2023 CARBON FOOTPRINT ANALYSIS REPORT

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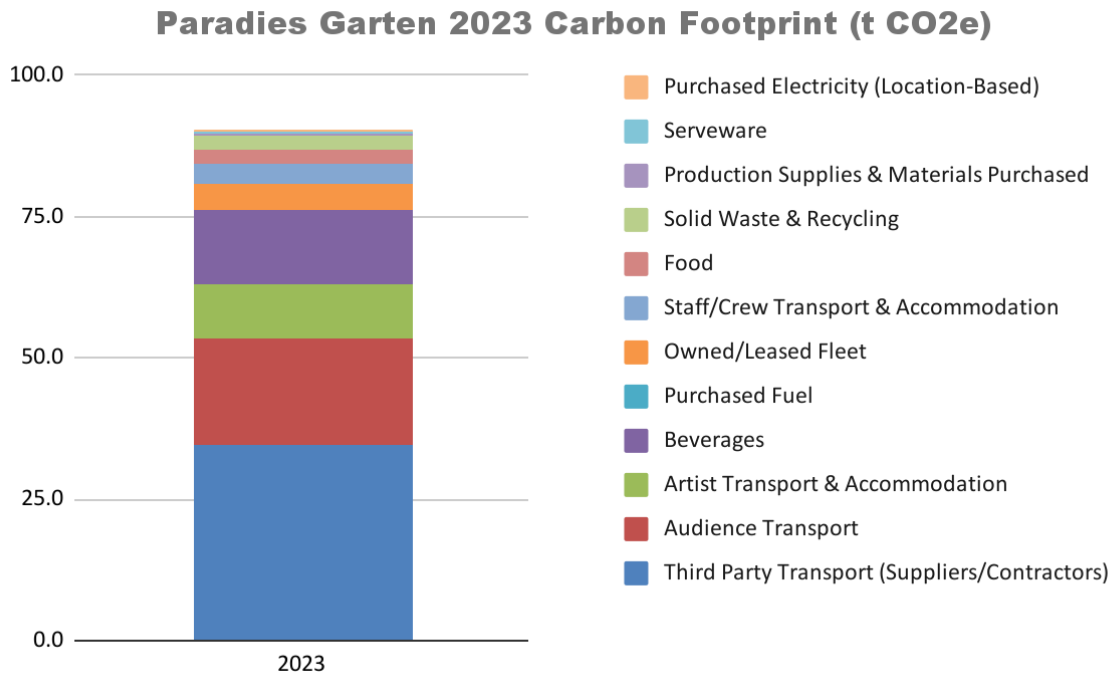
EXECUTIVE SUMMARY - PARADIES GARTEN 2023

Paradies Garten engaged with AGF to quantify the carbon footprint of the 2023 edition of the event. The festival's 2023 carbon footprint was 90.4 tonnes of CO2 equivalent (t CO2e), when considering the list of activities included in the scope:



The largest portion of the CO2e emissions generated during the 2023 edition are attributed to Third Party and Production Transport (38% of emissions). The Events Production activities represent 79% of the 2023 carbon footprint, or 71.5 t CO2e..

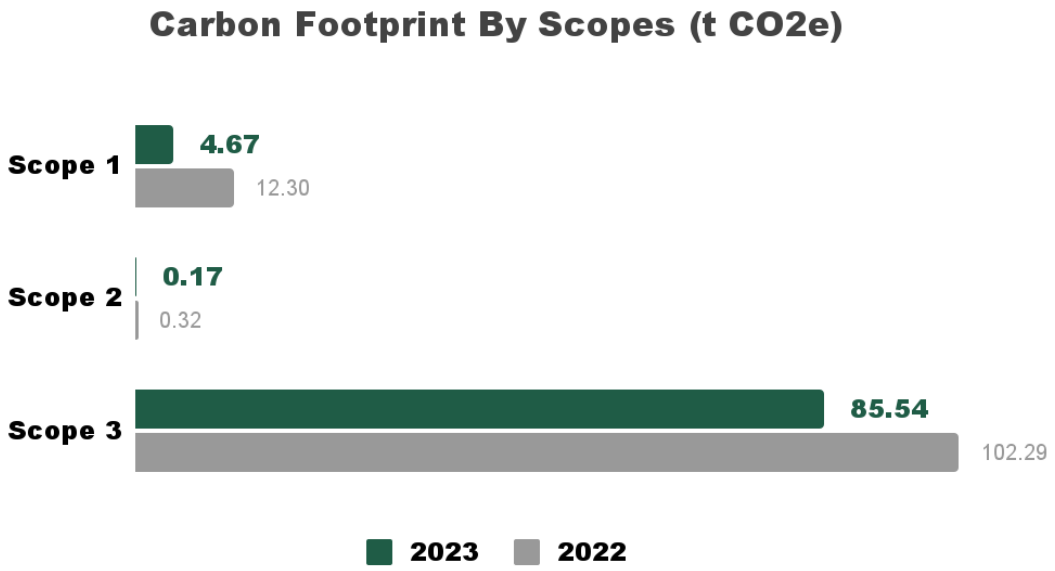
This is the second year that the festival has calculated its carbon footprint. The 2023 footprint saw a 21% reduction in overall emissions, despite an increase in the number of show days and activity data recorded, which is commendable.

The festival saw a significant decrease in audience travel emissions, primarily resulting from a partnership with the local train operator offering free return night trains to Vienna. Train usage nearly doubled compared to last year, with approximately 88% of attendees using this method of transport in 2023.

Artist transport emissions also decreased in 2023. The near 21% reduction in emissions appears to be a result of artists flying shorter distances to attend the event, from a total of 48,616 km in 2022 to 37,899 km in 2023.

Third party transport and freight emissions similarly decreased this year. This appears in part due to more accurate information provided regarding freighted weights and fuel use, in addition to a higher use of HGVs rather than vans, which are associated with lower emissions per tonne of goods.

Finally, the festival has increased the share of power supplied from grid electricity and reduced to zero the fuel used for generators.



For the next edition of Paradies Garten, it is recommended to develop additional engagement with suppliers regarding transport information to improve the accuracy of the Scope 3 emissions, and improve the data recording for domestic artists.

While over 90% of attendees come from Vienna or the surrounding area, it is also recommended to continue to issue the audience travel survey to monitor audience travel distances and behaviours.

The carbon footprint detailed in this report is an estimate based on available data. Data included used to develop the carbon footprint is listed in Appendix IV.

2 INTRODUCTION

2.1 Background

About Paradies Garten Festival

Paradies Garten is a 3 day music festival located in Bruck an der Leitha, approximately 40 km outside of Vienna, Austria. The festival is a sister event to Paradise City Festival in Belgium.

This is the second year the festival has been held, and the 2023 edition increased the number of days from 2 to 3 days.

The festival organisers calculated the carbon footprint of the 2022 edition, and through a third party invested in carbon removals in order to receive Carbon Neutral status. In addition, a number of sustainability initiatives and partnerships have been implemented to reduce its environmental footprint. In 2022, the festival became the first music festival in Austria to be certified as Carbon Neutral.

About AGF

AGF (A Greener Future) is an award-winning not-for-profit company, dedicated to helping events, festivals, tours and venues to be more sustainable and to reduce environmental impacts. Established in 2005, AGF is internationally recognized for its research, consultancy, and analysis of sustainability strategies, actions, and communications for the live events industry. Its certifications - Greener Festival, Greener Event, Greener Arena, Greener Supplier and Greener Tour - sets the standard for sustainable event management and delivery. AGF's university accredited training is received by sustainability, venue and event professionals around the world, further building a knowledge base within the industry to drive positive impacts.

2.2 Paradies Garten Sustainability Targets

Paradies Garten has set out to minimise its environmental footprint, and aims to lead by example. The festival has identified 10 key areas of focus to reduce its impact:

- Measure, monitor and report on power use
- Source local, organic or fair trade produce, and operate a vegetarian-only festival.
- Zero single-use plastic policy
- Promote carpooling and public transport
- Provide free drinking water
- Reduce operational and digital resource use
- Minimise water use and water treatment
- Achieve Carbon Neutral status
- Green camping
- Sustainability communication and awareness

Paradies Garten have consulted with sustainable events specialists - AGF - to conduct a carbon footprint analysis of the Scope 1, 2, and 3 emissions based on available data. This analysis serves to inform reduction policies and strategies, and outline best practices for stakeholder engagement to drive further reduction opportunities.

2.3 Carbon Footprint Methodology

The methodology used to define carbon footprint scope and boundaries, and for calculating the carbon footprint, is based on the Greenhouse Gas (GHG) Protocol Corporate Standard.

Further information on the methodology is detailed in Appendix I.

Organisation Boundary

The organisational boundary consists of all the operations or activities which Paradies Garten undertake. For the purpose of this report, AGF are measuring all the activities involved in the design, planning, execution and dismantling of Paradies Garten, where measurable data is available, and over which the organisers have operational control.

Operational Boundary

The operational boundary identifies the sources of emissions activities within the defined organisational boundary and categorises these into direct emissions (sources of emissions which Paradies Garten owns or has direct control over) and indirect emissions (sources of emissions which are owned or controlled by another company).
These emissions sources are categorised into three scopes, further detailed in Section 2.4.

