Impact Festival communicated the quantities of waste in volume. The categories were mixed non-recyclable materials, food waste, paper, carton and waste water. The weight of all categories, except for waste water, had to be calculated based on volume and the average density of the kind of waste.

The activity data communicated is summarized below:

Type of waste	Quantity	Unit
Waste water	45	m ³
Mixed non-recyclable materials	10	m ³
Carton	10	m ³
Food Waste	720	l
Paper	240	l

Table 5: Activity data for waste

b) Methodology

In order to calculate the weight of waste, average densities provided by the Observatoire des déchets en Auvergne-Rhône-Alpes[5] were used. The following table shows the densities used and the ensuing result:

Type of waste	Density in kg/m ³	Weight in kg
Mixed non-recyclable materials	330	3 300
Carton	100	1 000
Food Waste	300	216
Paper	300	72

Table 6: Densities and weight of waste activity data

Following this calculation, the impact of waste materials and waste water was calculated based on an emissions factors provided by the ADEME [1].

c) Results

Total GHG emissions associated with waste are 2.4 tCO₂e and represent **0.8%** of total GHG emissions. Most of these emissions are linked to the treatment of non-recyclable waste (about 0.4% of all event emissions).

It's worth noting that the impact of this section was well mitigated by the fact that large materials for the event were either rented or bought intending to reuse them for future events. In these cases, the waste impact of materials is not attributed to the event, because the amortization of the impact over multiple events causes the impact to be negligible.



3.3 Purchase of goods and services

a) Activity data

All used material for the event was either rented or stored for another event. In the case of events, which generally last no more than a week, the amortization of rented and reused material implies that their production has a negligible impact. Emissions related to the production of goods were not considered significant. Consequently, this section only considers services.

The following costs were communicated by Impact Festival and considered to calculate the emissions:

Service	€
Marketing	18 000
Security	7 215
Cleaning	4 140
Video and photo production	2 550
DJ	1 000
Insurance	240

Table 7: Service costs

b) Methodology

Given the difficulty of accurately estimating the emissions associated with services, these are often accounted for using monetary emission factors. These factors are statistics provided by ADEME [1] that estimates the impact associated with the service based on its total cost.

It is worth noting that these factors are relatively imprecise. However, it is necessary to use them for methodological reasons, and more importantly to communicate the strong impact that services can have (especially for events). The impact includes transportation, meals, materials, purchase of hardware, and all other elements required for providers to carry out their services.

c) Results

Service-related emissions account for **6.5 tCO₂e**, and represent **2%** of total GHG emissions. Most emissions are related to marketing services (1% of all event emissions).



3.4 Energy

a) Activity data

The organizers communicated the size of the rooms used for the event and the fact that the heating was electric. This information was needed to estimate the energy used for heating. ¹

The following data were considered:

Buidling name	Surface in m2
Hall 1	3 000
Hall 2	1 600

Table 8: Building surfaces

b) Methodology

Emissions linked to specific electricity consumption were calculated using the information provided by Impact Festival (5 kWh) and an emission factor. This factor was specific to the German energy mix and it was provided by the ADEME [1].

Emissions linked to heating were calculated using a statistic on the electricity consumed by the heating of a building (139kWh per square meter per year)[1]. 5 days of heating were considered to account for the days of preparation and disassembly. This method implies relatively high uncertainty. However, the emissions linked to energy use for the event are very low and thus such an estimation is sufficient to provide a useful order of magnitude.

c) Results

Energy-related emissions account for **4.4 tCO₂e**, and represent **1.5%** of total GHG emissions. The entirety of emissions come from electricity use, of which the vast majority is linked to heating (99.9%).

¹The exact electricity consumption of the event was communicated after the first draft of this report. Consumption was closer to 5 000 kWh, which differs from the 8 700 kWh considered in this section. The difference between these is lower than 2 tCO₂e. The significance of electric consumption is thus slightly lower. However, given the small difference, the total calculation was not changed.



3.5 Food and catering

a) Activity data

Most information concerning participant and staff meals was collected from the organizers of the Impact Festival. All meals were either vegetarian or vegan. Some suppliers did not receive meals from Impact festival but purchased food for themselves during the event. Their number of meals was estimated based on the number of days of presence of the associated supplier.

b) Methodology

Meal name	<i>number of meals</i>	Emission Factor
Catering - Pizza	420	vegan meal
Catering - African Cuisine	200	vegan meal
Emmaus Catering - Mediterranean cuisine	250	vegan meal
Unser Bäcker - Participant meals	802.5	vegan meal
Unser Bäcker - Participant meals	802.5	vegetarian meal
Unser Bäcker - Supplier meals	475	vegan meal
Unser Bäcker - Supplier meals	475	vegetarian meal

Table 9: Meals provided by Impact Festival

The following table summarizes the data considered and the emission factors used. Emission factors for this section came from the ADEME's source Datagir [3].

