

**Identifying Current Trends in Carbon Footprint Measurement Among Music
Festivals in the United Kingdom with Recommendations for the Oregon Country
Fair**

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Overview and Methodology

This memo is a short literature review featuring a case study identifying current trends in the festival industry in the goal to become carbon neutral. As the number of music festival attendees increases every year, a more concentrated effort towards industry standards and transparent information and data sharing within the festival community is necessary to curb carbon outputs.

In the following pages, I focus on a report from the United Kingdom titled, “The Show Must Go On” (Powerful Thinking, 2015). Throughout my research I have discovered that while independent festivals discuss their efforts to go carbon neutral, data is lacking, as well as industry wide reporting. I have found that festivals in the United Kingdom are united in their efforts to curb their carbon footprint, and thus more data is being shared, creating the most comprehensive and transparent review of current trends in carbon footprinting.

According to their website, Oregon Country Fair’s annual attendance has increased from an average of 45,000 to over 54,000 for their 50 year anniversary in 2019. As of 2019, there were more than 800 music festivals in the United States alone, with over 32 million people going to at least one music festival per year (Deployed Resources, 2019). As the numbers continue to grow, collecting data will become a much larger task; however, incorporating attendee self-reporting could significantly increase value data, as well as increase education and awareness. In order to account for carbon footprinting among attendees and festival organizers, I have recommended two carbon footprint calculators.

How Do We Best Achieve Sustainability?

Festivals are a representation of a community desire for participation in a range of socio-cultural activities. As they grow, an interest in the awareness of environmental impacts has emerged. Important questions for internal organizer discussion on ways to achieve sustainability include:

- What present practices align with sustainability goals?
- What are intended developments of the festival’s sustainability projects?
- What are the organization’s values?
- How do festivals achieve social well-being while experiencing economic growth and maintaining environmental protections?
- Festivals bring a unique form of tourist attraction to an area. What effect does a festival have on the local economy and community mindset?

What are Carbon's Biggest Contributors?

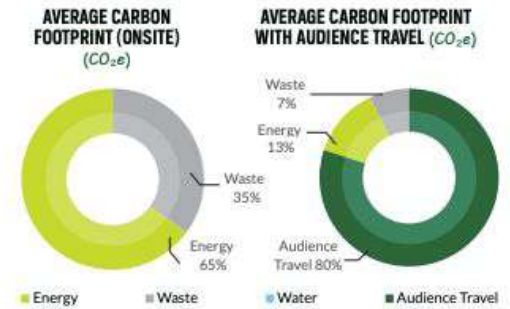
According to "The Show Must Go On," the biggest contributors to the carbon footprint of a festival are energy use, waste, and audience travel, with audience travel accounting for 80% of a festival's footprint. In this figure, water is not a contributing factor because although water is an important environmental concern, its transport from vendors is what should be included in footprint calculations.

In terms of travel, the average festival goer worldwide travels an average of 903 miles to attend a music festival (Billboard, 2015). Data collected by Powerful Thinking shows that most festival attendees in the United Kingdom travel by car, and highlights alternate modes of transportation that would greatly reduce the carbon footprint of the festival. Ways to curb individual driving habits to and from the festival include promoting ride sharing, offering shuttles, and offering discounted or first available ticket sales that combine both festival tickets, as well as lower emission public travel, such as by train.

Powerful Thinking reported on the carbon footprint of energy consumption totalling 5 millions liters of fuel annually. This figure differs from many US festivals currently pursuing carbon neutral efforts, such as the Oregon Country Fair, who report using 100% biodiesel to fuel all of its diesel consuming equipment. Solar energy has also become a frontrunner in US festival energy consumption, offsetting even more carbon.

