



AiaSound Festival 2021

GHG Emissions Report

Prepared by:  **sustainability**

Acknowledgements

GH Sustainability and AiaSound Festival would like to thank the guests, vendors, and suppliers at AiaSound Festival 2021, not only for their participation in helping facilitate and support sustainably at the festival, but also for providing activity information for which this report relies on.

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Introduction

In 2021, AiaSound Festival (formally known as ØreSound Festival) welcomed approximately 13,500 guests and 27 musical acts to the three-days music festival (between 12th to 14th August 2021) located at Amager Strandpark in Copenhagen, Denmark. This was the first ever event of the AiaSound Festival which has the vision to become the Nordic region's most sustainable music festival. AiaSound Festival wants to ensure this vision by making best efforts across all of the activities and supply chain associated with the festival to reduce negative environmental and social impacts, and to positively influence the sustainability of similar events organized by others in the industry. Given AiaSound Festival's vision, it has engaged GH Sustainability A/S conduct an evaluation of the Greenhouse Gas (GHG) emissions related impacts incurred by the organization and festival activities during and prior to the 2021 event, which is based on best available data and science-based knowledge. AiaSound Festival as the objective of ensuring transparent disclosure of GHG emission from the festival, and for improving the understanding of emissions sources and data available for future events, such as the next festival held on 11th to 13th August 2022.

This GHG Emissions Report (hereinafter referred to at the 'Report') presents an overview of the methodology use and main assumptions for the quantification of the GHG emissions that can be attributed to the 2021 festival, the GHG emissions inventory results, and recommendations for strengthening future years.

Application of International Standards

This Report, the contents therefore, and the analysis of GHG emissions is applied in accordance with the following international standards for GHG reporting:

Global Reporting Initiative (GRI) – Disclosures:

- 3-1 Process to determine material topics (applied for GHG emissions only)
- 3-2 List of material topics (applied for GHG emissions only)
- 3-3 Management of material topics (applied for GHG emissions only)
- 305-1 Direct (Scope 1) GHG emissions
- 305-2 Energy indirect (Scope 2) GHG emissions
- 305-3 Other indirect (Scope 3) GHG emissions
- 305-4 GHG emissions intensity

The Greenhouse Gas (GHG) protocol guidance:

- GHG Protocol Corporate Accounting and Reporting Standard
- GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard



Approach

3.1 Materiality

GHG emissions are scientifically determined by the IPCC to cause global warming and related climate change, and cause related economic, environmental, social impacts both nationally and globally. IN accordance with this GHG emissions are regulated by the Danish Government in certain sectors, and the reduction of GHG emission are integrated into Danish Government policy which follows the EU's targets to reduce GHG emissions. The AiaSound Festival does not face direct regulation if GHG emissions, but recognizes the climate impact of GHG emissions from its activities and thus voluntarily accounts for GHG emissions from festival activities as defined in the decision on emission sources below. The inclusion of GHG emissions as a material topic for AiaSound Festival, and this impact Report, and is informed by meetings with the management of AiaSound Festival, the Municipality of Copenhagen, climate change consultants GH Sustainability, and 61% of Danish public in general (e.g. the potential festival guests) who consider climate change an important factor to them. AiaSound Festival has the goal to reduce GHG emissions from festival activities where possible, and since this is the first year of the AiaSound Festival, this Report will be used to identify and strengthen activity data, identify future actions to reduce GHG emissions, and set GHG emission targets for future festivals.



3.2 Applied Methodology

3.2.1 GHG emissions boundary

The GHG emissions boundary of the AiaSound Festival relates to direct emissions occurring during the festival and during the company's operations, as well as indirect upstream and downstream emissions associated with operational control of the festival (e.g. the AiaSound Festival organization and suppliers / vendors). These emissions are categorized into scopes, as defined by the GHG Protocol and GRI Standards indicated in Section 2, which are:

- Scope 1 refers to direct emissions from sources owned or controlled by the organization, for example emissions from own electricity generation facilities (generators).
- Scope 2 refers to indirect emissions from the generation of purchased electricity, steam, heating, and cooling including emissions associated with electricity consumption in company offices.
- Scope 3 refers to all other indirect emissions that occur as a consequence from company activity or operations, but sources not owned or controlled by the company, such as waste disposal, employee commuting, and festival guest travel, and transportation of purchased goods and materials.

Further information regarding the GHG emissions boundary can be found in Annex B.