Suppliers who did not receive meals from Impact Festival were assumed to have had 2 meals per day per person for every day they were present in the event. Following this methodology, the number of meals taken into account was 244. An emission factor provided by the ADEME [1] for an average meal was used to estimate their impact.

c) Results

Emissions relating to catering account for **2.4 tCO₂e**, and represent **0.8%** of total GHG emissions. The emissions relating to catering for an event of this kind can often represent a higher percentage of the impact. However, by choosing to provide exclusively vegan options to participants and vegetarian options to the staff of providers, the Impact Festival kept emissions related to this category at a relatively low figure.



3.6 Freight

a) Activity data

Impact Festival provided information on the volume transported and the distances traveled by supplier vehicles. For multiple suppliers, the weight of materials had to be calculated through hypotheses. The data considered are the following:

Vehicle load capacity and fuel	Tonne-kilometers
Below 3.5 T Petrol	160
12 to 20 T Diesel	1 020
20 to 26 T Diesel	1 670
3,5 to 7,5 T Diesel	200
3,5 to 7,5 T Petrol	120

Table 10: Freight data

b) Methodology

In order to exploit the data provided by Impact Festival, the volume transported by suppliers had to be converted to weight. Based on the kind of material transported, an average density of material was used to gather data measured in tonne-kilometers. This data was then converted to emissions using emissions factors provided by the ADEME [1].

The average densities used are the following:

Type of transported material	kg/m ³
Food and drinks	348
Furniture	249
Electronic materials	249
Greenery and floral decoration	86

Table 11: Densities used for freight

c) Results

Freight-related emissions account for **0.7 tCO₂e** and represents **0.2%** of total GHG emissions.

Most of this impact was associated with two providers: Satis&fy AG (32% of freight emissions) and Party Rent GmbH (23% of freight emissions)

Although the impact of transporting goods is often significant for events of this kind, the impact linked to this section was well mitigated by choosing exclusively local suppliers. Indeed, all suppliers traveled less than 45km.



3.7 Digital

a) Activity data

The Impact Festival provided information on the streaming of the event including duration and views. The following data were considered:

Stream Name	Day	Number of views	Average viewing time in minutes
Impact Stage	Day 1	843	18:50
	Day 2	304	24:01
Innovation Stage	Day 1	354	18:15
	Day 2	166	18:52
Transformation Room	Day 1	129	9:54
	Day 2	134	12:15

Table 12: Streaming data

The Impact Festival also provided the number of users that signed up on their online platform (1 014 participants) and included information on the average number of messages sent by each user (10.4 messages). This data was used to measure the estimated emissions linked to data center energy and device production.

b) Methodology

In order to calculate the emissions linked to both the streaming of the event and the digital platform, it is necessary to consider the transfer of data as well as the use and production of devices to access digital content. As it is very unlikely to have precise data on how every user accesses this content, it is often necessary to make multiple assumptions. The following hypotheses were considered to calculate emissions linked to streaming:

- 50% of users connected through wi-fi, and 50% through a 4G network;
- 50% was via smartphones and 50% via laptops;
- Devices have an average lifespan of 3 years.

The following hypotheses were considered to calculate emissions linked to the digital platform:

- The average total of data transferred by a website weighs 2.2 MB;
- The average message sent through the web weighs 5kB;
- Visits lasted on average 9 minutes;
- 66% of visits were done through smartphones and 34% were done using laptops.
- Devices have an average lifespan of 3 years.



The electricity used for the transfer of data was estimated using a conversion factor provided by The IEA [6]. The emissions linked to electricity production were calculated using an emission factor specific to Germany. Emissions linked to the devices used for streaming and visiting the platform were estimated using emission factors from the ADEME's resource Datagir[3].

c) Results

Digital-related emissions account for **0.1 tCO₂e**, and represent **0.05%** of total GHG emissions.



4 Towards a reduction of emissions

4.1 Emission reduction actions

Aware of the unavoidable impact that an event implies, Impact Festival has put in place a number of emissions reduction efforts to minimize it. The section below quantifies the impact of new actions that were put in place in 2022. Actions that had already been put in place are mentioned, but not quantified.

