

2020 Update

THE SHOW MUST GO ON

Environmental impact
report for the UK
festival and outdoor
events industry

VISION 2025



Julie's Bicycle
SUSTAINING CREATIVITY

UK MUSIC CAMPING FESTIVAL IN NUMBERS

4.9m

UK music festival
goers annually



Requiring

0.5L

Diesel used per
person per day

Equating to...

7m

Litres of fuel used by the UK
festival industry annually



As well as consuming...

184.5m

Litres of water



and creating...

25,800

Tonnes of waste annually



And generating...

24,261

Tonnes CO₂e per year

That's...

1.9kg

CO₂e per person per day



28%

of festivals have a
specific budget for
environmental
sustainability

68%

of festivals have a
sustainability coordinator
or someone responsible
for sustainability in
the team

100+

festivals and events
have signed up to
Festival Vision: 2025

**BENCHMARKS FROM
JULIE'S BICYCLE**

CONTENTS

UK FESTIVAL IMPACTS BY NUMBERS	2
TABLE OF CONTENTS	3
ACKNOWLEDGEMENTS	4
EXECUTIVE SUMMARY	6
FOREWORD	7
INTRODUCTION	8
WHAT THE SCIENCE IS SAYING	11
AN OVERVIEW OF THE ENVIRONMENTAL IMPACTS OF UK FESTIVALS	14
THE STATE OF PLAY IN THE UK FESTIVAL INDUSTRY 2020	18
IMPACTS AND SOLUTIONS:	
ENERGY	24
RESOURCE USE & WASTE	40
FOOD	62
WATER	74
TRAVEL AND TRANSPORT	82
GOVERNANCE	100
DRIVERS OF CHANGE	110
VISION	114
SUMMARY OF RECOMMENDATIONS	118
KEY RESOURCES	124

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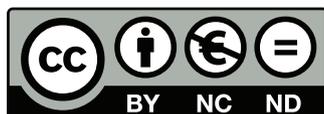
BENCHMARKS

Benchmarks based on data collected and analysed by Julie's Bicycle. We have also drawn on surveys undertaken by A Greener Festival, CGA and AIF on audience travel splits.

Julie's Bicycle
SUSTAINING CREATIVITY

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SUPPORTERS

This report and the accompanying online Knowledge Hub was made possible by the whole industry and supply chain coming together around a shared purpose, recognising that in the face of the climate crisis, we are stronger together.

Huge thanks to everyone involved.

GAMECHANGERS



CHAPTER SUPPORTERS



HEADLINER SUPPORTERS



SUPPORTERS



INDUSTRY PARTNERS

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EXECUTIVE SUMMARY

In 2015, Powerful Thinking released **The Show Must Go On**: an industry response to the United Nations climate talks that gave rise to the Paris Agreement: an international global agreement to keep global warming to well below 2°C, aspiring to 1.5°C.

The original Show Must Go On report set out the Festival Vision: 2025, aiming to achieve a 50% reduction in outdoor event-related greenhouse gas emissions by 2025.

Five years into the journey, more than 100 outdoor events all across the UK have joined the Vision 2025. With the UK hosting the international COP26 UN climate talks this year, and the climate and ecological crisis taking a leap into public consciousness, it was time to take stock of where we are.

- **Two thirds of events** now have a sustainability coordinator or someone responsible for environmental initiatives in their team
- **1 in 4** events have a dedicated sustainability budget
- **1 in 3** events created a new public engagement campaign about the environment in 2019
- **1 in 3** events introduced a new environmental policy and/or action plan for their event in 2019
- **More** events overall are reporting and addressing their carbon emissions
- **Environmental action** is increasingly important to festivalgoers according to audience survey data

The benchmarks for camping music festivals show a reduction in waste per audience member per day from **2.8 kg** in 2014 to **2 kg** in 2019, driven by initiatives like reusable cups and working with audiences to reduce the amount of waste left behind in campsites.

Energy now makes up **77%** of a festival's on-site CO₂e footprint, and waste **23%**. There are still blind spots for data on a range of impacts including more detailed audience travel data, artist and contractor travel, and material/resource use and food, but examples of some individual events starting to collect and analyse this information.

The sector has achieved up to 23% reduction in relative emissions per audience day* from energy, waste, and water, mainly driven by diverting waste from landfill. Overall, total music festival carbon emissions from energy, waste, and water on-site have risen despite these gains, driven by a nearly 50% increase in audience numbers in the past 5 years.

But the ambition, momentum, and environmental literacy of the outdoor events community have flourished. The main driver for sustainability identified by event organisers is overwhelmingly the internal commitment of the company, staff, or festival team; followed by audience expectations as a secondary driver. 'Lack of expertise' is no longer identified as one of the top three barriers to environmental action.

This report renews our commitment to:

- Reduce reliance on fossil fuels and continue aiming to reduce diesel consumption by 50% by 2025 compared with 2014 figures
- Reduce waste where possible, aiming for no biodegradable waste sent to landfill and achieving 50% recycling rates
- Work with audiences, suppliers, and artists to positively influence travel choices and reduce travel-related emissions
- Measuring and reporting key impacts to measure progress
- Speaking out to audiences and stakeholders and using our creative voices to contribute to the public narrative about positive change

The Vision 2025 community of outdoor events has created a shared community to share knowledge and expertise, and galvanise commitment to act together towards shared aims. This report is another building block on this shared roadmap.

Please consider joining at www.vision2025.org.uk

FOREWORD

Since writing the Show Must Go On Report in 2015, the context for environmental sustainability has profoundly changed around us.

Taking effective action on the climate crisis is now accepted as an urgent priority across society, in most parts of the events and music industry - and is increasingly expected by event audiences. We are seeing real shifts in practices at events, and there is significant and realistic scope for improvement.

In 2017 I met Phillip, organiser of Ndau Festival of the Arts in Chipinge area, Zimbabwe. It struck me, in the way that the obvious sometimes hits you in a breath-taking way, that while event organisers like myself in the UK think about increasingly erratic weather and the changes we may need to make to wet-weather infrastructure in future, people in the community where his event takes place are dying as a result of climate change. They have experienced repeated and increasingly severe floods and drought, were badly hit by Cyclone Idai. Ndau festival has become an essential part of meeting the challenges in Chipinge: bringing the community together, raising awareness about what is going on around them, harnessing the power of the arts in communicating the tools and skills to cope and make essential changes.

We must also act, in whatever way we can – acknowledging the climate crisis, even if the flooding is not at our door yet - making changes, inspiring others, and actively contributing to a future in which everyone can thrive. In the words of Greta Thunberg, “this is not a drill”.

We all need robust information to make good decisions about the environmental performance of our events and companies. There are issues to tackle which require evidence-based approaches and solutions. There are many new and innovative green products and services in the market that need to be assessed properly.

Chris Johnson

Co-founder and Chair, Powerful Thinking
and Vision:2025 Industry Steering Group

We can't all be experts in environmental science, behavioural psychology or green communications. But we can, and are, beginning to work together as an industry, creating a strong 'community of interest', a shared knowledge base and a movement for change toward better environmental practices.

Vision:2025 has brought the festival industry together to co-fund comprehensive free-to-use resources for everyone in the industry to use.

Event organisers provide experiences that bring people together, and everyone in the industry can help to provide vital leadership for the most important challenge of our time.

This report is a benchmark, a point of reflection, and a rallying call. The content is expanded in the [Vision:2025 online Knowledge Hub](#), a comprehensive, dynamic and trusted source of information about sustainability for events and the music industry. Share your information, contribute case studies or help to fund us. Any way you can, take action now.

BY TACKLING OUR ENVIRONMENTAL IMPACTS AND SHOUTING ABOUT WHAT WE DO, WE CAN IGNITE THE CHANGE THAT IS NEEDED WITHIN THE INDUSTRY AND BEYOND.

Melvin Benn, Director of Live Nation Music UK and Managing Director, Festival Republic

INTRODUCTION

Festivals and outdoor events are at the heart of today's cultural landscape in the UK.

They create vital microcosms outside the day-to-day where anything seems possible; where we come together, share experiences, exchange ideas, hear and see new music and art forms, and discover fresh ideas.

From their roots in the countercultures of the 1960s to today, they remain key places where political, social and environmental issues can be explored.

As events organisers, we have a unique opportunity to model the kind of world we want to see – from the infrastructure we put in place to deal with energy, waste, water, food, and transport provision in our mini-civilisations, to the cultural codes, values, and behaviours we set together with our audiences that can resonate long after they return home. There will always be constraints – legislative, physical, and cultural – but as a community, we pride ourselves on finding creative ways to overcome obstacles.

We have the power to make profound changes to help mitigate the worst impacts of the climate crisis, if we choose to embrace it.

In 2015, the first Show Must Go On report was the foundation for a collective environmental vision from the industry, based on common aspirations, which identified the practical mechanisms available to us to reduce our impacts and measure our success.

It gave rise to Festival Vision: 2025 – a shared pledge to achieve a 50% reduction in festival-related GHG emissions by 2025, and to speak out to audiences and about these vital issues. The pledge has now been signed by over 100 UK festivals and events.

In the past five years, much has shifted.

The Blue Planet II effect has pushed plastic pollution and our total dependence on a single-use plastic culture into the public consciousness.

In 2018, scientists at the UN IPCC (Intergovernmental Panel on Climate Change) were louder than ever before in their warnings about the rapidly disappearing window of opportunity – 12 years or less – we have remaining to keep open a pathway to 1.5°C or less of global warming.

The Fridays for Future school strike movement inspired by Greta Thunberg has brought millions of young people into the streets to fight for their future. Extinction Rebellion has sparked a newly urgent public conversation, shifting the vocabulary we use to speak about the climate and ecological emergency.

These movements are translating into far greater environmental concern and interest among audiences. Nearly two thirds of respondents to Ticketmaster's 2019

State of Play: Festivals UK audience survey said they wanted to see reduced waste and increased eco-friendly measures at festivals putting these concerns ahead of the desire for more unique experiences, more photo opportunities, and a 'greater variety of events/activities'.¹ Event organisers risk missing this new public pulse at our peril.

There is also a new political context. In June 2019, the UK updated its legally binding targets under the Climate Change Act 2008, requiring the country to bring GHG emissions to net zero by 2050 – with many calling for an earlier target still.

Since 2015, the festival community has made its own shifts too. Practices and interventions that seemed pioneering five years ago are now commonplace, while some that seemed impossible are now being experimented with on sites across the country.

The supply chain is starting to develop new services and technologies to meet the requirements of environmental impact reduction.