3.2 Applied Methodology

3.2.2 Determination of GHG emissions

The accounting of GHG emissions of the AiaSound Festival follows the GHG Protocol as indicated in Section 2, and which works to ensure relevance, completeness, consistency, transparency, and accuracy for the estimation of emissions of carbon dioxide (CO₂) and other greenhouse gases from the material activities of the festival. In this context, all GHG emissions are calculated according to the following general formula:

$$\text{CO}_2\text{e} = \text{Activity Data} \times \text{Emission Factor} \times (\text{Global Warming Potential})$$

Where:

- **CO₂e** refers to emissions from CO₂ and other greenhouse gases expressed in terms of CO₂ equivalents,
- **Activity Data** is a quantitative measure of activity within the boundary that results in GHG emissions,
- **Emission Factors** are the average emissions of a unit of activity and are used to convert activity data into GHG emissions, and
- **(Global Warming Potential)** are factors describing the radiative forcing impact of one unit of a greenhouse gas relative to one unit of carbon dioxide. They are used to convert individual greenhouse gas emissions to the standardised unit of CO₂e, when the Emission Factor is not already defined in CO₂e.



Activity data and sources

A full breakdown of GHG emissions sources within the boundary and associated types of activity data are provided in Annex B. Most activity data is gained from quantitative records and bills in the possession of AiaSound Festival. To estimate the GHG emissions originating from transport by guests (e.g. the approximately 4500 attendees and 450 volunteers on average per day) GH Sustainability conducted a survey across two of the festival days with 138 responses. This survey requested information on the primary mode of transportation and distance travelled to the festival, and the same survey asked about expected food and drink consumption which was used to verify specific values gained from quantitative records. A second survey was also sent to all the vendors contracted by AiaSound Festival to gather information on their freight transport of equipment and goods, staff transport to and from the festival and consumption of goods and equipment. However, response to the second survey was low and it was therefore necessary to apply several estimations to the activity data for these sources, instead of direct data. As this was the first year for the festival and the data collection was new, several gaps in data availability were identified and qualified assumptions for this data were made accordingly, as indicated in Annex C.

Emission factors

Emissions factors have been sourced from various sources with integrity and national emission factors have been used where available, as indicated in the points listed below. Most emissions factors are expressed in units of CO₂e, rather than as separate constituent GHG gases, and thus our overall emissions estimates are reported in units of total tonnes of CO₂e (tCO₂e).