2.4 Activities and Data included in the Carbon Footprint

The activities which have been included or excluded from this carbon footprint are detailed in the table below. The table also notes if data was complete (●), partial or based on assumption (◐) or no data at all (○) had been provided at the time of this report.

Data relating to domestic artist travel was based on estimates and assumptions. Similarly, data on 8 suppliers was developed using previous year's data,

Excluded Emissions

No Scope 1 or Scope 2 Emissions have been excluded from this carbon footprint, to the best of our knowledge.

Further information on the data sources of emissions, excluded activities, and Out of Scope Emissions is included in Appendices V and IV.

Scope	Activity	Description	Data Type
1	Stationary Combustion	Fuel (including gas, petrol, kerosene, etc) used or purchased for power generation, heating, cooking and machinery owned or leased by the organisation.	●
	Mobile Combustion	Fuel used or purchased for owned vehicles and leased vehicles (hired cars for staff, trucks, forklifts, etc) by the organisation.	●
	Fugitive Emissions / Refrigerants	Emissions from air conditioning units, HVAC & Refrigerant Gases, other process gases with a high Global Warming Potential (GWP). Generally F-Gases (Fluorinated Gases).	N/A
2	Purchased Electricity	Emissions associated with supply of electricity through the national grid.	●
3	Audience Transport	Emissions associated with the transport of the audience to the event.	●
	Artist and Transport & Accommodation.	Emissions associated with the transport of artists and participants to the event, in vehicles not owned or leased by the reporting organisation.	◐
	Staff and Crew Transport & Accommodation.	Emissions associated with the transport of staff and crew to the event, in vehicles not owned by the reporting organisation. This relates to the organisation's staff and crew, or crew directly hired by the organisation - and may include volunteers.	●
	Purchased Food, Beverage and Serveware	Emissions associated with the purchase, production and use of food, beverage and serveware items for the event.	●
	Supplier and Contractor Transport	Emissions associated with the transport of purchased goods, in vehicles not owned by the reporting organisation (e.g. transport emissions from supplier and contractor deliveries). This may include transport of staff hired by the contractors.	◐
	Purchased Construction or Stage Materials	Emissions associated with the purchase and use of new construction and stage materials, by the organisation.	●
	Solid Waste and Recycling	Emissions associated with the processing of solid waste and recycling generated by the organisation or within the organisational boundaries (e.g. waste generated during event build, on event days, or during the year)	●
	Water Use and Wastewater	Emissions associated with the supply of water and disposal/processing of wastewater.	●
	Other Supplier or Third Party Emissions	Emissions associated with other emission generating sources (fuels) owned or controlled by suppliers, contractors and third parties, excluding transport or vehicle emissions.	N/A

3 RESULTS

Location Venue:	Bruck an der Leitha	Organisation:	Paradies Garten GmbH
Event Type:	Music Festival	Total Daily Capacity	3,000
Date:	4th to 6th August	Average attendance per day (Audience)	2,466
Festival Duration (days):	3	Attendance per day (Crew, Artists & Exhibitors)	

3.1 Carbon Footprint

Total Calculated Carbon Footprint

The carbon footprint total for Paradies Garten 2023 was **90.38 t CO2e**.

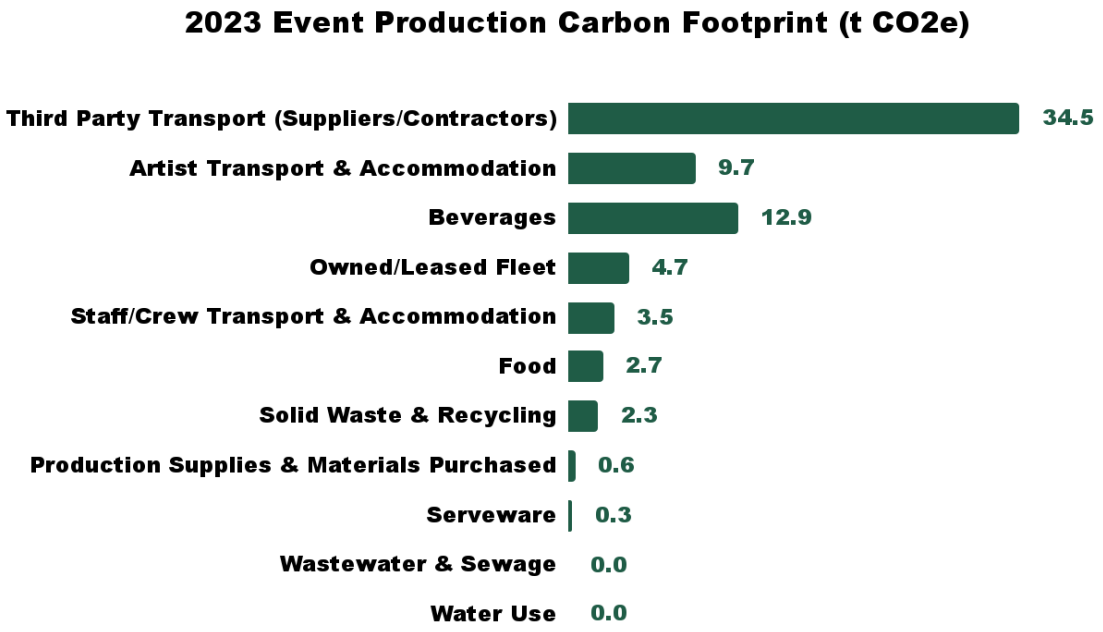
Total Carbon Footprint By Scopes (2023)	tCO2e
Scope 1	**4.67**
Purchased Fuel	0.00
Owned/Leased Fleet	4.67
Refrigerants	0.00
Scope 2	**0.17**
Purchased Electricity (Location-Based)	0.17
Scope 3	**85.54**
Third Party Transport (Suppliers/Contractors)	34.47
Audience Transport	18.93
Artist Transport & Accommodation	9.74
Beverages	12.95
Staff/Crew Transport & Accommodation	3.54
Food	2.68
Solid Waste & Recycling	2.30
Production Supplies & Materials Purchased	0.55
Serveware	0.34
Water Use	0.01
Wastewater & Sewage	0.02
TOTAL Calculated Emissions (Market-Based)	**90.38**

The largest portion of the CO2e emissions quantified during the 2023 edition are attributed to Production and Third Party Transport (38% of emissions) and audience transport (20%).

The emissions associated with water use and wastewater haven't been included due to the lack of data.

Event Production Carbon Footprint

Event Production activities include all activities associated with the set-up, production and running of the event, across all Scopes. The event production footprint does not include audience transport. The event production activities for which data or estimates were available are detailed in the chart below:



The carbon footprint associated with Event Production was **71.5 t CO2e.**

Carbon Footprint Total by scopes

Scope 1 emissions primarily resulted from the combustion of fossil fuels for generators and on plant machinery or leased vehicles.

Scope 2 emissions associated with the use of electricity are location-based (calculated using the average Austrian grid electricity carbon factor).

Scope 3 emissions represent the majority of the carbon footprint, as Scope 3 includes the largest number of activities.

3.2 Scope 1 Emissions

The carbon footprint total for Scope 1 emissions in 2023 was 4.67 t CO2e. These emissions were generated via the use of fuel vehicles (owned and leased).

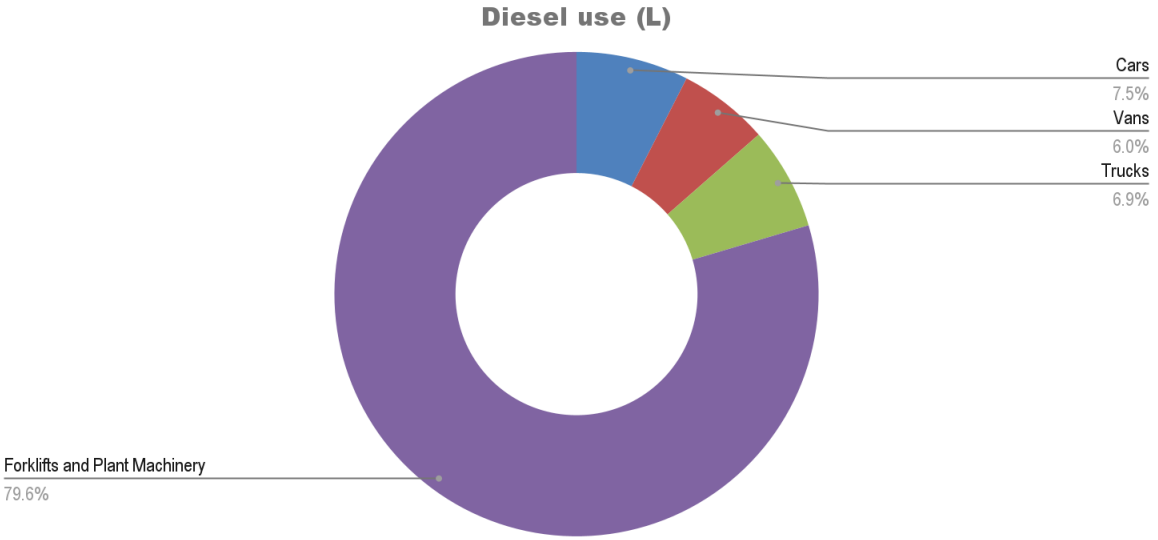
In 2023 the festival removed the need for power generators by connecting to grid electricity. As a result, no emissions from stationary combustion are recorded in this report.