Within the event workforce itself there has been a measurable change in engagement and ambition. More events are hiring part-time or full-time sustainability coordinators.

Alongside Festival Vision: 2025, the industry has created more shared commitments to build on, including The Association of Independent Festival's (AIF) Drastic on Plastics campaign and Music Declares Emergency.

These are milestones to celebrate – and build on. But the speed and depth of transformation required by the science at this moment in history means we must do more. Emissions in the sector (and in the wider world) have still not peaked, and instead continue to grow.. As individual festivals, we may feel that our individual business choices won't make a difference – but the choices we make can help shift those of our collective audiences: an awe-inspiring cultural force.

It is a formidable task that is at once deeply ethical and creative. We can be daunted by it or we can choose to embrace it, taking it on with the full power of our inspiring and relentless UK festival community.

1. State of Play: Festivals UK. Diving into what makes festivalgoers tick. Ticketmaster (2019). Based on a sample of 4,000 festival audience members.





1.IT'S WARMING

2.IT'S US

3.WE'RE SURE

4.IT'S BAD

5.WE CAN FIX IT

Dr. Kimberly Nicholas, Lund University Centre
for Sustainability Studies.

WHAT THE SCIENCE IS SAYING...

IT'S WARMING:

We've already caused approximately 1.0°C of global warming above pre-industrial levels.² Temperatures over land have risen by nearly twice as much.³

IT'S US:

Humans are responsible for all of modern global warming through our greenhouse gas emissions and other activities.⁴ The main drivers are burning fossil fuels for energy, industrial processes (like cement manufacture), agriculture, deforestation, and other land-use changes.

WE'RE SURE:

Really. 100% of scientists agree.⁵

IT'S BAD:

Greenhouse gases trap heat in the atmosphere, resulting in a warming of the atmosphere and a destabilisation of our climate systems, rising sea levels, ocean acidification, desertification and an increasing risk of heatwaves, droughts, and other extreme weather – all of which have serious consequences for people and nature all over the world.

The climate crisis is here: millions of people all over the world are already affected: More extreme and longer-lasting drought, wildfires, flooding, heatwaves and storms are materialising across every continent.

WE CAN FIX IT

We can't take back the damage to our natural systems we've already caused, and we can't undo the suffering and experiences of the many communities on the frontlines of our changing climate. But we can fix the way our world works so that we peak emissions, minimise future global warming, and thread climate justice into our actions.

2. Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty. IPCC (2018). <https://www.ipcc.ch/sr15/chapter/spm/>
3. Summary for Policymakers. Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems. IPCC (2019) <https://www.ipcc.ch/report/srcccl/>
4. Analysis: why scientists think 100% of global warming is due to humans. Carbon Brief (2017). <https://www.carbonbrief.org/analysis-why-scientists-think-100-of-global-warming-is-due-to-humans>
5. Scientists Reach 100% Consensus on Anthropogenic Global Warming. Powell, J. Bulletin of Science, Technology & Society (2019). <https://journals.sagepub.com/doi/10.1177/0270467619886266> Emissions Gap Report 2019. UN Environment Programme (2019) <https://www.unenvironment.org/resources/emissions-gap-report-2019>

STATE OF THE CLIMATE

In 2015, governments reached an international agreement to keep global temperature rise well below 2 degrees Celsius above pre-industrial levels, and to; ‘pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius.’

But the window to take action and limit warming to 1.5°C is closing fast.

There is still a huge gap between the emissions reductions policies that countries have committed to, and what is required.

Despite the international agreement now in place, despite decades of warnings, and despite the mounting stories of climate change impacts on society from every corner of the globe, emissions are still rising.

Every year that global emissions continue to grow means that more radical cuts will be needed. We will rely more on removing CO₂ from the atmosphere through so-called ‘negative emissions’ – including through technologies that don’t exist yet - in order to reach our targets.

Right now, we’re headed to towards a rise of more than 3°C above pre-industrial levels, with devastating impacts.⁶

The Intergovernmental Panel on Climate Change (IPCC) was set up to provide a comprehensive summary of scientific data on climate change to help inform policy decisions. The IPCC Special Report on 1.5°C, published in late 2018, tells us that we have to reduce global emissions by 45% from 2010 levels within the next decade.⁷

The United Nations Environment Programme (UNEP) Emissions Gap Report published in November 2019 calls on us to reduce global emissions by 7.6% every year from 2020 to 2030 if we still want a chance to limit global warming to 1.5°C.

This will require transformative, systemic shifts in the way our society and economy works. We need to change everything.

Alongside the climate crisis, we are also in the middle of an unfolding ecological crisis: according to the UN IPBES, around a million species already face extinction, and the rate of change in nature in the past 50 years is ‘unprecedented’ in human history.

The narrative of this report is based on GHG emissions due to their central role in climate change. However, we recognise that the environmental impacts of our industry are varied in their type, manifestation, and implications.

IPCC: We have to reduce global emissions by 45% from 2010 levels within the next decade.

NDAU FESTIVAL OF THE ARTS

Using the Arts to address climate change impacts in Africa

Ndau Festival of the Arts works in Zimbabwe, in areas badly affected by the impacts of climate change, empowering rural communities to use art to move towards sustainable living. Ndau’s mission is to use music, theatre, poetry, painting and storytelling to address local issues – teaching art skills, harnessing expertise and creating knowledge-sharing spaces from which solution-based environmental messages can spread.



6. Emissions Gap Report 2019. UN Environment Programme (2019) <https://www.unenvironment.org/resources/emissions-gap-report-2019>

7. Special Report: Global Warming of 1.5C. IPCC (2018) <https://www.ipcc.ch/sr15/>

UK CLIMATE CHANGE ACT 2008

In 2019, the UK government adopted a new legally binding target of reaching net zero UK greenhouse gas (GHG) emissions by 2050.

This is more ambitious than the previous target of reducing UK GHG emissions by 80% by 2050 compared to 1990.

However, even before the introduction of this more ambitious target, based on current policies the UK is not on track to meet its legally mandated carbon budgets after 2022.

WEATHER FORECAST

A less stable climate with more unseasonal, unpredictable and extreme weather, already poses a significant risk to the festival and outdoor events industry. Current trends suggest that UK summers will become drier overall, but when rain does fall, it will do so in heavier bursts.⁸

Impacts include the audience experience (due rain or heat), extra costs associated with more weather-proof infrastructure and contingencies, increased insurance costs and travel disruptions, and an increased risk of cancellations – like those of Boardmasters and Houghton Festival in 2019.

**THIS IS
NOT A
DRILL.**

Greta Thunberg

8. UK extreme events – heavy rainfall and floods. Met Office. <https://www.metoffice.gov.uk/research/climate/understanding-climate/uk-extreme-events-heavy-rainfall-and-floods>

UK MUSIC CAMPING FESTIVALS IN NUMBERS

4.9 million

UK MUSIC FESTIVALGOERS ANNUALLY

7 million litres

THE TOTAL LITRES OF FUEL USED BY THE UK FESTIVAL INDUSTRY ANNUALLY

0.5 litres per person per day

AVERAGE LITRES OF DIESEL USED AT UK MUSIC FESTIVALS

25,800 tonnes

OF WASTE ANNUALLY

184.5 million litres

OF WATER CONSUMED AT UK MUSIC CAMPING FESTIVALS

24,261 tonnes CO₂e per year⁹

TOTAL UK MUSIC CAMPINGFESTIVAL INDUSTRY EMISSIONS
(EXCLUDING TRAVEL)

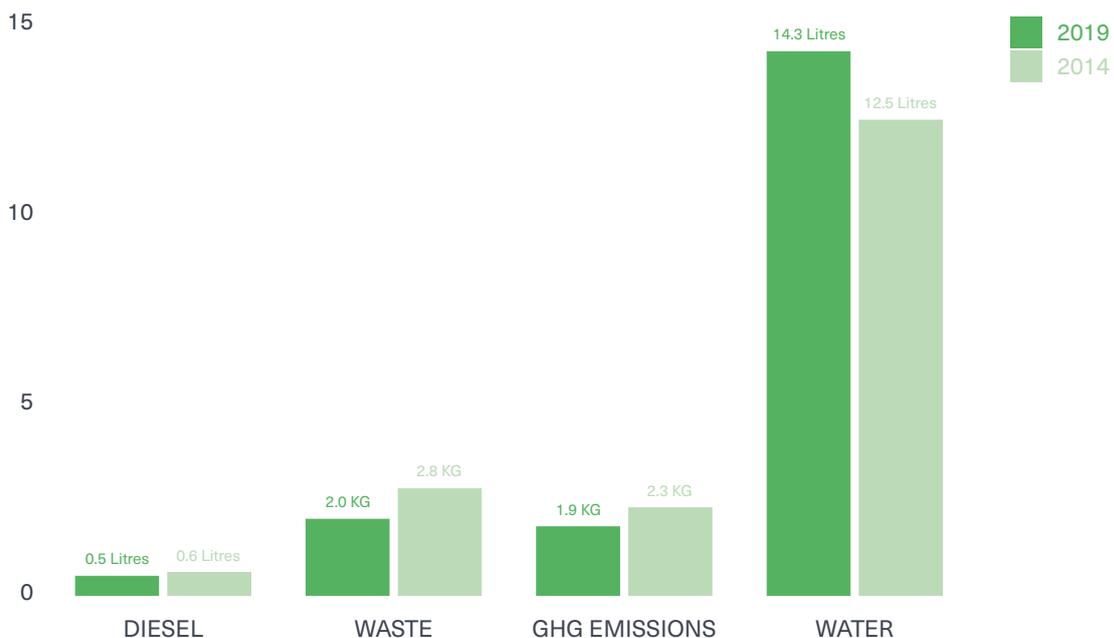
For the purposes of the analysis of festival industry impacts in The Show Must Go On report, we have used UK Music attendance figures from 2018 and define a 'festival' as an event that is primarily music based and held in an outdoor space, with a capacity of at least 1,500. The content and recommendations in the report are relevant to any outdoor event – but similar environmental impact benchmarks don't exist for all types of outdoor event.

SOURCES OF ENVIRONMENTAL IMPACT:

All festivals and outdoor events have ecological footprints. They consume energy, water, food and materials - and they produce waste and carbon emissions.