The third largest contributor to carbon at festivals is waste. Waste has proven to be the most complex issue, due in part to waste contamination that occurs from lack of education, or lack of proper signage. The United Kingdom reports 23,500 tons of waste collected annually (Powerful Thinking, 2015). This figure includes both recycled waste, as well as waste that ends

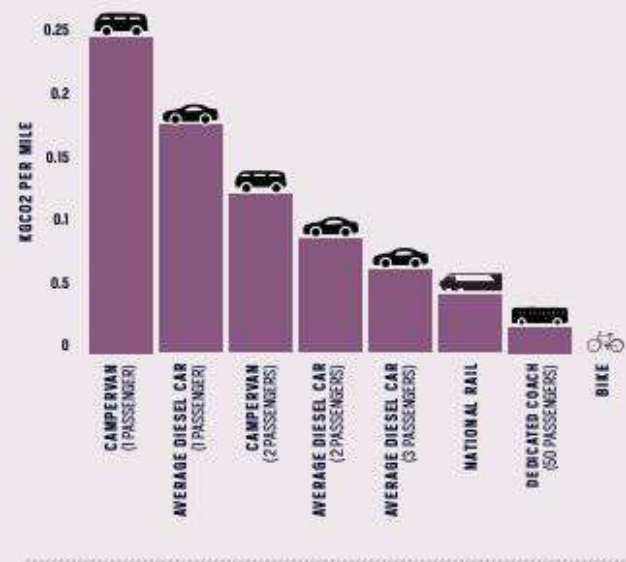
FESTIVAL CARBON FOOTPRINT



CARBON EMISSIONS



COMPARISON OF CARBON EMISSIONS BY TRAVEL TYPE ⁵¹



up in the landfill. Biodegradable products that are not properly disposed of that end up in landfills produce methane, of which 25% of is not fully captured (Powerful Thinking, 2015).

Ways in which festivals can reduce waste include banning all plastics and utilizing either reusable or biodegradable products, eliminating single use plastic and water bottles, and partnering with vendors to more consciously provide for the festival. Attendee education on proper disposal of waste, as well as clearly marked bins could also contribute to better waste disposal.

Powerful Thinking has examined several methods of waste reductions focusing on increased recycling awareness to reduce carbon with the following findings.

SCENARIOS FOR THE REDUCTION OF WASTE ON TOTAL UK FESTIVAL CO ₂ e EMISSIONS								
	Baseline		Scenario 1		Scenario 2		Scenario 3	
	100% landfill		32% recycling		50% recycling		70% recycling	
	Unit	CO ₂ e (t)	Unit	CO ₂ e (t)	Unit	CO ₂ e (t)	Unit	CO ₂ e (t)
Diesel (L)	5,000,000	13,000	5,000,000	13,000	5,000,000	13,000	5,000,000	13,000
Waste (t)	23,500	6,600	16,000	4,500	11,800	3,300	7,050	2,000
Water (m ³)	107,000	37	107,000	37	107,000	37	107,000	37
Total CO ₂ e (t)	19,600		17,500		16,300		15,000	
Reduction in overall emissions	0%		11%		17%		24%	

Tools for Measuring Carbon Footprint

Among the many tools that exist for calculating carbon footprint, I recommend two to accommodate the needs of the Oregon Country Fair. The first calculator is Julie's Bicycle. Based out of the United Kingdom and specific to the creative community, over 3,200 organizations in over 50 countries use their creative green tools to calculate the carbon footprint of their events. Julie's Bicycle launched their Creative Industry Green Tools in 2009, providing creative organizations with the tools to measure their carbon footprint in the areas of energy, water, waste and recycling, transport and travel, and product materials. Using information gathered from these tools as well as certifications they provide, they have produced benchmarks against which organizations can compare their environmental performance according to event type and size, according to their relative metrics (Julie's Bicycle, n.d.).

Julie's Bicycle reports their Creative Green Framework as consisting of three organizing principles, stated as:

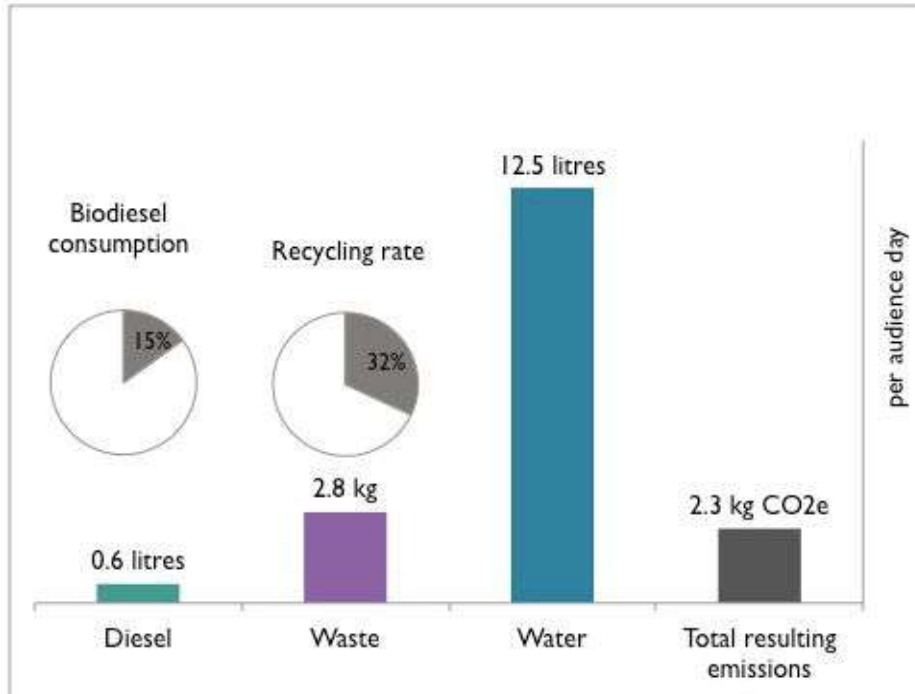
1. Commitment to environmental governance integrated with broader organizational values. This includes assessment of policies, staff responsibilities, procurement, stakeholder communications, and engagement.
2. Understanding environmental impacts and how they influence the attitudes of your organization/network. This includes measurement, monitoring, and analysis.
3. Improvement to achieve reductions in your environmental impacts.

Over the course of their program, Julie's Bicycle has reported an annual reduction in energy use since 2012/2013, as well as a 33% rise in literacy rates among organizations, resulting in more robust data (Julie's Bicycle, n.d.). The Creative Industry Green Tools provided on their website, as well as their event calculator are free to use. They also offer guidelines for "greening the office" which delve into the organizational side of hosting a festival.

Metrics used to measure the carbon footprint of an office or building include energy use, water, waste, business travel, fleet travel, and greenprint. Greenprint measures attitude and value, and policy measures, awards, and initiatives.

For the festival side of measurement, Julie's Bicycle utilizes general information, water, waste, energy use, audience travel, and greenprint metrics to measure the carbon footprint. All metrics are calculated using the metric system. Audience travel utilizes varying degrees of airline travel from domestic flights of 1.5 hours, short haul flights of 1.5-5 hours, and long haul flights of greater than 2,300 miles one-way (Julie's Bicycle, n.d.).

In 2014, Julie's Bicycle released the following festival benchmarks. This was calculated using a sample size of 13 UK festivals from 2011-2013, with the most recently available data selected for use. Sample size included festivals with fewer than 20,000 attendees and camping facilities, with the exception of one festival with attendance greater than 20,000, which produced data in line with the benchmark median. For the benchmark calculations, waste is total waste, including landfill and recycled waste, and water is consumable water, and not waste water.



The second carbon footprint calculator I recommend is Terrapass. This calculator is more suited for individual calculations, and could be utilized in efforts of audience members to self-report their footprints. Terrapass also offers an event carbon calculator as well. After calculating an individual's carbon footprint, the individual is given the option to explore and purchase carbon offsets. Optional metrics utilized in the carbon calculator include carbon calculations of your vehicle, your public transportation usage, airline travel, and home energy. Airline travel is calculated by short, medium, and long haul flights. Short haul flights are defined as an average distance of 462 miles, medium haul flights are an average of 1,108 miles, and long haul flights are an average of 6,482 miles. This calculator would be lacking for festival usage in that it does not include metrics for calculating carbon produced by staying in a campsite.

Shambala: A Carbon Neutral Case Study

Shambala, a festival in the north of England which hosts 15,000 festival attendees per year, is considered world-wide as a pioneering festival for the green community. It has won numerous green festival awards, and its greatest achievement is having reduced the carbon footprint of the festival by over 80%. They have also achieved 100% renewable power, become meat and fish free, and eradicated disposable plastics.