3.2.1 Mobile Combustion

Vehicles hired by the organisation have been considered under this scope as the selection of the vehicle type and fuel is under the organisation's control. Among them, cars, vans and plant machinery hired for the production team (EMAK), as well as rented vehicles via Prangl.

A total of 1,507 L of diesel was reportedly consumed by mobile vehicles over the build, duration, and break of the event. The resulting emissions from mobile combustion are therefore **4.67 t CO2e.**

The majority of fuel use was for mobile plant machinery, as detailed in the graph below.



Recommendations	Potential impact
Engage with suppliers to request alternative vehicle fuel sources such as electric or hybrid. Request where possible electric plant machinery.	Reduction in fossil fuel consumption and associated emissions.

3.3 Scope 2 Emissions

Scope 2 emissions are associated with the purchase and use of grid-electricity. In 2023 the festival connected to the electrical grid allowing 100% of power requirements to be electrified.

Paradies Garten used 6,069 kWh in 2023, with 429 kWh used on the camping site and 5,640 kWh used across the site.

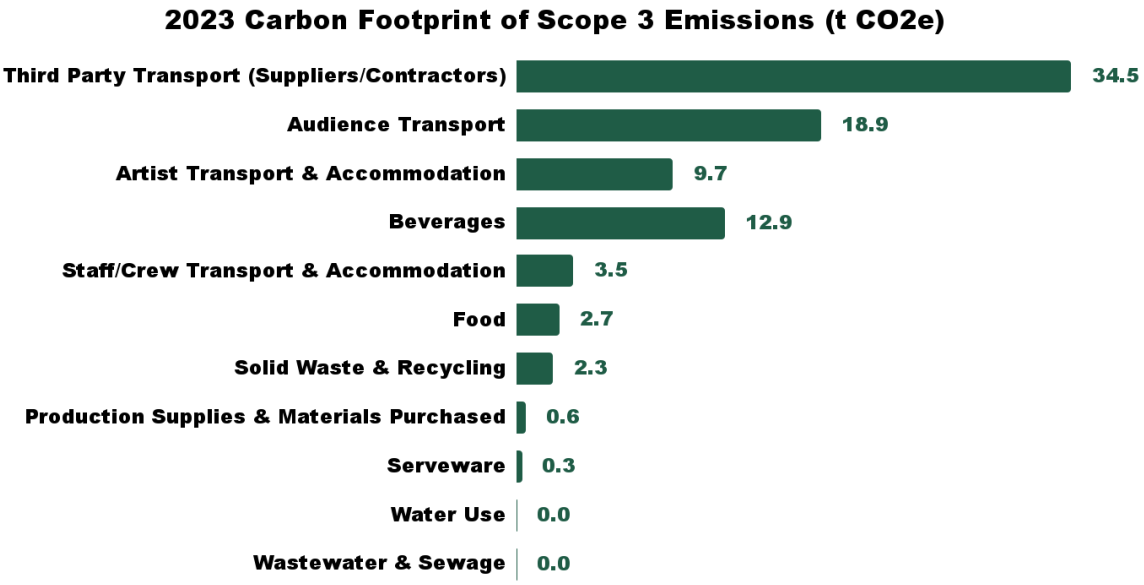
The carbon footprint total for Scope 2 emissions in 2023 was **0.17 t CO2e**, based on the average 2022 Austrian Grid carbon intensity as reported by Entsoe.

Austria benefits from one of the lowest grid carbon intensity in Europe, making electrification a key strategy in reducing the event's energy footprint. In addition, Austria requires that wind farms provide electricity to consumers within close proximity. The festival is located close to several wind farms next to Bruck an Der Leitha. Therefore it is likely that over 90% of the electricity used by the festival was provided - via the grid - from these wind farms. However, as no specific evidence of this was provided by the supplier (i.e EVNs), the emissions accounted for in this year's report are based on average Austrian grid emissions.

Recommendations	Potential impact
Continue to utilise grid electricity as the main power source for the event.	Reduction in fossil fuel consumption and associated emissions.
Profiling of energy needs and demands in advance of events in order to select the correct type and size of equipment can help minimise energy use.	-.

3.4 Scope 3 Emissions

Scope 3 emissions include indirect emissions from the organisation's upstream and downstream activities, as well as emissions associated with contractors, waste generation, or water use. For Paradies Garten, the carbon footprint for Scope 3 activities in 2023 was 85.5 t CO2e and includes the following emissions sources:



The emissions associated with water use and wastewater are not calculated due to lack of data.

3.4.1 Audience Transport

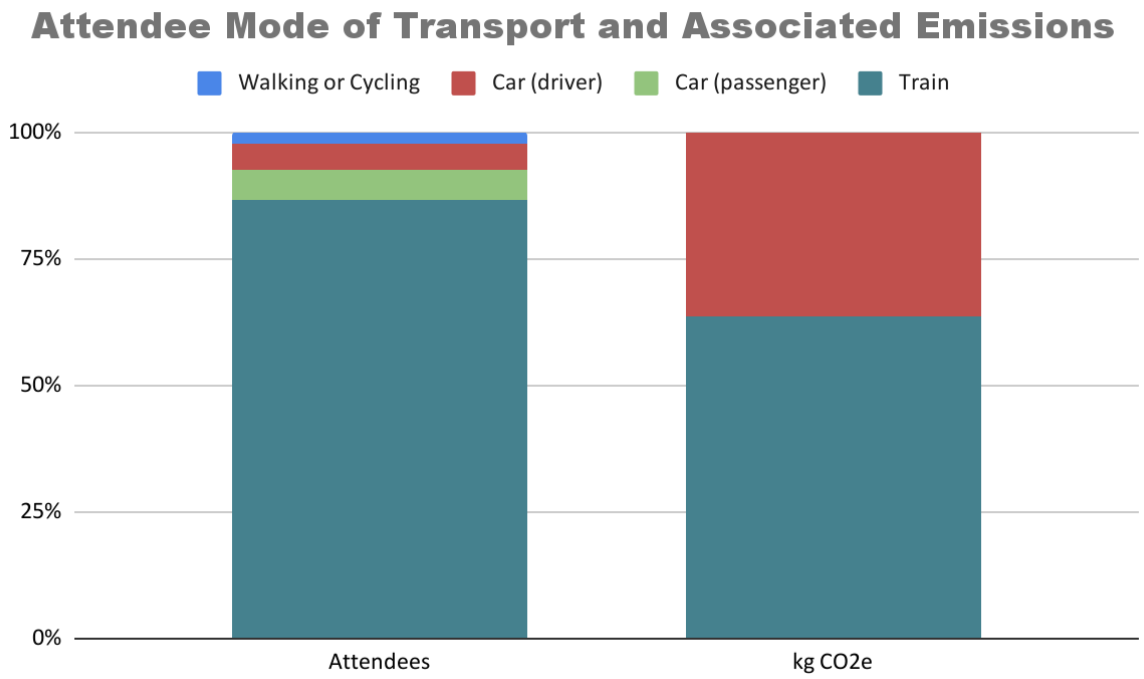
Paradies Garten issued an audience travel survey which was completed by 217 attendees (or a 3% response rate). In addition, the festival sold carpool tickets and car parking tickets online, providing a record of the number of cars staying on the festival grounds.

Survey data indicates that over 90% of the audience travelled from Vienna, which is complemented by ticketing data. A small number of attendees also travelled in from the neighbouring villages. The audience transport emissions were quantified based on an average distance travelled of 40km (one-way).

The festival partnered with the Austrian Railway operator OBB to provide free night trains between the festival and Vienna, allowing attendees to travel back at no cost. This resulted in a high use of trains as a means to travel to the festival, and a reduction in camping tickets compared to previous year: out of the nearly 7,400 attendees, 500 weekend camping tickets were sold. It was also highlighted that the price of a car parking ticket was increased in 2023.

Of those travelling by car, 46% were considered to be drivers (including single occupant drivers and the driver who carpooled).

Audience Transport emissions for the 2023 edition of Paradies Garten were therefore calculated to be **18.9 t CO2e**.