Onsite	Transport	Goods/services
<ul style="list-style-type: none"> Power use... from fuel or through mains grid, battery, or renewables Waste Water consumption (and wastewater processing) Direct environmental impacts e.g. on biodiversity, pollution 	<ul style="list-style-type: none"> Audiences Crew and contractors Artists Set materials, production equipment, site infrastructure, water, food & beverages, all other on-site consumables Onsite transport 	<ul style="list-style-type: none"> Food & drink including concessions, bars, catering Set materials Tickets/programmes Merchandise Other products

JULIE'S BICYCLE BENCHMARKS FOR CAMPING MUSIC FESTIVALS, DECEMBER 2019



These benchmarks have been derived from the data from UK camping music festivals spanning 2017 - 2019.¹⁰ In each case the most recent available year of data was selected.

10. Diesel sample size: 20 UK festivals. Waste sample size: 16 UK festivals. Water sample size: 19 UK festivals. These benchmarks are derived from a sample of festivals voluntarily reporting either through Julie's Bicycle Creative Green Certification or the free Creative Green Tools, and may therefore indicate a performance that is better than the average festival as it is drawn from environmentally engaged events.

UK FESTIVAL CO₂e EMISSIONS

WHAT IS CO₂e?

CO₂e is a standard unit for measuring carbon footprints. A carbon footprint measures the greenhouse gas (GHG) emissions caused by an individual or organisation. CO₂e stands for 'carbon dioxide equivalent' and is a way to express the impacts of different greenhouse gases in a common unit. Although it can seem like an intangible concept, it is an essential way to compare and track climate change related impacts.

The current benchmark for greenhouse gas emissions per audience day (per person per day on site) at UK festivals with camping is 1.9 kg CO₂e. This includes direct impacts from diesel use, water use, and waste – but not impacts from transport, travel, and the embodied carbon impacts of the production of materials, food, merchandise, etc.

The current benchmark for UK festivals with camping is 1.9kg CO₂e per person per day.

With an estimated audience of 4.9 million festivalgoers annually, we can extrapolate the total annual emissions of the UK festival industry from diesel, waste, and water use at approximately 24,261 t CO₂e.¹¹

Despite greater engagement and action around sustainable practices, the environmental impacts of the festival industry have gone up overall since 2015, driven by the growth of the industry.

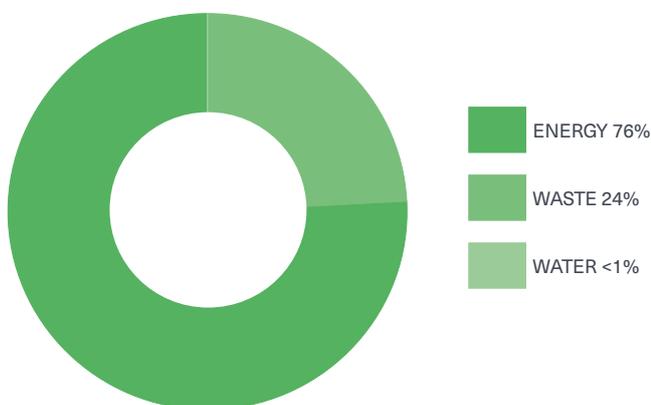
Small efficiency gains have been made in fuel use and there have been notable inroads into waste reduction, but these are not enough to offset overall industry growth –

and are a long way off the emissions reduction trajectory required to hold pace with UK national climate targets.

Reductions in the relative carbon footprint per audience day are largely driven by a move away from landfill, where methane emissions from biodegradable waste are a significant contributor to greenhouse gas emissions. We should therefore treat this relative reduction with extreme caution: things are moving in the right direction, but there are still many blind spots in the environmental data we understand and track, and we still have a long way to go to be on a pathway to net zero.

11. This figure was derived using the Julie's Bicycle Benchmark of 1.9 kg CO₂e per audience day, and UK Music's figure for annual festival attendance of 4.9 million (UK Music, Music By Numbers, 2019). Additionally, we have used UK Music's reported average festival duration of 2.94 days and their split (derived from ticketing data) of 16% day ticket vs 84% whole festival ticket holders to derive a total audience day figure of 12,885,040. Note that the Julie's Bicycle benchmarks are derived from camping festivals, while the UK Music figures likely include some non-camping festivals – however, it remains the most authoritative figure, endorsed by the industry, for total UK music festival attendance.

AVERAGE ONSITE CARBON FOOTPRINT BREAKDOWN (CO₂e) OF A UK CAMPING FESTIVAL



The breakdown of emissions can vary considerably between events. Measuring the carbon footprint is a way to prioritise new measures, to assess year-on-year progress - developing our understanding of the issues and giving us the opportunity to be accountable for our impacts. While water does not have a high carbon impact, overconsumption of limited freshwater resources comes with other environmental challenges.

It is important to note this breakdown does not include supply chain impacts like contractor, artist, and audience transport and travel; food and drink production; the impacts of wastewater purification; or the extraction, processing, and manufacture of the materials and products used and consumed onsite. Accurately reporting these impacts is beyond the scope of this report, although individual festivals have been making significant progress in more detailed emissions reporting for their events.

WHO IS RESPONSIBLE FOR THE CARBON EMISSIONS FROM FESTIVALS AND OUTDOOR EVENTS?

There are some emissions that are directly under festival organisers' control - for example, the choice to invest in energy efficiency - while others, such as audience travel or supply chain impacts, are outside organisers' direct control but can be influenced through incentives, contracts and procurement choices.¹²

Audiences are increasingly demanding festivals take action to reduce their environmental impacts:

- 83% of festivalgoers expect all of the festivals they attend to tackle their environmental impacts.
- Only 9% of festivalgoers do not care about the environmental impact festivals create.
- One in four said they would be more likely to attend a festival if its carbon footprint were demonstrably lower than its competitors.¹³

83% of festivalgoers expect all of the festivals they attend to tackle their environmental impacts.

For Ticketmaster's *State of Play: UK Festivals* audience survey, two in three festivalgoers said they wanted to see reduced waste at festivals, and nearly as many said they wanted to see more eco-friendly initiatives - more

than those who selected 'a greater variety of events/activities, more communal/chill spaces, and more photo opportunities.'

12. The GHG Protocol develops standards and guidance for how companies and organisations should account for their greenhouse gas emissions, based on the level of control a business has. These are divided into Scopes 1, 2, and 3. Scope 1 emissions are from 'assets that are owned or controlled'. For festivals and outdoor events, this generally includes: Diesel powered generators, lights, etc where the festival is buying the fuel. Note: some power providers also include these emissions in their own Scope 1 accounting, but guidance published by the European Network of Construction Companies for Research and Development (ENCORD) suggests that fuel purchased by an organisation for use in plant and machinery at 'projects' should be counted within Scope 1 - and the construction industry offers a useful model for the outdoor events sector. Gas used on site or used to heat offices. Fuel use in on-site vehicles owned or operated on site. Fugitive emissions from refrigerants used in freezers, refrigerators, air-conditioning equipment, etc. Scope 2 emissions are from the generation of electricity purchased and used - e.g. in festival offices, and mains grid electricity used on site - although more events are making efforts to connect to the grid, this remains a relatively small percentage of energy consumption from the sector overall. Scope 3 emissions are caused by the activities of a business, but come from sources not owned or controlled by the company. A significant proportion of event impacts fall into Scope 3 - from purchased goods, to transport, disposal of waste, and more.

13. Festival audience attitudes to sustainability. CGA (2019). <https://www.cga.co.uk/report-tag/consumer-research/>

THE STATE OF PLAY IN THE UK FESTIVAL AND OUTDOOR EVENTS INDUSTRY 2020

Growing awareness of the unfolding climate emergency is being reflected in the outdoor events community, with more than 100 committing to environmental action by signing up to Vision:2025.

The annual IQ European Festival Report 2018 highlighted environment, alongside security, as a trend to emerge in 2018, with nearly every event that responded, "revealing plans to ramp up their efforts in 2019."¹⁴

In 2015, the first edition of the Powerful Thinking festival industry green survey was undertaken to identify actions and priorities across the festival organiser community. The survey has been repeated every year since to track trends.

The highest priorities for action remain, perhaps unsurprisingly, tackling waste, energy use, and audience travel.

The survey also shows significant growth in action on: measuring and addressing carbon emissions, the use of reusable cups on site and introducing minimum food standards for traders.

Over 100 UK festivals and events are now signed up to Festival Vision: 2025

68% of festivals have a sustainability coordinator/someone responsible for sustainability in the team

28% of festivals have a specific budget for environmental sustainability

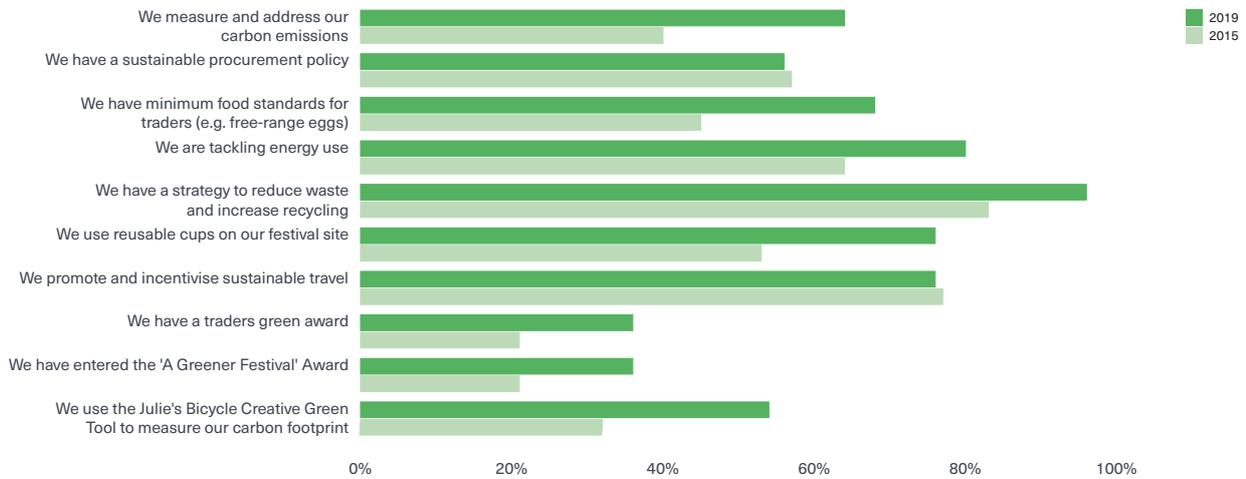
Additionally, festivals reported NEW actions for 2019:

- **40%** of festivals have been involved with a program, consultancy or project to improve sustainability in their organisation or event in 2019
- **36%** of festivals created a new public engagement campaign about the environment in 2019
- **32%** of festivals introduced a new environmental policy and/or action plan for their event in 2019
- **20%** of festivals introduced a new partnership with an environmental charity or campaigning organisation in 2019
- **48%** of festivals introduced new measures to reduce waste and/or increase recycling in 2019
- **28%** of festivals promoted new sustainable travel options in 2019, or introduced carbon balancing for the first time.