It's worth noting that some of these actions have reduction potential in other environmental areas that are not quantifiable in carbon emissions. For instance, these actions can have a positive impact on biodiversity protection or clean water preservation to name only a few.

3.8 tCO_2e , mostly linked to food and catering. Below the actions are described by category.

Travel:

Impact Festival incentivized participants to use public transportation by providing an electric shuttle system, only providing limited parking space, and providing metro tickets. These actions were carried out in 2021 as well. It is difficult to estimate the impact, but given the high impact of participant travel, it is advisable to continue in this direction; particularly if it lowers the number of national and international participants arriving in cars.

Waste:

In order to reduce waste, two main actions were taken: requiring reusable dishes for the event and investing in waste separation. To quantify these actions, the following base scenario was used:

- 50% of meals are served in single-use packaging with single-use utensils;
- Single-use packaging and utensils represent 120g of waste per meal;
- 50% of what was recycled is instead considered mixed waste.

Following these hypotheses, the avoided emissions concerning waste are estimated to be 800 $kgCO_2e$. As a reminder, waste reduction has other positive impacts outside of emission reductions.

Purchase of goods and services:

Two new actions were carried out to reduce emissions related to this category: water dispensers were installed to avoid single-use plastic bottles and many lanyards were reused to avoid buying new ones. In the calculations below the hypothesis is that 50% of lanyards are reused.

Impact Festival also prohibited flyers and throw-away goodies, which was a policy in 2021 as well.

To quantify the new actions, the following base scenario was used:

- 800 50cl bottles of water are sold;
- All necessary lanyards (2 367) are bought.

Following these hypotheses, the avoided emissions concerning goods and services are estimated to be 300 $kgCO_2e$.



Food and catering:

To reduce emissions linked to food, Impact Festival changed from vegetarian food for guests to only vegan food for guests. For the crew, they changed from a mix of meat-based and vegetarian food to a mix of vegan and vegetarian.

To quantify the new actions, the following base scenario was used:

- All participant meals are vegetarian;
- For 33% of meals are beef-based, 33% are chicken-based, and 34% are vegetarian.

Following these hypotheses, the avoided emissions concerning meals are estimated to be 2 700 $kgCO_2e$, mostly from switching crew meals to only vegetarian (reduction of 2.5 tons).



4.2 Suggestions by activity

Following the carbon assessment analysis, the following are general suggestions for reducing emissions related to the event. It's worth noting that given the large share of emissions that relate to participant travel (91% of the total impact), this is the main category where efforts should be put in place both in terms of the improvement of the quality of data and emission reduction actions. Indeed, when developing a reduction strategy it's worth keeping in mind the following graph.

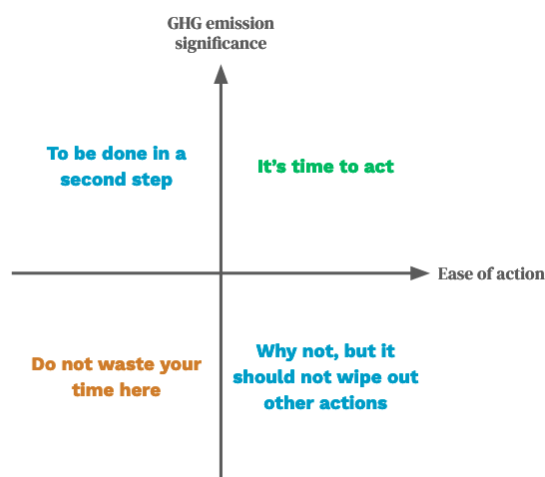


Figure 4: How to prioritize my reduction actions?

Travel:

Improving data quality

- **Creating a quick intuitive survey** in order to achieve a higher response rate.
- **Asking for more information from long-distance travelers** would be useful to know how long participants are staying in the country. Indeed, if the trip is also related to personal activities, only some emissions should be allocated to the event. To do so, if the survey is online, it could ask participants traveling more than 700km if they are staying for a longer period than just the event duration.
- **Asking plane passengers for their flight class**, as traveling in economy class emits less than doing so in business class.

Emission reduction actions

- **Encouraging train as an alternative to driving** particularly for national participants, but also for international European participants.
- **Encouraging economy when flying is necessary.** For participants who must take a plane to assist, it could be possible to limit emissions by prioritizing economy tickets.



Waste:

The impact related to waste for this event is very low. The waste section is therefore not the most emissive. However, measurement and reduction actions can still be improved.