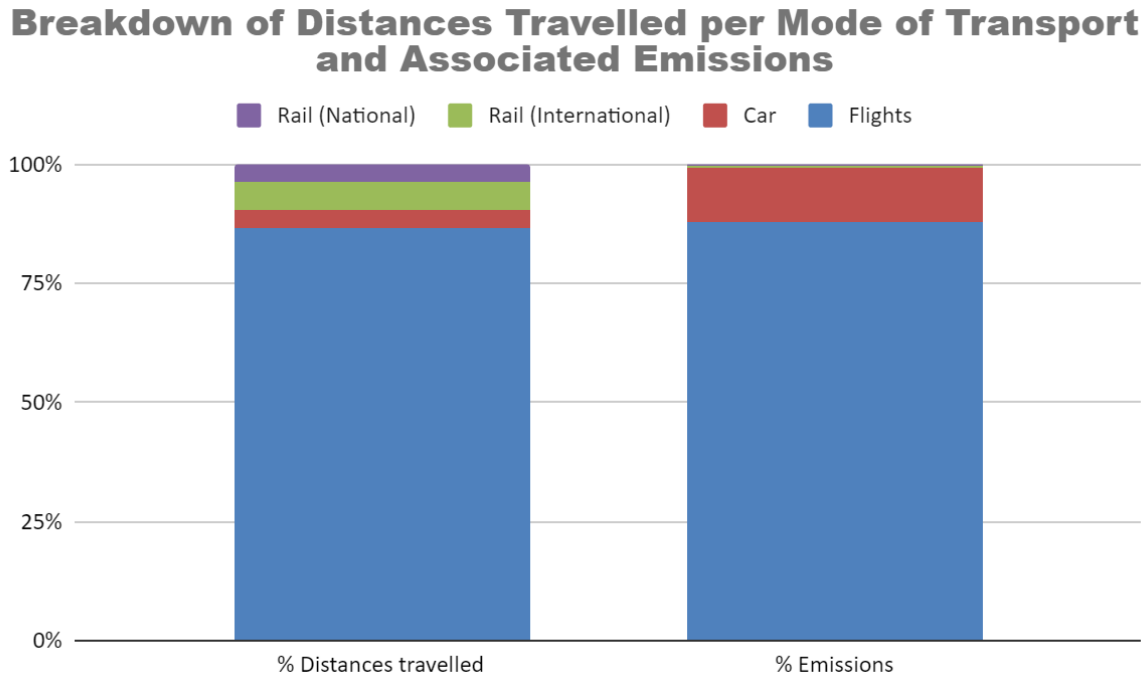
It is noted that the audience travel survey provides limited insight into wider audience departure locations: the vast majority of attendees are considered to come from Vienna or closer. The survey should consider including an option to list places of departure, which may highlight a percentage of audiences travelling from further away.

Recommendations	Potential impact
For the next edition of the Paradies Garten, continue undertaking an audience travel survey.	Improved data quality
Continue promoting and incentivising low carbon transport such as night trains and carpooling.	-
Consider including an option to list place or city of departure, which may highlight a percentage of audiences travelling from further away than Vienna	Improved data quality

3.4.2 Artist Transport and Accommodation

Paradies Garten booked 44 artists and bands for the 2023 edition, with 22 artists flying either to or from the event. The remaining 22 artists were from Austria or Vienna, and travelled either via train or car to the festival.

As can be seen in the graph below, nearly 90% of distances travelled by artists were via plane or car. While 9.6% of all distance travelled was by train, this represents less than 1% of artist transport emissions.



The emissions associated with artist travel for Paradies Garten 2023 were calculated to be **9.2 t CO2e.**

Note:
The travel emissions for those artists not travelling by plane were based on estimated departure locations and method of travel (50% train from Vienna, and 50% car from Vienna). There is therefore some uncertainty associated with these emissions.

Artist Accommodation
Artists accommodation was also recorded, with 36 hotel room.nights booked. The majority of artist hotel nights were booked at the NH Vienna Airport, reducing transport emissions between the accommodation and airport.

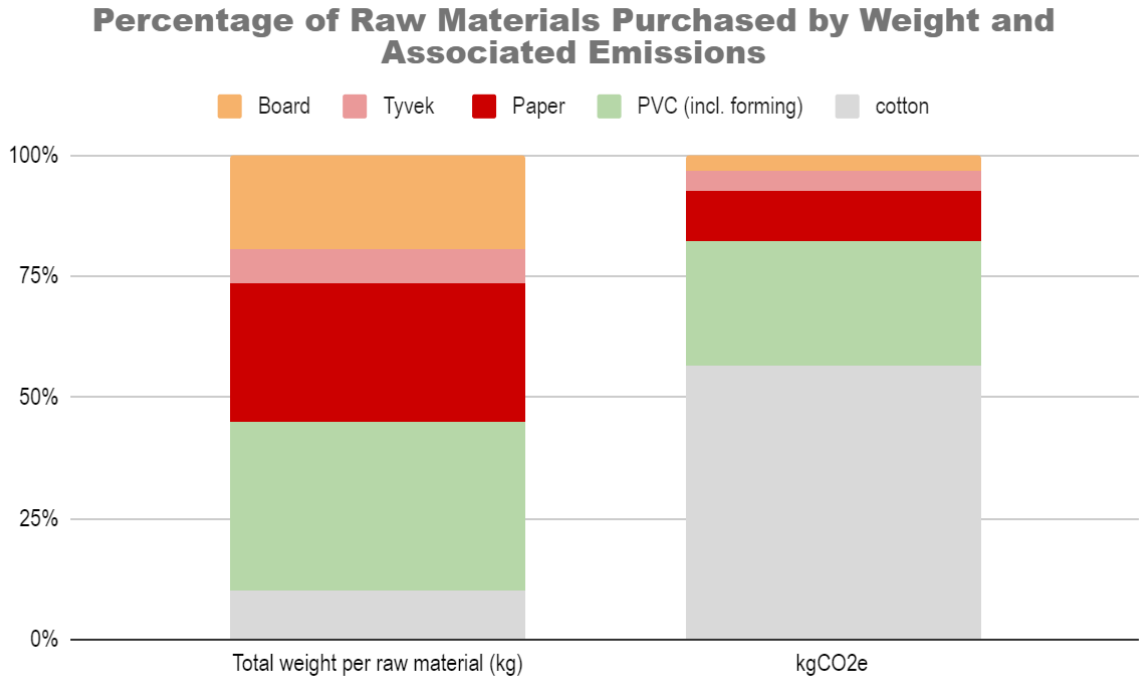
The calculated emissions associated with the artists' accommodation was **0.5 t CO2e[1].**

Recommendations	Potential impact
For the next edition of Paradies Garten, capturing all artist mileage and mode of transport (including domestic artists) to avoid extrapolating data.	Improved data quality
Encourage where possible low carbon travel such as rail.	Reduce travel emissions.

[1] Based on 2021 UK factors for Austrian hotels.

3.4.3 Production Supplies and Materials purchased

The festival provided data on 232 kg of new materials and items purchased for on-site signage (panels and stickers, marketing (posters), and stage productions (primarily fabrics). Purchases also included attendee bracelets.



As highlighted in the graph above, the majority of emissions result from cotton and PVC. Cotton is responsible for over half of all material emissions despite representing only 9% of materials purchased by weight.

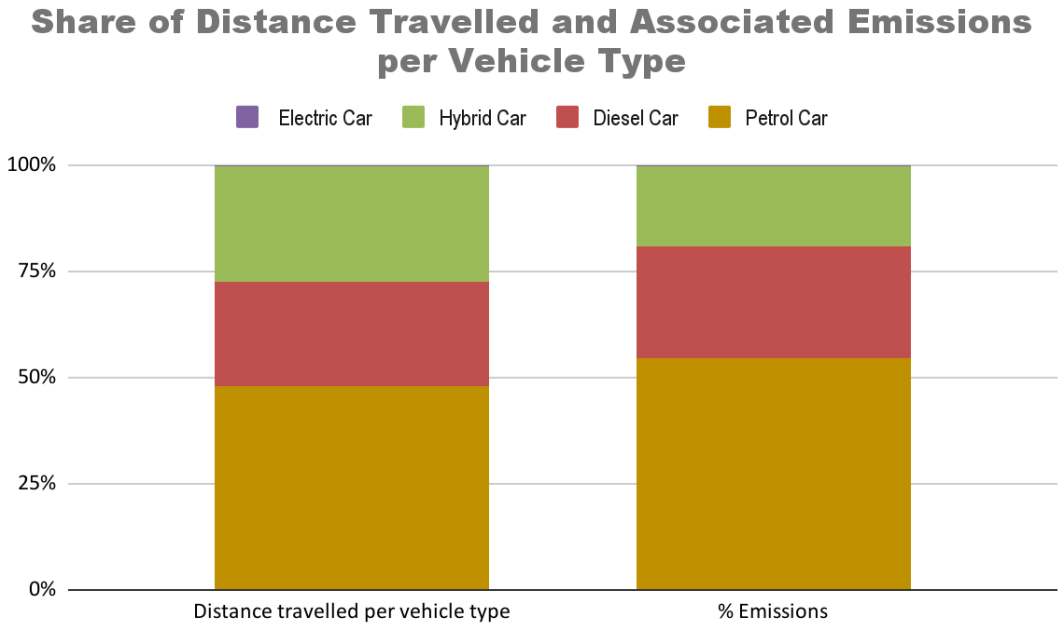
The festival purchased relatively small amounts of new materials as the majority of scenography, decor and design materials are rented or reused year on year.

The carbon footprint associated with the purchase of production materials for Paradies Garten 2023 was **0.55 t CO2e.**

Recommendations	Potential impact
Continue recording significant materials purchases made by Paradies Garten GmbH. Significance may vary, but this typically refer to either: - quantity of materials, - importance of the materials for the functioning of the event, or - purchase value of the materials	Improved data quality.
Where significant purchases are made, prioritise recovered materials, or materials and items which can be reused year on year.	