The current benchmark for UK festivals with camping is 1.9kg CO2e per person per day.

¹⁴. European Festival Report 2018. IQ Magazine issue 81 (2019) <https://issuu.com/gregiq/docs/iq81>

POWERFUL THINKING'S EVENT INDUSTRY GREEN SURVEY: 2015 VS 2019 RESPONSES



Note: event organisers already engaged with environmental practices are more likely to respond to a voluntary survey of this nature, so these responses may not reflect practices across the entire industry – however, they do provide an indication of areas that festival organisers are focusing on.

INDUSTRY INITIATIVES

Although much action remains driven by a core group of dedicated promoters and professionals, leadership is starting to become more distributed, with new pioneers stepping up.

FESTIVAL VISION 2025

Over 100 festivals are now signed up to Vision 2025, committing to take action to reduce their greenhouse gas emissions by at least 50% by 2025 and to work together to share experiences and knowledge.

Vision 2025 is a shared vision for the festival industry that was launched in the first The Show Must Go On report. The report was presented at the 2015 climate change talks in Paris as a festival industry response to this global issue.

Participating festivals and interested events industry professionals meet annually at the Showman's Show, the UK outdoor event services and suppliers exhibition.



The Vision 2025 Conference brought together over 100 events professionals in 2019.

POWERFUL THINKING

Powerful Thinking, the UK festival industry's think-do tank for sustainable energy, continues to collectively represent a cross-section of the industry by bringing together environmental experts, key festival promoters and festival membership organisations, including: Julie's Bicycle, Festival Republic, Kambe Events, SMART power, Plaster PR, Lansdowne Warwick, The Association of Independent Festivals (AIF), The Association of Festival Organisers (AFO), the Production Services Association (PSA), the Nationwide Caterers Association (NCASS) and the National Outdoor Events Association (NOEA). In 2020, the steering group became the 'Vision:2025 group' and a sub-group remains focused on energy as a topic.

DRASTIC ON PLASTIC

The Drastic on Plastic campaign is a three-year campaign and three-year pledge launched by the Association of Independent Festivals in 2018, in partnership with the RAW Foundation. Over 60 member festivals have pledged to eliminate all single-use plastics from their festivals by 2021.

TAKE YOUR TENT HOME

This consumer-facing campaign launched by the Association of Independent Festivals in 2019, aimed to inspire festivalgoers to 'Take Your Tent Home and Say No To Single Use'. The campaign called on major retailers to stop marketing and selling 'festival tents' as single-use items, to help address the nearly 900 tonnes of plastic waste from tents left behind at AIF member festivals in 2018. All AIF member festivals participated, more than 60 events, securing extensive press and social media coverage and reaching potentially millions of festivalgoers with a coordinated message.

ENERGY REVOLUTION

A project tackling the impact of audience, artist and supplier travel by engaging them in reducing transport emissions wherever possible and then balancing unavoidable emissions with donations – 100% of which are then invested directly into renewable energy projects. Launched in 2015, Energy Revolution now works with over 50 festivals and 30 suppliers, who have collectively balanced the carbon emission from over 13 million travel miles through their support for projects that generate clean energy - such as solar panel installations on UK school buildings.

FESTIVAL WOOD

22 festival-related organisations and suppliers, including seven UK festivals, have contributed to A Greener Festival's 'Festival Wood' project – a wild forest regeneration initiative that has planted 5,777 trees to date.¹⁵

THE GREEN EVENTS AND INNOVATIONS CONFERENCE

Organised by A Greener Festival, the 11th edition of the Green Events & Innovations conference at ILMC attracted record-breaking attendance in 2019 - it now brings together over 200 event professionals around the topic of event sustainability.

8TH PLATE

A project to reduce food waste initiated by NCASS (the Nationwide Caterers Association) and A Greener Festival to salvage leftover edible food from festivals and redistribute it to foodbanks and other organisations that provide meals for vulnerable people in society. 15 participating festivals in 2018 saved 12 tonnes of surplus food from ending up in the bin – the equivalent of over 28,000 meals.¹⁶

MUSIC DECLARES EMERGENCY

MDE is a declaration of climate and ecological emergency by the UK music industry launched in 2019 calling for greater government policy and action on climate, the project is coordinated by a working group including Julie's Bicycle. MDE has collected over 2,700 signatories including festival promoters and trade associations - alongside artists such as Billie Eilish, the 1975, and Foals.

UK MUSIC: UK LIVE MUSIC ENVIRONMENTAL SUB-GROUP

A working group launched in 2019 to bring together key UK live music industry trade bodies and supporting experts including Julie's Bicycle, Powerful Thinking and A Greener Festival in order to set collective environmental targets and aims.

15. Festival Wood, A Greener Festival. <https://www.agreenerfestival.com/festival-wood/>

16. 8th Plate. A Greener Festival <https://www.agreenerfestival.com/8th-plate/>

SUPPLY CHAIN

Increasing numbers of event suppliers and contractors in the UK, both established companies and new entrants to the market, are developing a wider range of products and services aimed at supporting the festival sector to address its environmental impacts.

Despite this, **40%** of festival organisers report the inability of contractors to deliver sustainable options as a key barrier to action.¹⁷ This might point to a lack of available solutions, or an inability for suppliers to deliver certain solutions at a price-point festival organisers are willing or able to pay.

Anecdotally, some contractors who are able to offer environmental impact reduction actions as part of their services do not include these in tenders unless specified, because of the high risk of their proposal being dismissed out of hand due to the resulting higher price-point than competitors who do not offer comparable green services.

Alongside these challenges, greater demand for greener products and services from both festival organisers and audiences is resulting in a new wave of questionable environmental claims: green-washing and conflicting information can be difficult for festival organisers lacking specific training, experience, or time to sort through and assess.

16% of festivals introduced specific clauses around sustainability targets into contracts with some suppliers in 2019

Meeting these challenges head-on will require:

- More forums such as Powerful Thinking that bring festival organisers and suppliers together to have transparent, open conversations about costs and needs.
- Greater collaboration between festival organisers to exchange honest experiences about products and services that work - and those that don't.
- Collective investment between the whole festival community and key suppliers into new solutions and services to address specific gaps in the market, and into research to assess specific product claims.
- Improved government regulations on issues such as product labelling. For example, the UK government ran a public consultation on standards for bio-based, biodegradable and compostable plastics in 2019.¹⁸

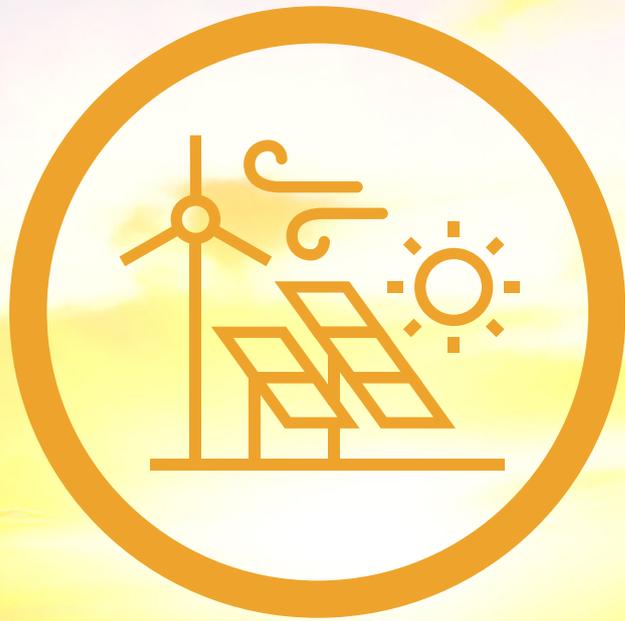
WE HAVE ABOUT 10 YEARS TO ACHIEVE SIGNIFICANT CHANGES – IT REALLY IS TIME TO ACT.

Chris Johnson, Shambala Festival

17. Festival Industry Green Survey 2019, Powerful Thinking (2019)

18. Standards for biodegradable, compostable and bio-based plastics: call for evidence (2019) <https://www.gov.uk/government/consultations/standards-for-biodegradable-compostable-and-bio-based-plastics-call-for-evidence>





Impacts and solutions Energy

Chapter Supported by:

Power logistics 

IN SUMMARY

Our dependence on burning fossil fuels to provide electricity is a key cause of climate change. non-road mobile machinery, which includes generators used to power events, accounted for around 2.5% of total UK greenhouse gas emissions in 2017.¹⁹ In its 2019 progress report to government, the Committee on Climate Change identified the development of a policy to decarbonise off-road mobile machinery a priority for 2020.²⁰

Acting on climate change as an industry means changing this thinking. In 2019, an independent report authored by Hope Solutions and ZAP Concepts suggested that an estimated 380 million litres of diesel is consumed annually on event applications alone, representing nearly 1.5% of the UK's aggregated NRMM diesel usage and accounting for an estimated 1.2 million tonnes of CO₂e emissions.²¹

As well as climate impacts, there is growing concern and awareness about the contribution made by burning diesel towards localised air pollution issues, which are now being widely linked to premature deaths caused by heart and respiratory diseases, strokes, learning disabilities, dementia and cancer, with almost 40,000 early UK deaths now being linked to outdoor air pollution every year.²²

Average fuel consumption per audience day has reduced by an estimated 7% in the last five years. While this shows some progress, the original Show Must Go On report and Festival Vision 2025 set out an ambitious aim to reduce diesel consumption by 50% by 2025 compared with 2014. Without significantly increased focus on demand reduction and energy efficiency, alongside investment into mains grid connections and greater use of battery technologies, this original aim seems increasingly out of reach. We would need to achieve reductions of more than 10% every year between now and 2025 – a tall order, but not impossible. The work of Powerful Thinking over the past 8 years has identified many ways in which things could be done differently, and examples of successful reductions at individual events that exceed this.

At least:

**7m
litres**

of diesel are consumed by UK music festivals every year.²³

**380m
litres**

of diesel are consumed by the entire UK events industry every year.²⁴

**0.5
litres**

of diesel is the average litres used per person per day at music festivals.