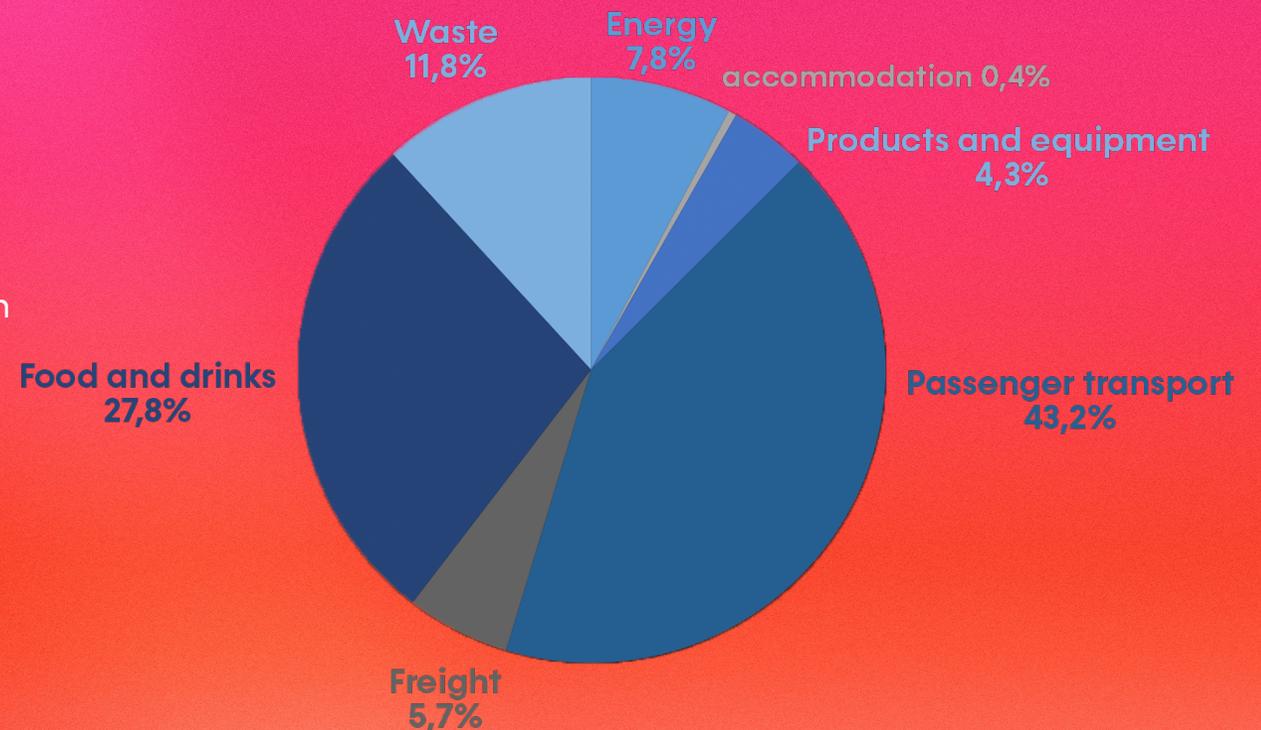
- Emission factors for hotel accommodation in Denmark are sourced from the International Tourism Partnership and Greenview, derived from the Cornell Hotel Sustainability Benchmarking Index.
- Emission factors for food and drinks are sourced from the Big Climate Database produced by CONCITO, which provides life cycle assessments of the climate impact of 500 of the most common food products on the Danish market. Where exact product matches were unavailable, emission factors were selected based on the nearest comparable product.
- Emission factors for passenger and freight transport in Denmark were determined from Danish Energy Agency where possible, and in the absence of national emissions factors the emissions factors from the UK Government Department for Business, Energy & Industrial Strategy are used.
- Emission factors for electricity are from Energinet's environmental declaration for electricity 2020, via HOFOR. HOFOR, Environmental Declarations.
- Emission factors for heat are from HOFOR's environmental declaration for district heating and city gas.
- For GHG emissions associated with solid waste disposal, an emissions factor was determined based on emissions information published by Amager Bakke (based on design capacity) which is the solid waste incineration facility for the Copenhagen region and is responsible for final solid waste disposal.
- Emission factors for consumables were based on those for materials (cotton, glass, and plastic) and derived from various reputable published sources.
- Emission factors for diesel power generation follows IPCC 2006 guidelines for fuels combustion.

GHG Emissions from AiaSound Festival

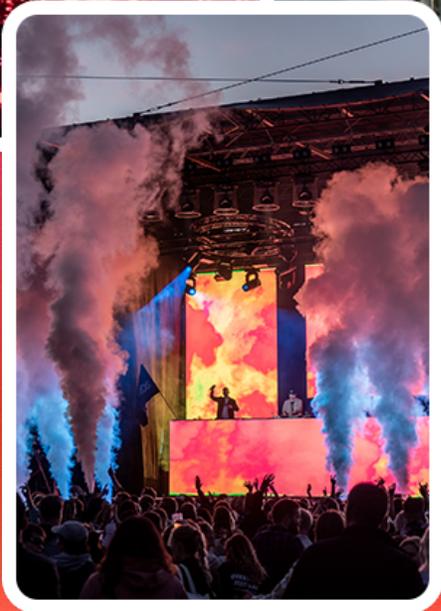
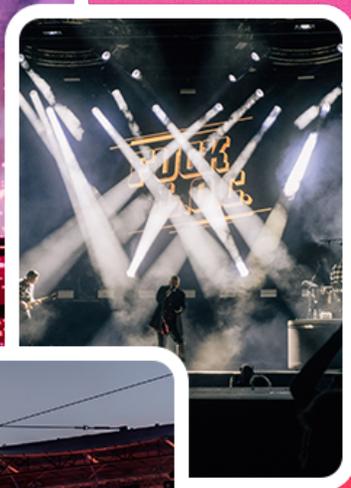
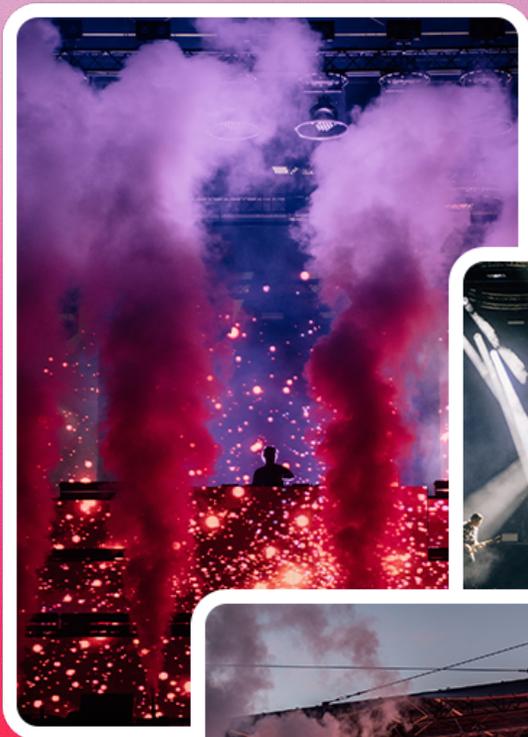
The estimated total GHG emissions from the AiaSound Festival 2021 are estimated to be 115.3 tCO₂e, which amounts to an emissions intensity of 7.8 kgCO₂e per guest.