3.4.4 Staff and crew transport

Staff and crew transport was recorded by Paradies Garten via a survey completed by the team, and included travel to the event (in some cases from Belgium), and intermediate travel over the event duration between the festival site and local accommodation.



Six electric cars were used over the duration of the festival to transport staff from the event staff to the accommodation and airbnb, but the distance was minimal compared to fossil fuel cars.

Based on the collected data, the calculated emissions associated with staff transport were **2.19 t CO2e.**

Staff Accommodation:

The core crew and staff stayed in Airbnbs close to the event site. While there are no specific emissions factors for Airbnb stays, a study has indicated that average emissions per room.night could range between 7.3 kg CO2e and 13 kg CO2e.

Considering that Austria has one of the lower grid electricity emission factors in Europe (see section 3.3), the lower range of this estimate was used.

A total of 185 room.nights were recorded over the build, duration, and break of the festivals, resulting in **1.35 t CO2e.**

Recommendations	Potential impact
Continue to capture staff and crew travel information.	Improved data quality.
Encourage use of hybrid and electric vehicles where possible.	

3.4.5 Food, Beverage and Serveware

Food

Paradies Garten recorded the number of servings per recipe and the weight per serving sold by the 8 traders at the festival. A total of 5,539 servings were sold over the duration of the festival, resulting in approximately 1.49 tonnes of food[2].

Crew catering included lunch packs containing sandwiches, fruit and cereal bars. Paradies Garden handed out 200 of these to crew over the festival duration.

Emissions relating to the production of food sold during the 2023 edition were calculated to be **2.68 t CO2e.**

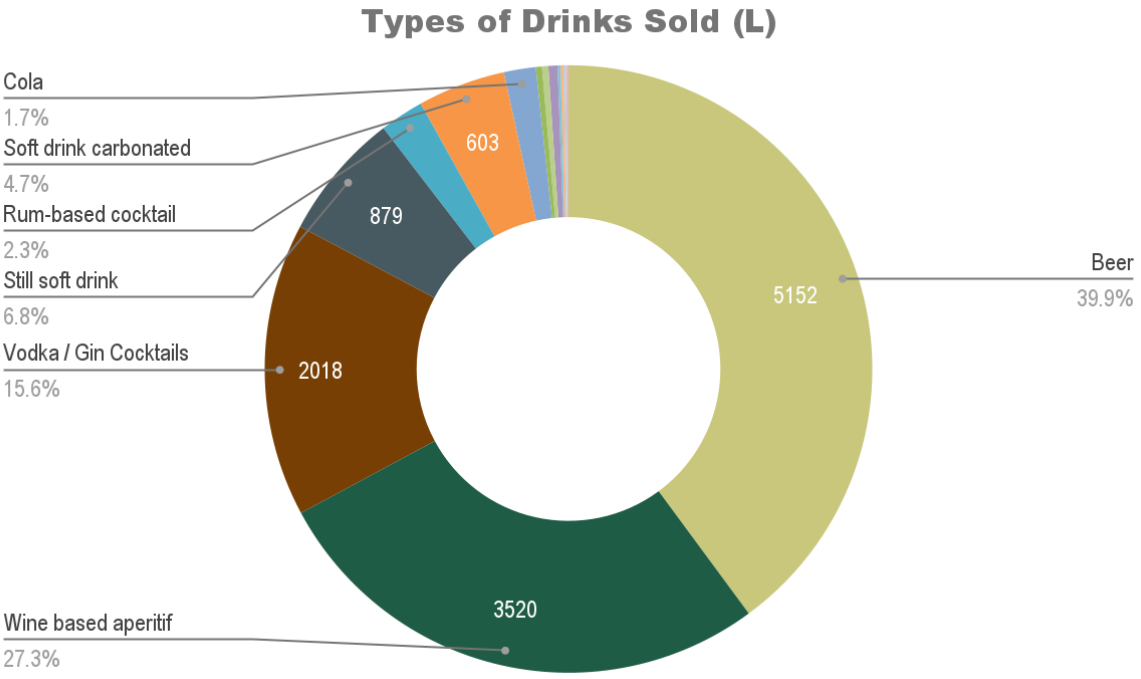
Paradies Garten implemented a vegetarian only policy for all food traders on site, with caterers required to provide at a minimum one vegan option. This has contributed to minimising the carbon impact of food served.

Recommendations	Potential impact
For the next edition of Paradies Garten, continue to engage with food vendors and traders prior to the event taking place to communicate the data that will be requested, allowing them to plan the data collection.	Improved data quality.
Continue prioritising local food traders who can serve organic and seasonal produce.	-

Beverages

The types of drinks, number of servings per drink and the volume per serving sold to the audience during the event were captured by Paradies Garten. The breakdown of emissions for each type of beverage is as follows:

[2] Several inconsistencies were noted, with some weights significantly lower than similar dishes by other traders. For example 15g compared to 125g. In this case, the higher value was used.



Emissions relating to the production of beverages sold at the 2023 Edition of the festival were calculated to be **12.95 t CO2e**.

Serveware

Information on serveware items purchased was provided by 4 out of 8 traders. All serveware items were from biodegradable materials.

Although serveware purchases for the remaining 4 traders were not captured, an assumption was made that one serveware item would be used per portion. The remaining 2,956 servings were assumed to also have been served in biodegradable containers.

This resulted in an estimated 128 kg of serveware items used or purchased for the event.

Reusable cups

Paradies Garten also implemented a reusable cup system for the bar, with 62,000 cups brought in from two suppliers and used across the festival site (including crew areas, main bars, etc). The event reported a loss of 2,522 cups, or a 4% loss rate. The emissions included within this section are those relating to the production of cups required to replace the lost items.

Reusable serveware (plates & bowls) was also introduced in the camping breakfast, with approximately 600 servings recorded over the weekend. No losses were reported.

The carbon footprint associated with the purchase and production of serveware was **0.34 t CO2e.**

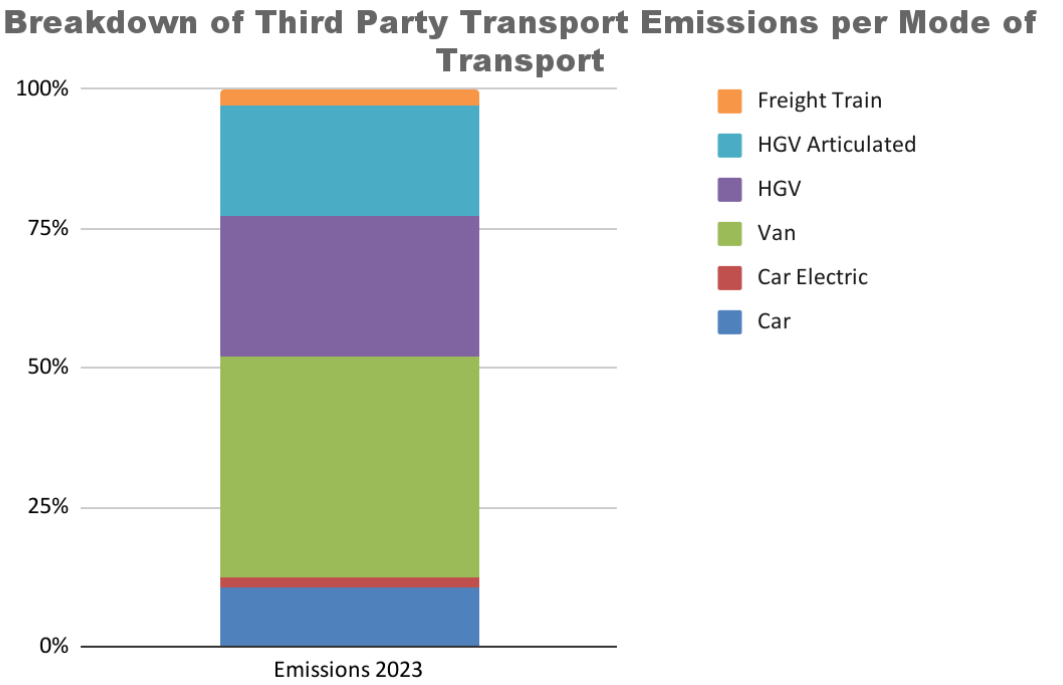
Recommendations	Potential impact
Prioritise serveware which can be reused, or is made from recycled materials and recyclable, or biodegradable.	Reduced emissions from the production and disposal of materials.

3.4.6 Third Party Transport (Suppliers, Contractors, Traders)

Paradies Garten collected data on the types of vehicles and distances travelled by 40 of the 49 contractors and suppliers to the festival grounds.

For the remaining 9 suppliers and contractors which did not provide data, it was assumed that their travel distance and vehicle use would be similar to the 2022 edition. Indeed, many of the suppliers used in 2023 were also used last year.