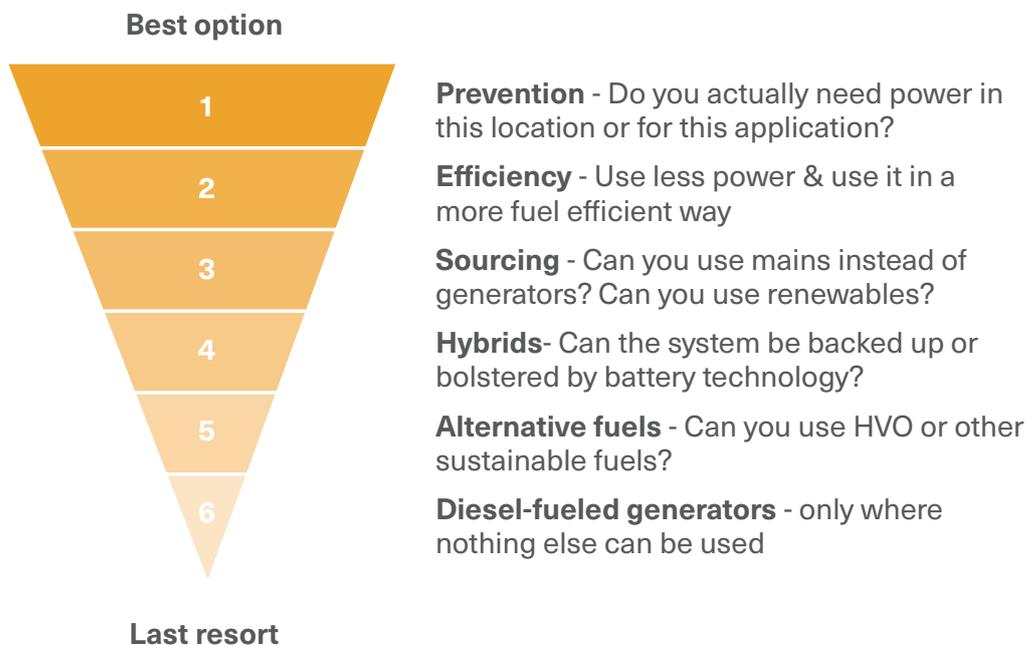
20%

of UK festivals use a proportion of biofuel to power their events

POWER USE AT EVENTS

The number one priority for any event looking to cut the emissions associated with its power provision is to reduce dependency on diesel generators. A good starting point is to apply the principles of *the power management hierarchy* to an event's power planning and procurement processes.²⁵

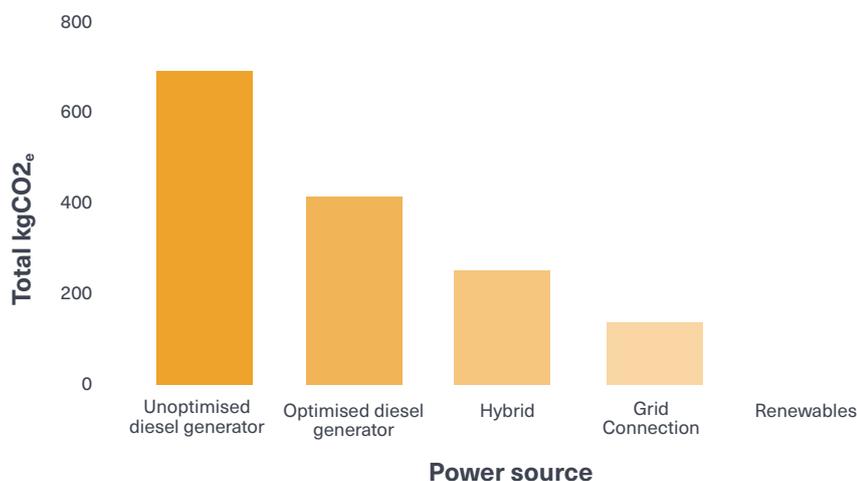
THE POWER MANAGEMENT HIERARCHY



This hierarchy intended to help event organisers prioritise the most environmentally sustainable interventions available to them and can be applied to an entire event site or to individual power zones. It further relates to all phases

of the event lifecycle from build to break. The graph below demonstrates the predicted emissions savings achievable by applying it:

PREDICTED EMISSIONS SAVINGS USING THE POWER MANAGEMENT HIERARCHY



19. Extrapolation based on UK Music estimated annual music festival visitors and Julie's Bicycle benchmark of 0.5 L per audience day.
 20. UK Events and Diesel Use: Responding to a Climate Emergency. Hope Solutions and ZAP Concepts (2019) https://issuu.com/hopesolutionservices/docs/uk_events_and_diesel_use_factsheet
 21. Figure based on National Atmospheric Inventory and quoted in Leading on Clean Growth, Department for Business, Energy, and Industrial Strategy (2019) https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/839555/CCS0819884374-001_Government_Response_to_the_CCC_Progress_Report_2019_Web_Accessible.pdf
 22. Reducing UK emissions: 2019 progress report to parliament. Committee on Climate Change (2019) <https://www.theccc.org.uk/publication/reducing-uk-emissions-2019-progress-report-to-parliament/>
 23. UK Events and Diesel Use: Responding to a Climate Emergency. Hope Solutions and ZAP Concepts (2019) https://issuu.com/hopesolutionservices/docs/uk_events_and_diesel_use_factsheet
 24. Every breath we take: the lifelong impact of air pollution. Royal College of Physicians (2016) <https://www.rcplondon.ac.uk/projects/outputs/every-breath-we-take-lifelong-impact-air-pollution>
 25. UK Events and Diesel Use: Responding to a Climate Emergency. Hope Solutions and ZAP Concepts (2019) https://issuu.com/hopesolutionservices/docs/uk_events_and_diesel_use_factsheet Analysis: UK renewables generate more electricity than fossil fuels for first time. Carbon Brief (2019)

ENERGY MANAGEMENT PRACTICES REPORTED BY EVENT ORGANISERS

Since 2016, inspired by initiatives like Powerful Thinking, there has been a significant increase in event organisers monitoring fuel use and generator loads, and requesting a post-event energy report from their power supplier – however, despite this increase only around half of events are actively working with their energy supplier to improve energy management and efficiency.

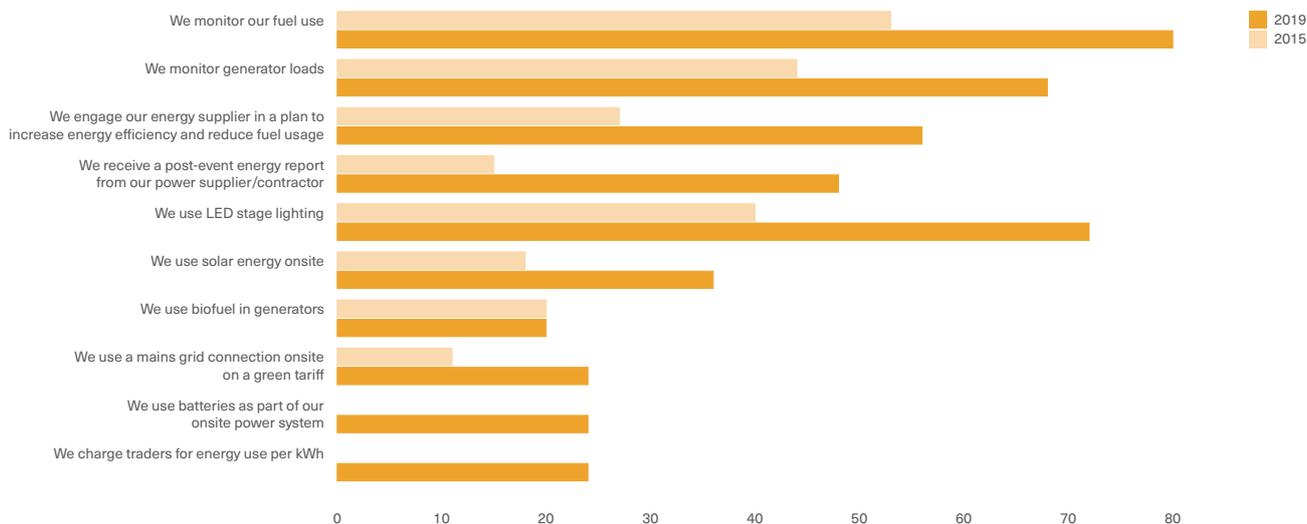
There has also been a notable increase in events using LED stage lighting and those using some solar energy on site. New actions and technologies include the use of batteries, as well as some events working out systems to charge their traders for energy use per kWh rather than by connection size.

Based on recent data, Julie’s Bicycle estimates that the amount of diesel consumed per person per day onsite is around 0.5 litres per person per day on site – a decrease from 2014 benchmarks of 7% but not enough to put us on track to meet reduction targets.

The use of biodiesel has not changed notably in the industry in recent years. This is largely due to cost, supply constraints, and intensifying concerns around the sustainability of biofuel derived from anything other than waste vegetable oil sourced from within Europe.

Average 0.5 litres of diesel consumed per person per day onsite

RESULTS FROM POWERFUL THINKING’S INDUSTRY GREEN SURVEY, 2015 VS 2019



%

MAINS POWER VERSUS DIESEL GENERATOR

The most effective approach to reducing the impact of temporary power provision is to use mains power. In the third quarter of 2019, UK renewables generated more electricity than fossil fuels for the first time ever.²⁶

Comparison of emissions for UK grid vs. diesel generator

Power Source	Kg CO ₂ e per kW hr	Notes
UK national grid	0.2773	Including transmission and distribution losses
Generator	6.675	Based on optimum efficiency

Shifting over to a greater use of mains power and/or batteries charged via mains or renewable energy is essential for the path to decarbonisation.

Long-term objectives for the event industry must include scaling down and eventually phasing out diesel generators.

PLANNING FOR EFFICIENT POWER MANAGEMENT

Irrespective of the source of power, being more energy efficient can make both environmental and financial savings for event.

Reducing Demand

We need to consider both how much energy we are using (expressed in kilowatts / kW and described as 'the load') and how long we use it for (expressed in hours); collectively these metrics make up the common unit of electrical consumption known as the kilowatt-hour (kWh) - which is often referred to as demand. Improving onsite energy efficiency means putting in place strategies that both reduce the load and cut the hours; these might include sourcing more energy efficient equipment, swapping out electrical catering appliances for those that run on alternative fuels like gas, introducing inline timers that switch circuits on and off, the introduction of photovoltaic sensors that activate circuit contactors when light levels change, and using the start/stop timer function on generator control panels.