In 2018, Shambala reduced their overall footprint by 10% by targeting audience travel. During that year's ticket sales, Shambala reserved 25% of festival tickets for those agreeing to travel by coach at a £15 reduction in pricing. For future ticket sales, Shambala has set a goal of 50% audience travel by coach.

Aside from being meat and fish free, Shambala also has strict rules about sourcing. All food must be locally sourced within 70 miles, while most is sourced within 15, food must be organic and fair-trade, and no Coca Cola or Nestle products will be offered.

Shambala has achieved 100% renewable energy from a mix of waste vegetable oil generators, solar, and hybrid units. Where applicable, they have switched to LED lighting. In an effort to encourage energy efficiency, Shambala works with their food vendors by imposing energy tariffs.

For their waste efforts, Shambala utilizes composting toilets. To encourage responsible audience waste disposal, Shambala adds a £10 deposit to all ticket sales. In order to redeem your deposit, attendees are given two bags, one for recyclables, and the other for general waste, which can then be redeemed at the conclusion of the festival if all waste is properly sorted. This recycling exchange program has resulted in an 80% efficiency of recyclables being recycled (Shambala, n.d.).

Summary and Future Research

As festival attendance grows, increased and better reporting of data will allow for better education of organizers, volunteers, and attendees, as well as provide information for other festivals interested in pursuing carbon neutral. Adapting to ways to curb carbon output by means of more deliberate decision making and better education is at the forefront of tackling festival carbon neutrality. Creating industry-wide standards will help propel festivals closer to their goals, and create benchmarks to strive for.

An area for future research would be a more complex breakdown of carbon footprinting. Festivals are a multifaceted event and should be measured in three stages: audience, internal/organizational, and artists. Although contractor and artist emissions may not be able to be curbed, it represents a blind spot in many festival footprinting calculations, and should be addressed to offset those emissions.

The following table highlights sustainability indicators for festivals, encompassing audience, artist, and internal/organizational factors (Gallagher and Pike, 2011).

Table 1: Sustainability indicators for festivals

Sustainability aspect	Performance area	Indicator	
Environmental indicators	Energy	Total festival energy consumption (excluding transport)	
		Grid (mains) electricity consumption	
		Grid (mains) 'green' electricity consumption	
		Site generated renewable energy consumption	
		Site generator energy consumption	
		Mains gas consumption	
		Bottled gas consumption	
	Materials and waste	Total waste generation and disposal	
		Landfill disposal	
		Incineration disposal	
		Recycling	
		Re-use	
	Water and sewage	Water	
		Grey water	
		Sewage treatment	
	Transport	Audience: Cars and car share	
		Audience: Coaches	
		Audience: Shuttle bus	
		Audience: Train travel	
		Audience: Ferry	
Festival logistics transport			
Artist / entourage travel			
Environmental actions	Carbon offsetting initiatives		
	Environmental conservation and protection initiatives		
Socio-cultural indicators	Community engagement and participation	Levels of community conflict with the Festival	
		Number of complaints from the community	
		Levels of community engagement and participation	
		Activity of stakeholder review and feedback process	
		Percentage of attendees that are from the local community	
		Event accessibility for special needs and/or disabled people	
		Exchange of best practice with other Festivals	
	Education and awareness	Engagement with educational initiatives relating to sustainability	
		On-site communication	
		Fund raising for sustainability initiatives	
		Generation of sustainability news and promotional activities	
		Indicators used to present information on sustainability	
		Level of staff training with regard to sustainability	
	Procurement and employment	Tracking of product supply chains	
		Level of Fair Trade agreements	
		Sourcing of goods and services locally	
		Sourcing of Fair Trade goods and services	
		Sourcing of organic goods and services	
		Sourcing of reusable and renewable goods and services	
		Sourcing of environmentally benign goods and services	
		Employment levels from the local community	
	Significance and recognition	Number of repeat attendees	
		Cultural significance of the festival to the community	
		Number of 'friends' on social networking sites	
		Certification through Ecolabelling	
	Economic indicators	Supporting sustainability	Expenditure (and ration thereof) spent on local goods and services
			Ratio of income spent on investing in the future to income spent on operational costs
			Employment levels from the local community
			Ratio of income spent on environmental management
			Percentage of suppliers with a commitment to becoming more sustainable

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