Improving data quality

- **Measuring the average weight of recycling bins** to get an average weight of recycled materials. Indeed, although the volume is generally sufficient, the weight of waste allows for more accurate information on emissions.

Emission reduction actions

- **Identifying the source of mixed non-recyclable materials** in order to provide zero-waste solutions to participants.

Purchase of goods and services:

Service-related emissions can be difficult to reduce, but it is feasible. These are worth considering as services are the 2nd most impactful category of the event. The following are some examples.

Improving data quality

- **Prioritizing service providers who report on their carbon footprint** to know the impact associated with the services. For example, it is possible to determine the emissions allocated to the event based on the carbon footprint of the service provider.
- **Gathering information to measure service emissions with a physical approach.** It can be possible to better calculate the impact of some service providers who assist with the event if we gather information related to their transport, meals and hotel nights. This is the case for services such as cleaning or security for which the vast majority of emissions are related to the staff traveling (not applicable to things like insurance, however).

Emission reduction actions

- **Choosing service providers who communicate on their low impact** and back it with a carbon footprint of their own ;

Energy:

Improving data quality

- **Measure the precise energy consumed during the event** by asking for example the meter readings before and after the event from the owner of the premises.

Emission reduction actions

- **Choosing climate-sensitive venues:** Part of the consumption is due to the venues and hotels chosen for the event (ventilation system, air conditioning, heating). Adding sustainable criteria when choosing venues and hotels can help limit the carbon impact of the event. It would be relevant, for example, to choose venues that are aware of their carbon footprint, can provide results, and share data;



Food and catering:

By providing only vegan meals to participants, Impact Festival is already carrying out one of the most impactful actions. This is reflected in the carbon assessment.

To go further, it would be necessary to look at the detail of the ingredients used for the meals. Indeed there are vegan ingredients that, depending on their origin, potentially imply high emissions. It's worth noting that this is a "nice to have" option more than a "must have", as the difference in emissions between various vegan ingredients is rarely as large as the difference between meat and its alternatives.

Improving data quality

- **Ask food providers to report on the ingredients used**, as well as the quantities, served. This way, it would be possible to point out which ingredients have the highest impact.

Emission reduction actions

- **Provide exclusively vegan meals to suppliers** and encourage those who feed themselves to accept Impact Festival-provided meals.

Freight:

As reflected in the carbon assessment, the emissions relating to freight were limited by choosing exclusively local providers. The following actions are only to go even further, just like for catering they would be a "nice to have" and not a "must have".

Emission reduction actions

- **Limit the number of local suppliers** to optimize the number of trips and limit empty returns.

Digital:

Given the small impact related to digital, it is difficult to give precise suggestions on how to reduce digital emissions. The most important possible measures concern the improvement of data collection.

Improving data quality

- **Ask providers to submit information about the website's stored data**, as well as any transmitted data. As a second option, having the average data transferred by the users as well as the number of users could also be useful.



5 Conclusion

ClimateSeed estimates Impact Festival's GHG emissions in 2022 to amount to **292 tCO₂e**. These emissions represent about:

- **146 times** the average individual carbon footprint target to meet the Paris agreement²;
- **110 round trips** Frankfurt - New York by plane³;

The vast majority of Impact Festival GHG emissions comes from Travel which represents **94%** of the total carbon footprint. Then comes Services (**2%**), Energy (**1.5%**) and Catering (**1%**). Considering this, the area of focus should be on *participant* travel **91%**.

With this GHG footprint, Impact Festival completed the first step in tackling climate change which consists of **measuring** its GHG emissions. This is a great step forward toward a sustainable world but it should not be seen as the final stage.

What are the next steps?

Reduce your GHG emissions. This begins with setting a target, ideally in line with the requirements of the Science Based Target initiative. It is advisable to set an overall target and develop a transition plan based on this target that takes into account the events of the company.

Contribute to avoidance and sequestration projects. Even the most committed company and events will continue to emit unavoidable GHG emissions. This is because after implementing all possible reduction actions, an event still emits emissions, called residual emissions. Therefore, contributing to emission reduction projects is a positive action that is important to achieving overall event carbon neutrality.

Communicate & Engage Engage your suppliers in your carbon strategy. Encourage them to declare and reduce their own emissions. Mobilize your staff by making them aware of climate change and involving them in your carbon strategy.

²According to the Paris agreement in 2015, the individual carbon footprint should reach 2 tCO₂e/person

³We estimate it using the DEFRA emission factor "Long-Haul, with RF, Average cabin class"



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