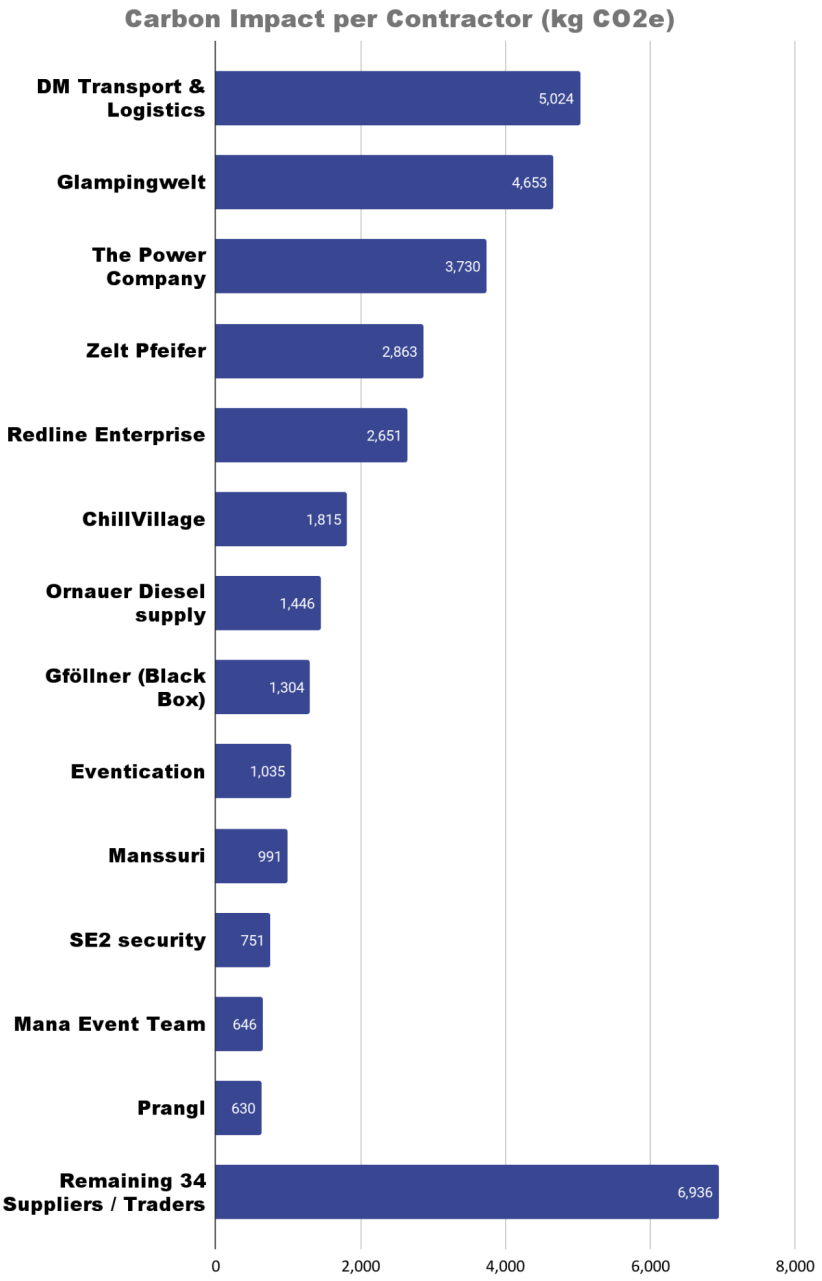
The carbon footprint associated with supplier and contractor transport in 2023 was calculated to be **34.5 t CO2e.**



These include emissions from freight of materials and supplies, as well as transport of contractor staff to the event site in passenger vehicles. The breakdown of emissions per supplier are listed in the graph on the next page.

The emissions were calculated using:

- fuel use (from 10 suppliers/contractors)
- tonnage and distance transported (from 19 suppliers/contractors)
- distance travelled where no tonnage was provided or for passenger vehicles (from 11 suppliers/contractors)

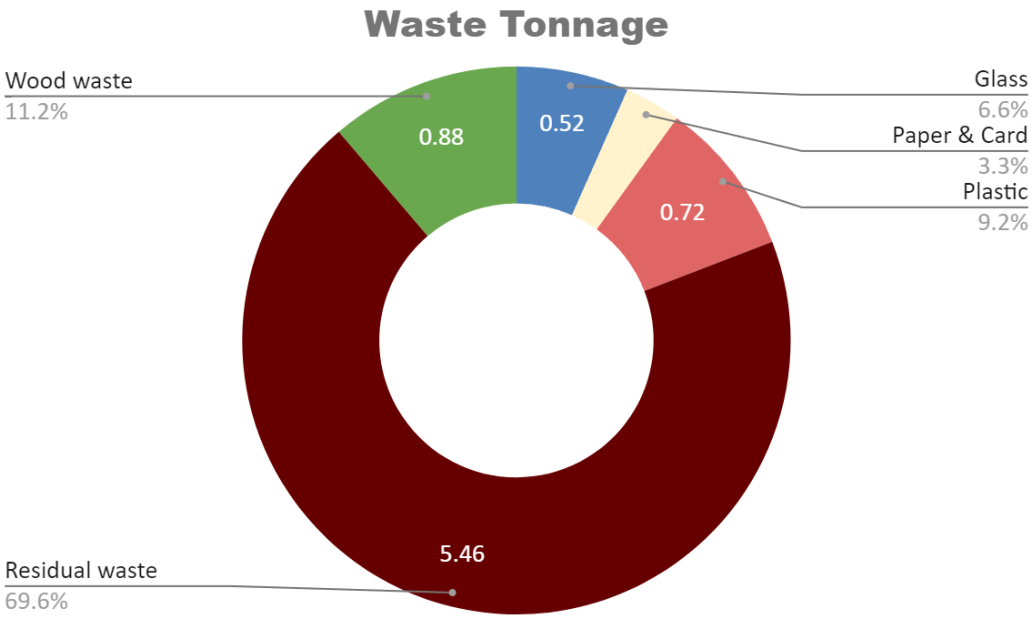


Recommendations	Potential impact
Engage with those 2-3 main impactful suppliers to utilise HVO fuel rather than diesel or petrol. Alternatively, source suppliers and contractors who can provide last mile transport in low-emissions vehicles.	Reduced transport emissions.
For the next edition, engage with suppliers prior to the event to confirm data and information that will be	Improved data quality.

Recommendations	Potential impact
requested for the carbon footprint (i.e. travel information).	

3.4.7 Waste

Paradies Garten recorded a total of 8.26 tonnes of waste generated throughout the event. The waste breakdown is detailed in the figure below:



The majority of waste (5.46 tonnes) was sent to Mechanical Biological Treatment. Various recycling streams (including glass, paper) totalled 2.36 tonnes, and 0.44 tonnes of wood waste was sent directly for incineration.

The carbon impact of the waste treatment was calculated to be **2.3 t CO2e**. The majority of emissions resulted from residual waste being sent to Mechanical Biological Treatment.

The festival reported a number of issues this year which negatively affected the recycling rate, including a significant delay in waste collection leading to cross contamination of bins, and the waste contractor's low contamination threshold.

Recommendations	Potential impact
While recovery through incineration or MBT allows for waste to be diverted from landfill, recovery remains low on the waste hierarchy and prevents the material value to be recovered. The next edition of Paradies Garten should consider increasing the waste segregation and recycling	Increasing recycling rates allows for material value to be reused rather than lost.

infrastructure to increase the share of waste sent for recycling.	

3.4.8 Water & Wastewater

Water use

The festival recorded a total of 91m3 of water use, over the duration of the event. This included 20m3 of drinking water for the festival site (including used by foodtrucks), and 71 m3 of water for showers and toilets in the camping area.

The carbon emissions associated with the supply of water through the mains network were **0.01 t CO2e.**

Wastewater and sewage

Wastewater resulting from water use on the festival site was estimated to be less than 1m3. A conservative estimate of 1m3 was considered for this report.

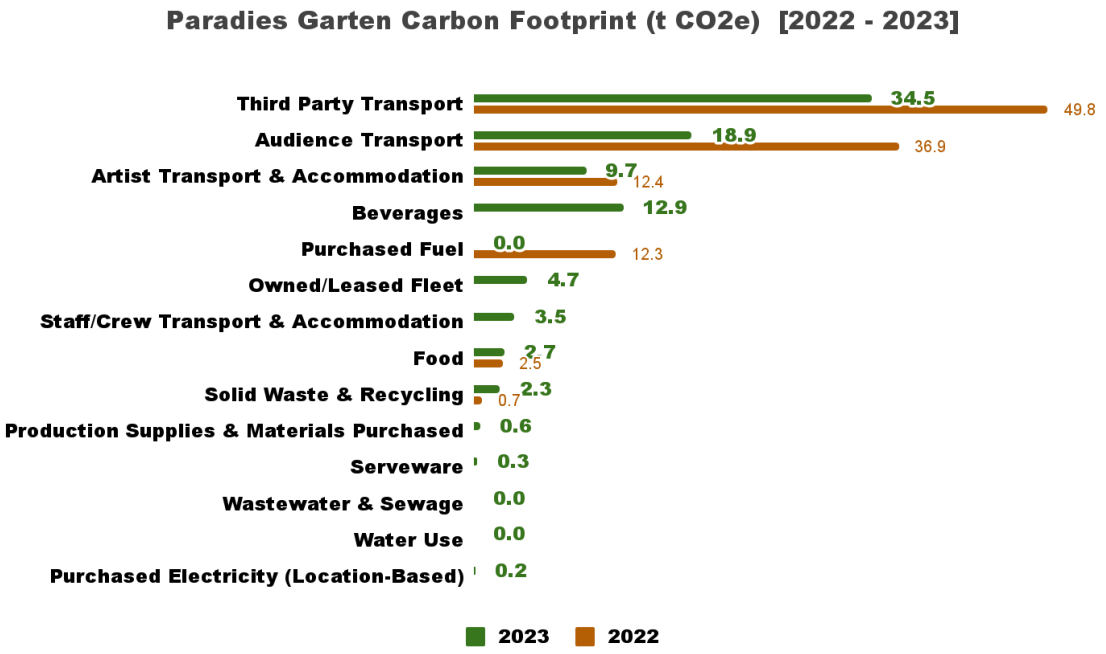
Wastewater in the camping areas included 71m3 from shower and flushing, as well as sewage from attendees. Although no volume was recorded, a conservative estimate of 1 litre of sewage per person per day was assumed, resulting in 7.39 m3.