Though it is noted that not all GHG emissions are accounted for under the boundary due the lack of activity data on certain activities. A summary of the estimated total GHG emissions is provided in Figure 1 and in Annex D, and some key results are as follows.

- According to the guest survey results, 59% of attendees and volunteers travelled to the festival via public transport (train, metro, s-train, or bus), while 17% travelled via bicycle. Nonetheless, GHG emissions from guest transport account for approximately 30% (34.5 tCO₂e) of overall festival GHG emissions.
- Most of the artists performing at the festival were based in Denmark, with only two international acts. However, emissions from international flights make up almost all the emissions within the performer travel category (e.g. 12% of overall festival GHG emissions).
- Food and drinks represent around 27.8% of total GHG emissions of the festival, the vast majority comes from drinks (25.6 tCO₂e) and the rest comes from food (6.5 tCO₂e) of which two thirds is from the sale of meat products (equal to 3.8% of overall festival GHG emissions).
- The solid waste at the festival was not separated, and we can assume it was therefore incinerated for combined heat and power in the Copenhagen area and GHG emissions from this represent 11.8% of overall festival GHG emissions.



Uncertainty



As with all GHG inventory calculations, there is expected to be some level of uncertainty arising from a combined uncertainties in activity data and emission factors. All emission factors have been selected from reputable published sources to minimize uncertainty. Most activity data came from direct information sources. Some activity data was unavailable, incomplete, or required extrapolation, for this activity data there is likely to be a larger degree of uncertainty. Where there was estimation required in the activity data, the approach was to overestimate rather than underestimate emissions. A qualitative indication of data quality for the activity data sources is provide in Annex C. Uncertainty of activity data and emissions factors cannot be determined directly for emissions source due to limited available information, therefore uncertainty values are chosen from those of applicable source categories found under the Danish National Inventory Report 2021 are used to help approximately the overall uncertainty of +/- 19%. More detail on the uncertainty values can be found in Annex E.

Comparative analysis with other music festivals

In this first year of the AiaSound Festival, there were some initial steps taken to reduce the environmental impact of its activities and these led to the following comparative results regarding GHG emissions:

- The overall activity of the festival was equal to 36% of each guests average per capita daily GHG emissions in Denmark.
- The festival did not include any overnight camping, this cut down on waste from abandoned tents and other items. It is estimated that a single abandoned tent has an embodied emissions of 21.6 kgCO₂e and that one tent is abandoned for every 6.7 guests at a music festivals with camping. This means that AiaSound Festival potential prevented 47.9 tCO₂e of embodied GHG emissions from not allowing camping.
- Per guest total GHG emissions at AiaSound 2021 were 9% lower than the We Love Green 2018 music festival held at Le Bois de Vincennes Paris (7.8 kgCO₂e compared to 8.5 kgCO₂e per guest).
- Per guest transport GHG emissions at AiaSound 2021 were 20% lower than the We Love Green 2018 music festival held at Le Bois de Vincennes Paris (2.3 kgCO₂e compared to 2.9 kgCO₂e per guest).



Opportunities to Strengthen MRV and Mitigation Measures

The setup and information systems, when continued, of the AiaSound Festival provide a very good basis for the determination of GHG emissions and reporting from future festivals. This can be strengthened by taking several measures to implement a more robust Measuring, Reporting, and Verification (MRV) system for GHG emissions. AiaSound festival is currently working on their new sustainability strategy that hopefully also will lead to a more robust MRV for the festival.