Understanding Load Profiles

Load profiles are patterns in energy usage, typically viewed across a 24-hour period or longer. Most commonly at events we see asymmetric load profiles: periods of high usage sandwiched between two periods of low consumption, which are known as base loads. Where a power contractor has previous experience of an event, they will be better placed to understand the nuances of the site load profile and plan accordingly for base load management; common strategies include hybrid power generators that manage periods of low load from the energy stored in their batteries, syncing smaller diesel generators with higher capacity ones and designing site layout so that applications that require 24 hour power are grouped in clusters.

26. Analysis: UK renewables generate more electricity than fossil fuels for first time. Carbon Brief (2019) NRMM London, Non-Road Mobile Machinery (NRMM) Practical Guide, 2017 NRMM London, Non-Road Mobile Machinery (NRMM) Practical Guide, 2017 NRMM London, Non-Road Mobile Machinery (NRMM) Practical Guide, 2017

Power Advancing

Collecting accurate information on demand and load profiles in the advancing stages can be challenging. It requires production teams, their contractors and suppliers to provide comprehensive equipment inventories and data on energy consumption, together with switch on/off schedules for the full lifecycle of the event. More often than not, what is actually supplied is a list of electrical connection requirements that bears little resemblance to the actual load. Inaccurate and incomplete advancing information is one of the chief causes of inefficiencies. It leads to the oversizing of generators because specifications are based on peak loads, and wasted opportunities for introducing alternative power solutions for base load management. Processes such as the ZAP Concept's Smart Power Plan, that inventory site-wide electrical consumers, can be helpful in matching energy production to actual demand, allowing generator downsizing and a reduction of fuel consumed.

CASE STUDIES

ENERGY LOGGING AT SHAMBALA

Energy Logging trader power at Shambala Festival

Energy Logging have developed power meters which can be used site-wide to assess individual power usages – from traders, a lighting system or PA, a single appliance or even to help calculate the carbon footprint of a meal! The organisers at Shambala Festival now use trader power data to successfully incentivise reductions with a pay-per-use model.



PEARCE HIRE

Pearce Hire cut fuel by 19% at Bury St Edmunds Christmas Fayre:

This festive market featured over 300 stalls, including high demand food concessions. Pearce Hire introduced a number of initiatives, including load demand configured generators, LED floodlights and festoon, and circuit control activated by photovoltaic contactors. Despite a rise in stall numbers and an extra show day, a 19% diesel reduction was achieved in 2019.

FLYING HIRE

Flying Hire design power efficient site for Towersey Festival

In 2018 Towersey Festival worked with power contractor Flying Hire to redesign their site to create a more efficient central power station. The generators were programmed in a load demand configuration, only running when demand was high enough, whilst offering 24-hour redundancy. The benefits were huge, with an overall reduction in generators of 50% and savings of 2,500L of diesel or 6.675 tCO₂e.



FINELINE LIGHTING

Fineline Lighting commit to LED lighting throughout at Shambala Festival

Fineline Lighting has worked with Shambala festival for over 15 years, providing lighting and rigging for stages and venues across the site. Fineline are committed to working with the event organisers to achieve their sustainability goals and, recognising that LED lighting can make a substantial difference to the total energy used at festivals, they continue to invest in their LED lighting - with the aim of phasing out tungsten and discharge lamp sources over the next few years.

SPOTLIGHT: DATA - GENERATOR TELEMETRY AND ENERGY MONITORING SYSTEMS

Telemetry systems are a suite of tools used by power contractors to remotely manage their generator fleets and record data on energy production and consumption. They provide real time information on where assets are located, usage patterns, engine performance, generator loads, fuel consumption and fault identification. They can help reduce power outages by sending automated SMS and/or email alerts relating to system faults and low fuel levels. They also allow users to remotely control their fleets, which ensures quick response times to unforeseen changes in load profiles and a reduction in time spent by crew on manual start/stop procedures and routine maintenance visits.

Monitoring systems, on the other hand, are usually independent of the generator and are applied at a distribution level; their function is solely to record energy data.

Cloud based monitoring, that records energy consumption by circuit, can now also be incorporated into distribution boxes, allowing for a more detailed analysis of consumption by individual consumers.

External Monitoring Systems are independent of the generator control modules and the data is usually logged onto the device's harddrive; once downloaded, the data is processed through a PC based software package. Typically, they are applied to cables, heavy mains distribution boxes or mains feeder pillars via snap on CT coils or inline meters. The refresh rates are adjustable, with some refreshing every half a second for highly accurate energy reporting. Popular off the shelf packages include SPC's energy loggers, whilst Dutch firm Watt Now have produced a bespoke system, including predictive software.

ZAP CONCEPTS AT BODY AND SOUL

In 2018, ZAP Concepts worked with the Body & Soul's organisers and their power supplier, Generator Hire, to optimise the site's power design. Generators were downsized by 15% from the previous year, some synced gensets were switched off overnight and monitoring was introduced. The net result was a 21.8% (6,657L) diesel saving against the previous year.



SPOTLIGHT: BATTERY SYSTEMS AND HYBRID POWER GENERATORS

A hybrid power generator (HPG) is a battery inverter system that integrates with a diesel generator. Some can be charged from renewables, usually solar PV. If used correctly, HPGs can support significant fuel savings.

Common Applications for Hybrid Power Generators:

PEAK SHAVING

A battery system is installed inline with a mains supply to avoid the installation of additional capacity, typically generators, to manage peak demands in a highly variable load profile. At events, this is usually for supplementing mains supplies to meet the demands of headline acts, or providing battery systems for mains redundancy.

HYBRIDIZATION

Batteries are connected in-line with generators to create a combined power and energy storage system. When the generator is running it trickle charges the batteries by utilising any residual energy not required by the primary load. Typically used for base load management such as overnight periods where the load significantly reduces. Helps reduce generator runtimes, and improves efficiency by making the generator work harder through the introduction of a secondary load through battery charging.

REVERSE HYBRIDIZATION

The battery system becomes the primary power source and the diesel generator only ramps on in the event of an inverter overload, a hardware failure or battery depletion. Over the last five years, we have seen an increase in demand for smaller syncable generators, particularly in mass participation run events where start and finish line power is considered a critical application. The loads here are generally low (timing and IT applications, PA power, inflatables etc). Only a handful of UK power contractors have sync-able sets under 100kVA, meaning it is common to see huge inefficiencies with loads as low as 4kW being serviced through power nodes capable of delivering 160kW. In most scenarios, if specified correctly, the battery systems are capable of delivering adequate power over two days without the need for any generator intervention.

SMART BOOST

A sort of amalgamation of the peak shaving and hybridization applications. A generator is connected in-line with a battery system to compensate for shortfalls in the primary supply. For example, there may be a high start up load for some three phase applications like compressors or motors, which would otherwise necessitate specifying a higher kVA generator to accommodate this. However, this additional power is only required for a matter of seconds, and once the electrical consumers are up and running the load plateaus out; the end result is that you have an oversized generator running inefficiently for the bulk of the consumers' duty cycle. The smart boost facility, therefore, allows you to size the primary generator to meet the nominal rather than peak load requirements.

STAND ALONE

Battery systems directly replacing small single phase generators all together. This application is particularly useful for urban activities, especially where Low Emissions Zone (LEZ) & Ultra LEZ regulations apply. City run events and brand activations where demand is low, can now be reliably powered using road tow, silent running and emissions free battery systems. For green field sites, battery systems fed by portable solar can further be employed for remote cabins, site gates and camping hubs.

SPOTLIGHT: EMISSIONS ASSOCIATED WITH DIFFERENT TYPES OF FUEL

Fuel Type	Designation	CO ₂ e / L
Diesel (gas oil)	EN 590	2.67
Biodiesel (100% from waste oils)	WVO B100	0.03
Renewable diesel (100% from waste oils)	WVO HVO	0.03

POWER LOGISTICS

BST Hyde Park go 100% HVO with Power Logistics

Power Logistics has been providing a complete project management solution for AEG's Barclaycard presents British Summer Time festival, held in London's Hyde Park, since 2014.

Over the last six years AEG Live and LoudSound have been keen to improve the impact of the festival on the environment, which Power Logistics has been more than happy to support. This has seen Power Logistics carrying out power monitoring and LED lighting solutions at the festival since 2015 and the introduction of HVO fuel at some areas around the site since 2017. However, 2019 saw the prestigious event and Power Logistics take a huge leap forward in terms of sustainable initiatives:

For the first time the site was fuelled solely with HVO, a form of renewable diesel is produced from vegetable fats and oils. Power Logistics also deployed its bespoke power monitoring system, developed in-house by its research and development team, to provide real time knowledge and data regarding the event's energy usage. Power monitoring is proven to have a positive impact on an event's carbon footprint; reducing fuel consumption and often the number and size of generators required onsite which in turn leads to cost efficiencies.

This system allowed Power Logistics to deliver clients a % breakdown of their fuel usage across identified areas with real time data so event organisers can see exactly how much fuel is being used and where effective use of power monitoring has allowed Power Logistics' to reduce the fuel used at British Summer Time 2019 by more than 25%.

Power Logistics also implemented battery technology for the first time at the event this July in two separate areas and they are focusing on making battery power a reality for main stages in the near future.



SMART POWER AT BRISTOL HALF MARATHON

SMART Power used 100% battery systems backed up with 12kVA & 20kVA biodiesel generators to power the medical tent and all start and finish line trackside applications (PA systems, inflatable gantries, wifi, timing equipment and cabins at Bristol's 2019 Half Marathon. By employing a silent running, zero emissions, reverse-hybrid system, only 30L of diesel was burned despite there being a record 10,000 participants.



Dan Regal - Bristol Live

IMMERSA

Off-grid concession vans by Immersa

In 2019, renewable energy generation and storage solutions experts Immersa, were asked to provide off-grid power for concession vans at outdoor events. They designed a roof-mounted solar system with enough battery storage to supply the whole system - which could also be charged from the mains power grid overnight if required or by an additional generator in times of low solar production.



OFFGRID ENERGY

OffGrid Energy at 'Clean Air - A Human Right?' Activation

The Clean Air campaign truck required a 32A three-phase supply to power their air handling equipment, which had a high start up load. A 40kVA generator was originally specified to manage this demand, but OffGrid Energy instead supplied a 20kVA genset with a 15kVA GridToGo hybrid system capable of delivering 200% of its rated output for 5 seconds. By employing the hybrid power generator to manage the peak start up load and then downsizing the diesel generator to match the lower nominal demand, they saved the client 420L of fuel in 48 hours.