As a result, the carbon emissions associated with wastewater and sewage treatment were estimated to be **0.02 t CO2e,** based on the assumptions listed above.

3.5 Year on Year Comparison and Key Performance Indicators

The 2023 carbon footprint has reduced by 21% compared to 2022. As can be seen in the graph below, this is primarily due to a reduction in generator fuel use, audience travel emissions, artist travel emissions, and production transport emissions.

Additional data has been collected in 2023 regarding beverages served, staff transport and accommodation, and purchased materials.



The differences between this year's carbon footprint and the previous years are explored in more detail below:

Audience Travel

Audience travel emissions have decreased from 36.9 t CO2e to 18.93 t CO2e, or near 49% reduction.

The 2023 edition saw a significant increase in train utilisation, from 62% of attendees to 88%. The Year on Year difference in the use of cars and trains is illustrated in the table below:

Method of Transport	2022 Attendees	2023 Attendees	Difference
Bike	55	16	-70.91%
Train	3,250	6,400	96.92%
Car	750	160	-78.67%
Carpooling (drivers)	620	213	-65.59%
Carpooling (passengers)	-	427	
Walking	325	160	-50.77%

*It is unclear if the 2022 emissions from carpools accounted for a separation between drivers and passengers, or if these were calculated on a passenger.km basis. For this report, car emissions are based on a per-vehicle basis.

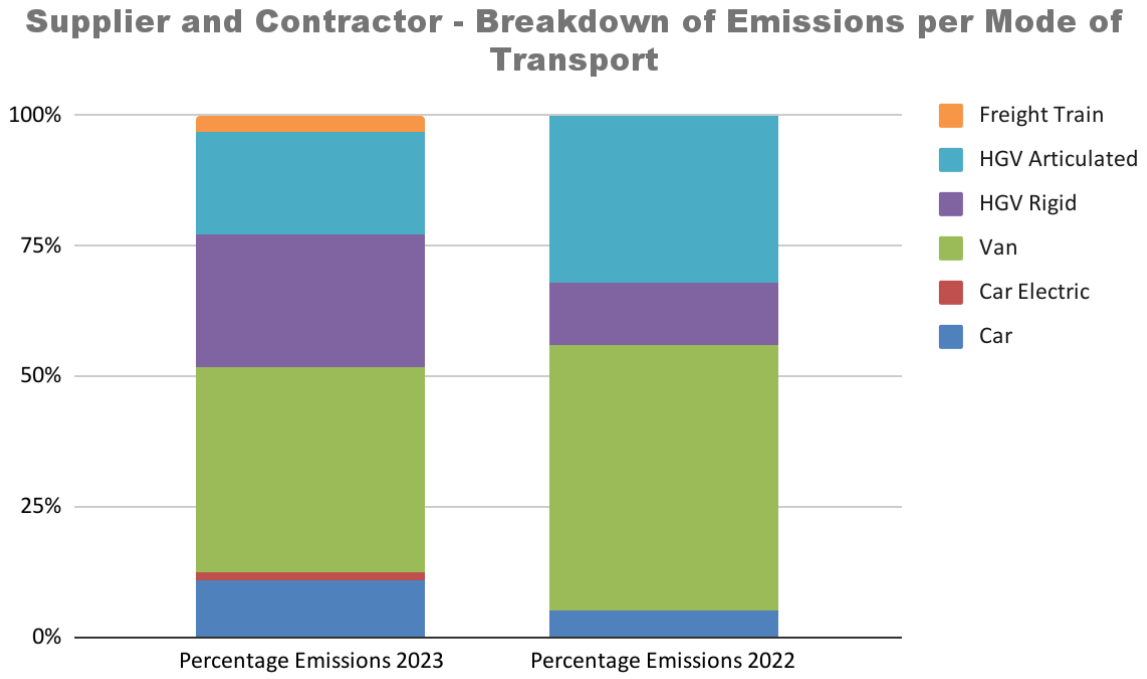
Supplier and Contractor Transport

Supplier and Contractor Transport emissions were 27% lower in 2023, totalling 36.2 tonnes compared to 49.8 tonnes in 2022.

The previous footprint undertaken in 2022 primarily quantified emissions using distance data and an average tonnage based on the maximum load capacity of vehicles used, rather than specific weights provided by suppliers. It is possible that this may have resulted in an over-estimation of freight tonnage.

The 2023 footprint used fuel data, and tonnage reported by suppliers, and distance only where no tonnage was provided or for passenger vehicles[3].

Based on the graph below, we can see that HGVs were responsible for a higher percentage of emissions than last year. In addition, the reported freight tonnage transported by suppliers was often lower than the estimations made last year using maximum load per vehicle.



Finally, the emissions associated with EMAK were included in Scope 3 in 2022. After review from Paradies Garten, the ownership of emissions was considered to be within Scope 1.

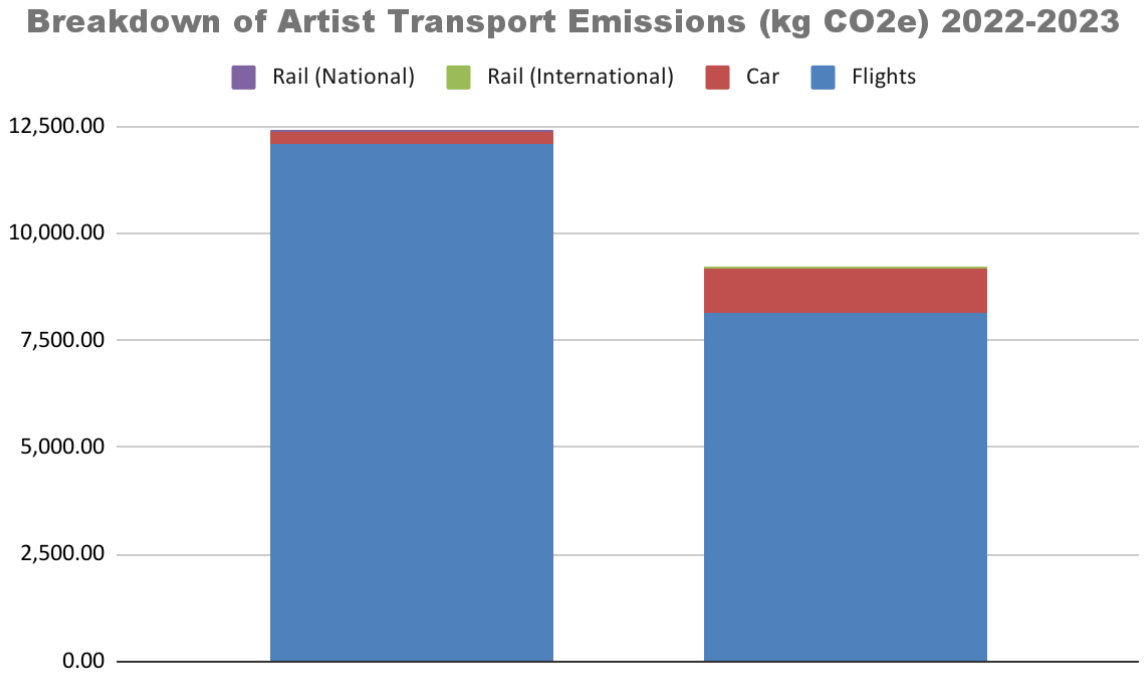
[3] Fuel usage is considered the most accurate, followed by tonnage+distance, and finally distance-only the least accurate.

Artist Travel

Artist travel emissions have decreased by 21% from previous year.

Although the majority of emissions still result from plane travel, the overall distance travelled via plane by artists decreased from 48,616 km in 2022 to 37,899 km in 2023, which contributed to lower travel emissions.

Unfortunately the accuracy of the data in 2023 is considered to be lower than previous year, primarily as travel information for domestic artists was not recorded. Instead, emissions from domestic artist travel are based on assumptions.



Waste

Waste emissions increased considerably in 2023. This appears to be primarily due to both an overall increase in waste generated (from 6.1 tonnes to 8.2 tonnes), and a large increase in residual waste. The festival noted a number of issues which negatively affected the recycling rate and led to the high increase in residual waste.

Composted waste, which has a much lower carbon emissions factor, was considerably lower in 2023.