Offgrid Energy

NEW GENERATOR TECHNOLOGIES

STAGE V COMPLIANT GENERATORS

Currently in the UK most generators conform to Tier IIIA ('Three A') emissions standards. However, EU Directive 2016/1628 which came into force in 2020, stipulates that all new engines manufactured for non-road mobile machinery (NRMM) after 2020 must conform to Tier V ('five') standards. NRMM is classified as any mobile machine, item of transportable industrial equipment or vehicle that is not intended for carrying passengers or goods on the road and is fitted with a combustion engine.²⁷

For the event industry, this legislation relates in particular to generators whose power rate is between 18kW and 560kW. Any new engines manufactured after January 2020 will have to incorporate technologies that specifically reduce tailpipe emissions. The aim of this legislation is to reduce engine emissions that contribute specifically to localised air pollution by 70% to 90%.

VARIABLE SPEED HYBRID GENERATORS

Variable speed generators (VSG) feature automatic variable speed control (that self-adjusts according to the load), a battery, and an inverter to help boost peak power capabilities. Manufacturers are claiming a 40% fuel reduction against comparable gensets and greater reliability and savings when operating at low loads (< 20% load), together with reduced service intervals and a smaller overall footprint. We are yet to see any event industry market penetration for these products, but there has been some early adoption in both the construction and telecom markets.

LPG GENERATORS

Liquid Petroleum Gas (LPG) is produced as a co-product of crude oil refining and natural gas processing. Its main constituents are propane, butane and isobutane which are liquefied through pressurisation. Although LPG offers reduced CO₂ emissions, it is not a longer term decarbonisation solution. A handful of UK power contractors now stock LPG powered generators, including Midas and Gofer.

HYDROGEN FUEL CELLS

Hydrogen fuel cells rely on an electrochemical process to convert hydrogen into electricity. They comprise of an anode, cathode and an electrolyte membrane. They work by passing hydrogen through the anode and oxygen through the cathode to a current and two harmless byproducts: oxygen and water.²⁸

Fuel cells are an attractive proposition because hydrogen has one of the highest energy density values by mass (120 to 142MJ/kg) and the fuel cells are completely silent running; are scalable - so can be adapted to a variety of applications: and they produce virtually no emissions.

EVERYWH2ERE, an EU co-funded hydrogen fuel cell project, has begun to explore their potential as a source of clean energy for live event and construction applications.²⁹ However, the most common form of hydrogen production, which involves the steam reforming of natural gas, is hugely energy intensive. Other more sustainable production processes are available, including electrolysis (using electricity to split water into hydrogen and oxygen), renewable liquid reforming (reacting renewable liquid fuels such as ethanol with steam), but until these can be scaled up to viable commercial levels, much of hydrogen's clean burning benefits will be negated by energy inputs in the process.

27. NRMM London, Non-Road Mobile Machinery (NRMM) Practical Guide, 2017

28. Fuel Cell and Hydrogen Energy Association (FCHEA), Fuel Cell Basics

29. EVERYWH2ERE, A New Power Making Hydrogen Affordable to Sustainably Operate In European Cities, 2019

MIDAS POWER USE LPG TO POWER CHRISTMAS AT KEW

Midas deployed their LPG fuelled 45kVA rental spec genset at Kew Gardens for their 2019 Christmas event. The unit was able to power one area of the site with a highly variable load profile, whilst the remaining areas ran on HVO fuelled gensets. The LPG generator achieved significant CO, CO2 and NOx emissions reductions through its three-way exhaust catalyst.



GREENBELT FESTIVAL

Greenbelt Festival Halve Fuel Use

Greenbelt are committed to transitioning to 100% renewable power as a long term goal. In the short term they are focused becoming as power efficient as possible, with impressive results - since they first started monitoring power in 2016 they have halved their fuel use.



APPROACHES THAT CAN HELP REDUCE ENERGY CONSUMPTION ON SITE

- 1. Apply The Power Management Hierarchy to prioritise your interventions.**
- 2. Ensure energy monitoring is built into the contract with your with the power supplier and insist on a minimum standard for data collection, including: fuel consumption per generator per day, run time hours, kWhs exported and load data.**
- 3. Use power advancing information and historic monitoring data to match generation capacity to load.**
- 4. Involve your power contractor in the site planning and work towards creating power zones fed by generator farms programmed in a 'by load demand' configuration for maximum efficiency.**

OVERVIEW OF THE IMPACT OF ENERGY USE ON UK FESTIVAL CARBON FOOTPRINTS AND THE FEASIBILITY OF REDUCTION MEASURES

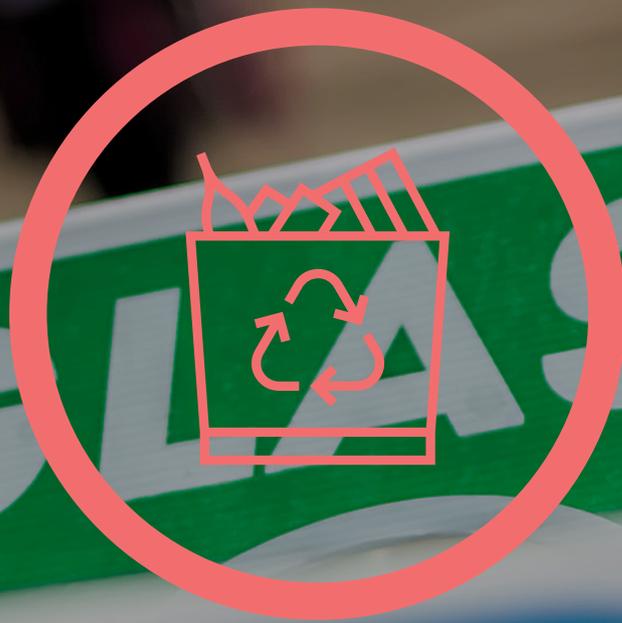
TYPICAL % THAT ENERGY CONTRIBUTES TO THE ONSITE CARBON FOOTPRINT OF A UK CAMPING FESTIVAL	76%
TOTAL AMOUNT CO₂ PRODUCED BY UK FESTIVALS ANNUALLY FROM ONSITE DIESEL USE	17,300 t CO₂e
TOTAL ESTIMATED FUEL USED BY UK MUSIC FESTIVALS EVERY YEAR	7 million litres
TOTAL ESTIMATED FUEL USED BY THE ENTIRE UK EVENTS INDUSTRY EVERY YEAR	380 million litres
KEY OPPORTUNITIES TO REDUCE ENERGY USE AND ASSOCIATED IMPACTS	<ul style="list-style-type: none"> • Reduce overall energy demand • Increase efficiency through better system design • Use of new technology e.g. hybrid or renewable fuels

SUMMARY OF FEASIBILITY OF OPPORTUNITIES TO REDUCE FOSSIL FUEL USE

There are multiple precedents of diesel reductions of up to 50% at events. However, sector-wide potential remains untapped.

Reducing diesel consumption and emissions from energy use should be a key priority for event organisers over the next five years. Alongside overall diesel use reduction through better management and efficiencies, the shift away from diesel generators to mains grid and/or battery power offers the greatest opportunity for reductions. We are seeing strong market developments on batteries and related technologies ready to scale with the right investment.

Committee on Climate Change has identified NRMM as a priority area for government policy on net zero carbon, so we can expect the possibility of stronger incentives (financial or legislation) as government looks to meet the Climate Change Act targets.



GLASS

PLASTIC

Impacts and solutions

Resource use and waste

Chapter Supported by:



IN SUMMARY

Waste is the most visible sign of humans' environmental impact: of our overconsumption of stuff, poor material choice and design, and the weaknesses in how we deal with it all. Everything produced for us has a hidden footprint of emissions, material use, land, energy, water, and labour.

Extracting raw materials, refining, transporting, and manufacturing them into products takes energy and causes pollution every step of the way. When we throw things away, we are also throwing away this whole hidden supply chain.

Waste causes emissions (e.g. organic materials in landfill produce methane, a potent greenhouse gas), can leach toxicity into the environment, pollute ecosystems, and – where in landfills – takes up precious space.

Overall, we need to use and consume less. It would take the resources of 2.7 Earths every year if everyone lived and consumed resources like we do in the UK.³⁰

But waste is also a design flaw: it means we're using the wrong materials, in a way that means we can't recover or reuse them and within a system that doesn't incentivise

people to do so. We need to shift our view from seeing waste as waste, to seeing it as materials and resources to be used efficiently, ideally reused, and otherwise recycled or recovered.

Direct emissions from waste were 4% of UK GHG emissions in 2017. They have already fallen by 69% since 1990, largely driven by the landfill tax reducing the amount of biodegradable waste going to landfill, and an increase in the amount of methane captured at landfill sites.³¹ Of course, this doesn't account for all the emissions created in the production and transport of everything that has ended up as waste – much of which comes from outside the UK. The carbon embedded in goods and services imported into the UK amounts to nearly a third again of domestic emissions.³²

More than half of events reported introducing new measures to reduce waste and improve recycling in 2019

25,800

Tonnes of waste is created at UK music festivals annually – the equivalent of 250 adult blue whales

2kg

Waste per person per day – a 29% reduction from 2014, but still nearly twice as much as is produced per person per day from household waste

WASTE AT OUTDOOR EVENTS

Waste remains a persistent and highly visible challenge for events. But events can also act as a microcosm of wider society and are perfectly placed to test innovative solutions and implement new systems and services. Through careful planning pre-event, targeted procurement, and effective waste management on site, events (especially those that are ticketed) have a high level of control over what materials go onto site and what waste streams come out. Events can even influence people's behaviours and set new rules that can be adopted faster than in the wider world.

Effective waste management is a multi-faceted problem and unfortunately no one system is best to adopt at all UK festivals. Different audience demographics, sites, contractors and available budgets make decisions complex and understandably confusing. The European Waste Hierarchy can be used as a framework to support decision-making, and we can always return to a shared commitment to reducing resource use overall and focusing on reuse (e.g. reusable cups).