	2022	2023
Amount per type of waste	kg	kg
PMD waste (mixed recycling)	170	-
Plastic	-	720
Methanisation	-	-

	2022	2023
Used cooking oil	240	-
Compost	2,410	420
Paper/ cardboard	590	260
Construction waste (Wood)	440	880
Glass	910	520
Residual waste	1,420	5,460

Fuel Use

Overall fuel emissions have decreased from 12.3 t CO2e to 4.67 t CO2e in 2023.

The emissions associated with power generation have considerably decreased as a result of the electrification of the site. The total fuel used in 2022 was over 4,000 litres, dropping to just over 1,500 litres in 2023 for vehicles and plant machinery.

By comparison, the use of electricity as a power source has increased significantly from 42 kWh in 2022 to 6,069 kWh in 2023.

Key Performance Indicators

Several Key Performance Indicators to monitor performance year on year are suggested below:

Key Performance Indicators 2023	Result	Unit	Baseline (2022)*
Carbon Footprint Baseline (All Scopes)	90.4	t CO2e	114.8
Carbon Footprint Baseline (Scopes 1 and 2)	4.8	t CO2e	12.62
2023 Event Production	71.5	t CO2e	77.7
Carbon Footprint Per Person Per Day (pppd)	12.2	Kg CO2e	15.8
Audience Travel related Emissions pppd	2.6	Kg CO2e	7.4
Food-related Emissions pppd	0.36	Kg CO2e	0.35

**based on average daily attendance of 3,622 in 2022.*

RECOMMENDATIONS

4.1 Priority Actions

Based upon the CO2 analysis completed in this report, the following priority actions are recommended as next steps for Paradies Garten

- Continue with the data collection processes for the activities included in this carbon assessment report, to provide a comparable assessment in 2024 and following years.
- Plan for a complete collection of data for artist transport (including domestic artists) and artist accommodation next year.
- Increase the engagement with suppliers and contractors to improve the collection of data relating to supplier transport: such as accurate freight tonnages and distances.

4.2 Action Plan

Additional recommendations detailed in Sections 3.2 to 3.4 are summarised in the table below.

Target Activity or Emissions Source	Recommendations	Potential Impact
Scope 1 – Fuel Use	• Engage with suppliers to request alternative vehicle fuel sources such as electric or hybrid. • Request where possible electric plant machinery.	Reduction in fossil fuel consumption and associated emissions.
Scope 2 – Electricity consumption	• Continue to utilise grid electricity as the main power source for the event.	Reduction in fossil fuel consumption and associated emissions.
	• Profiling of energy needs and demands in advance of events in order to select the correct type and size of equipment can help minimise energy use.	-.
Scope 3 – Audience Travel	• For the next edition of the Paradies Garten, continue undertaking an audience travel survey.	Improved data quality
	• Continue promoting and incentivising low carbon transport such as night trains and carpooling.	-

Target Activity or Emissions Source	Recommendations	Potential Impact
	• Consider including an option to list place or city of departure, which may highlight a percentage of audiences travelling from further away than Vienna	Improved data quality
Scope 3 - Artist Transport	• For the next edition of Paradies Garten, capturing all artist mileage and mode of transport (including domestic artists) to avoid extrapolating data.	Improved data quality
	• Encourage where possible low carbon travel such as rail.	Reduce travel emissions.
Scope 3 - Purchased Materials	• Continue recording significant materials purchases made by Paradies Garten GmbH. Significance may vary, but this typically refer to either: - quantity of materials, - importance of the materials for the functioning of the event, or - purchase value of the materials	Improved data quality.
	• Where significant purchases are made, prioritise recovered materials, or materials and items which can be reused year on year.	-
Scope 3 - Staff Transport and Accommodation	• Continue to capture staff and crew travel information.	Improved data quality.
	• Encourage use of hybrid and electric vehicles where possible.	
Scope 3 - Food	• For the next edition of Paradies Garten, continue to engage with food vendors and traders prior to the event taking place to communicate the data that will be requested, allowing them to plan the data collection.	Improved data quality.
	• Continue prioritising local food traders who can serve organic and seasonal produce.	-
Scope 3 - Serveware	• Prioritise serveware which can be reused, or is made from recycled materials and recyclable, or biodegradable.	Reduced emissions from the production and disposal of materials.
Scope 3 - Third Party Transport	• Engage with those 2-3 main impactful suppliers to utilise HVO fuel rather than	Reduced transport emissions.

Target Activity or Emissions Source	Recommendations	Potential Impact
	diesel or petrol. Alternatively, source suppliers and contractors who can provide last mile transport in low-emissions vehicles.	
	• For the next edition, engage with suppliers prior to the event to confirm data and information that will be requested for the carbon footprint (i.e. travel information).	Improved data quality.
Scope 3 - Waste	• While recovery through incineration or MBT allows for waste to be diverted from landfill, recovery remains low on the waste hierarchy and prevents the material value to be recovered. • The next edition of Paradies Garten should consider increasing the waste segregation and recycling infrastructure to increase the share of waste sent for recycling.	Increasing recycling rates allows for material value to be reused rather than lost.

5 APPENDICES

I. Carbon Footprint Methodology

Consistent with the accounting and reporting principles of the GHG Protocol and ISO 14064.1, the primary methodological guiding principles of this carbon footprint are:

1. Set the scope and organisational boundaries widely to incorporate emissions under the organisation's operational control and/or direct influence
2. Set operational boundaries to account for direct and indirect emissions (Scopes 1, 2 and 3);
3. Set clear inclusion/exclusion criteria to decide what is and is not included in the scope;
4. Identify a consistent, relevant and good quality set of carbon emission factors that are to the extent possible representative of the location and setting of the organisation;

II. Including/excluding criteria

Generally, an emission source has been included if it is relevant and under the organisation's operational control or if organisers can directly influence on the decision processes when it can directly impact associated emissions.

To decide which emission sources are relevant the following criteria have been used:

- Materiality or significance of the emissions of the source with respect to the total emissions of the organisation
- Availability of auditable data (lack of information)
- Relevance for interested third parties (participants, local community, authorities, suppliers, etc.)
- Existence or not of emission reduction potential

III. Calculation Methodology

The quantification methodology employed is based on the corresponding activity data and data sources:

To carry out this study, different calculation procedures have been adapted based on the data available for each of the parameters analysed, although the general methodological basis for calculating the emissions derived from these activities is always the same, consisting of the application of the following formula:

Carbon Footprint (t CO2) = Activity Data x Emission Factor

Where:

- Activity data = the parameter that defines the activity and that is related to the emission factor (for example, m3 of natural gas)
- Emission factor = amount of CO2 emitted by each unit of the "activity data" parameter (for example 2.16 kg CO2 / m3)
- The unit used to expose the results (t CO2) = representation of the equivalent tonnes of CO2, the universal unit of measurement that indicates the global warming potential (GWP) of each of the GHGs.

IV. Emission factors

Data gathering covers, in addition to the activity data, the secondary data (conversion factors and emission factors) applicable to them.

These factors have been obtained from reliable and updated published sources. Specifically, the following sources have been used:

- ADEME Base Empreinte
- UK Government's Greenhouse gas reporting: conversion factors (2023)
- Agribalyse Agricultural and Food Database v3.1

V. Data Gathering and Assumptions

Activity	Data Type Used	Assumption and Calculation Method
Purchased Fuel	Litre or kg of fuel purchased	No assumptions required. ADEME EF used.
Owned/Leased Fleet	Litres of fuel used Km travelled by vehicle type.	No assumptions required. ADEME EF used.
Electricity	Total kWh used.	Austrian specific EF 2022 sourced from Nowtricity.
Audience transport	Average distance travelled (km) and reported method of transport used.	Data from PG surveys. ADEME EF used.
Artist Transport & Accommodation	Number of hotel nights Average distance travelled Mode of transport used	Flight and rail data from 23 artists available. Remaining travel between Vienna and festival assumed to be via car (unless stated otherwise). For the remaining 21 artists, assumption that 11 travelled to the festival via train, and 10 via car (one car per artist/band). Austrian EF for rail provided by ADEME. All other EF ADEME. DEFRA EF used for UK rail and where only km distance available for vehicles.
Production Transport (Suppliers / contractors	Average distance travelled per supplier Method of transport used. Weight transported.	For 8 missing suppliers, distance travelled, weight transported and vehicles used were assumed to be the same as 2022. Where no tonnage information was available, km EF were used (source DEFRA).
Food	Type of dish served, number of servings, and weight per dish.	Where a dish serving weight did not match similar items, an average from other traders was used. AGRIBALYSE EF used.
Beverages	Units of beverages sold and volume assumed per unit	No assumptions required. AGRIBALYSE EF used.

Activity	Data Type Used	Assumption and Calculation Method
Serveware	Types of materials purchased Weight of materials purchased.	Total kg of each material type used. For reusable cups, average weight of 50g per cup used. ADEME EF used.
Production Supplies & Materials Purchased	Types of materials purchased Weight of materials purchased.	No assumptions required. ADEME EF used.
Waste Generation	Total waste generated in tonnes and waste streams breakdown	ADEME EF used. For recycling - collection and treatment-only EF used,
Water and Wastewater	No data.	No data.

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