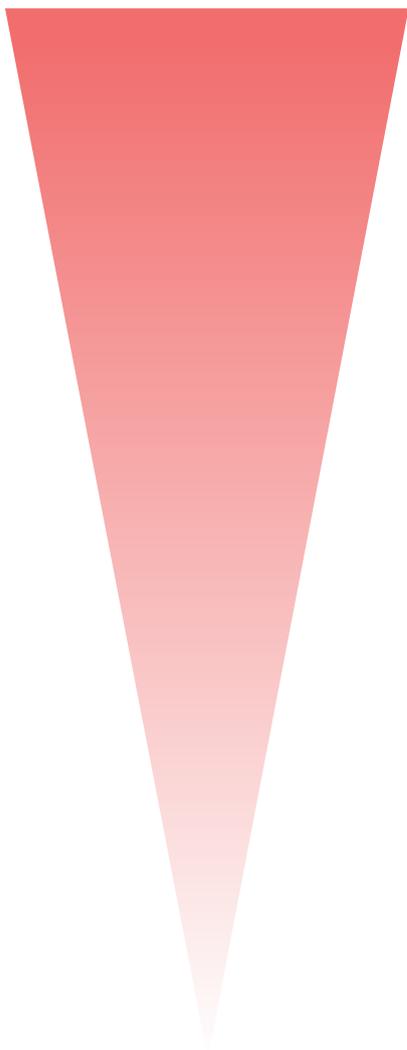
30. Calculated on the basis of 2016 global biocapacity and UK ecological footprint. <https://www.overshootday.org/newsroom/country-overshoot-days/>

31. Net Zero: the UK's contribution to stopping global warming. Committee on Climate Change (2019). <https://www.theccc.org.uk/publication/net-zero-the-uks-contribution-to-stopping-global-warming/>

32. Mapped: the World's Largest CO2 Importers and Exporters, Carbon Brief (2017). <https://www.carbonbrief.org/mapped-worlds-largest-co2-importers-exporters>

THE WASTE HIERARCHY

The European Waste Hierarchy provides a framework for how to describe the way that waste has been treated, and ranks waste treatment approaches in order to prioritise less environmentally damaging options. Under the UK Waste Regulations (2011) all businesses are required to apply the Waste Hierarchy when managing and disposing of resources. The UK government has also developed a specific waste hierarchy for food and drink, on which anaerobic digestion is preferred to composting.³³



MINIMISATION AND PREVENTION

- Use less materials in design and manufacture.
- Keep products for longer and re-use.
- Re-use or re-purpose materials instead of sourcing new.
- Use less hazardous materials / materials with lower environmental impacts.

(PREPARING FOR) REUSE

- Check, clean, repair, refurbish – whole items or spare parts.
- Design for disassembly and re-use.

RECYCLING

- Includes composting.
- Not everything that is labelled as 'recyclable' can automatically be recycled at the majority of facilities or if it is in waste streams that are too contaminated - for example if something consists of two or more materials glued together.

OTHER RECOVERY

- Including anaerobic digestion for organic materials, and incineration with energy recovery / 'Energy from Waste' i.e. where materials are burned and the energy generated is captured.

'DISPOSAL'

- Landfill and incineration without energy recovery.

33. Statutory Guidance: Food and drink waste hierarchy: deal with surplus and waste food and drink. Department for Environment, Food, and Rural Affairs (2018). <https://www.gov.uk/government/publications/food-and-drink-waste-hierarchy-deal-with-surplus-and-waste/food-and-drink-waste-hierarchy-deal-with-surplus-and-waste>

AUDIENCE PERSPECTIVES

Two thirds of festivalgoers ranked 'waste reduction' as a priority for festivals above 'security improvements' and 'variety of activities' (Ticketmaster State of Play: Festivals UK, 2019).³⁴ 'Provide more recycling bins' was the top environmental action audiences wanted to see in 2019 (CGA Audience Attitudes to Environmental Sustainability, 2019).

Two thirds of festivalgoers rank waste reduction as a priority for festivals

In a 2019 survey by CGA on audience attitudes to environmental sustainability, the top environmental action audiences wanted to see festivals take was to 'provide more recycling bins'.³⁵

Despite what audiences say they want, experience on the ground shows that the provision of recycling bins alone does not necessarily mean improved recycling rates, due to contamination and confusion as to what goes into which bin. Better signage, volunteer guidance, and

control/reduction of material streams can help reduce contamination.

Sometimes what audiences want can be in conflict. Eliminating plastic on site by replacing it with a new single-use waste stream can negatively impact recycling rates and, where alternative single-use products and materials are not appropriately sourced or dealt with through separate collection, actually lead to different environmental impacts.

WASTE MANAGEMENT PRACTICES REPORTED BY FESTIVAL ORGANISERS



Powerful Thinking industry green survey, comparison of 2015 to 2019.

34. Based on a sample size of 4000 from the State of Play: Festivals UK (Ticketmaster 2019)
35. Audience Attitudes to Environmental Sustainability, CGA (2019)

Since 2015, a growing number of events are setting and committing to specific recycling targets. Alongside this there has been a significant increase in the proportion of events addressing back-of-house waste separation and recycling, and of event who are putting in place to reduce the waste created by set production, décor and infrastructure.

There has been recognisable growth in literacy around waste management, with a dramatic increase in the number of events reporting that they know what kind of recycling plant their waste goes to. Many event organisers are now visiting their recycling sites to get a better understanding of what happens to their waste and how they can improve the quality of recycling leaving their sites.

Based on recent data, Julie's Bicycle estimates that the amount of waste (from both front of house and back of house) produced per person per day onsite is around 2kg – a notable decrease since 2014.

Events included in the sample reported a median recycling rate of 37% - a small increase from 32% in 2014 – however, reporting accurate recycling figures remains a challenge in the industry, and it is especially difficult to get information on where recycling goes for onward reprocessing. Onsite waste management companies often simply provide the total tonnage sent to a Materials

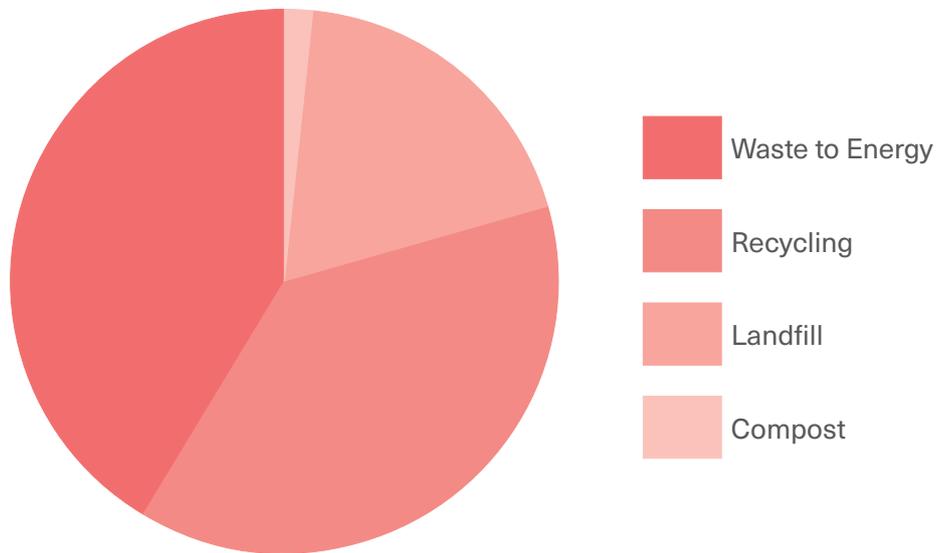
Recovery Facility (MRF) for recycling (which does not take into account the proportion of rejected waste), and events are generally only able to obtain average recycling figures from their MRF rather than event specific figures.

2kg Average waste per person per day at UK festivals

Additionally, a lack of understanding, the absence of an industry standard, and suppliers' and waste management facilities' willingness to please clients with good figures can make it difficult to establish how much waste is actually being recycled and composted at events.

Some waste management companies, such as Grist, can be contracted to both service waste onsite and then also process it at their own MRF facility. They are therefore in a position to provide more accurate data since they are in control of the whole process from site to finish.

CHART: BREAKDOWN OF FESTIVAL WASTE DESTINATION



Reported end destination by % of total waste figures reported by volume from festivals included in the most recent Julie's Bicycle benchmark. There is huge variability among events, with some achieving zero-waste-to-landfill (generally by sending significant volumes of residual waste to Energy-from-Waste), while others still send a majority to landfill. On average, 33% was sent to landfill.

PREVENTION AND REUSE

The Show Must Go On report 2015 identified greater adoption of reusable cups and reusables to replace other disposable items as a clear priority for reducing the amount of waste created at festivals.

Three in four festivals participating in surveys now use reusable cups – up from half of festivals in 2015.

One way to build on this achievement will be to maximise the number of times cups are used – for example, using cups that are used across multiple years for the same event, or (even better) using generic unbranded cups across many events.

FRANK WATER

FRANK Water's festival refill service

In 2020, FRANK Water charity will celebrate their 10th year refilling at UK music festivals. Since 2010, FRANK estimates they have delivered their refill service at 77 different festivals, serving over 600,000 refills (or 300,000 litres) of filtered, chilled water.

Summer 2019 saw the charity refilling at 15 UK music festivals including Love Saves The Day, Shambala & Camp Bestival. Over the Summer, 182 volunteers served a total of 169,152 x 500ml refills, potentially saving the same number of single-use plastic bottles from being sent to landfill or recycled!

“FRANK Water is part of our festival experience. We don't bring water, but pay for a bottle on day one and refill all weekend with lovely chilled, filtered water. We stay hydrated, create no waste and get to chat to the lovely, bright & friendly staff. Thank you!” - Rachel, Katy, Imogen & Pip at End of The Road.





Credit - Adam Tatton-Reid

HAY FESTIVAL

In 2018 Hay Festival trialed a new, reusable hot drinks cup which resulted in a huge reduction in waste – from 350 wheelie bins full of disposable coffee cups down to just 25. In 2019 they introduced a deposit scheme for cups and glasses running across the festival site to make further waste reductions – the result was another 56% decrease in cup waste - down to just 11 wheelie bins of compostable coffee cups and a 48% decrease in plastics and cans from 2017. The cup deposit scheme along with a tougher regime on waste across the site led to a 25% decrease in general unrecyclable waste in 2019 compared to 2018.

FIRE IN THE MOUNTAIN

Reusable plates at Fire in the Mountain

2000-capacity festival Fire in the Mountain has successfully trialed a re-use model for serve-ware, serving all food on 'real' plates and cutlery and operating dishwashing on site, with positive responses from audience and traders.

THE GREEN GATHERING

The Green Gathering run a donation-based crockery-hire-and-washing service called Crock N Rock. In 2019 this expanded to a service providing real crockery to the festival food stalls, resulting in a considerable reduction of disposable serveware. All crew catering operations at the event use re-useable serveware.

RAW BOTTLES

RAW Bottles & RAW Foundation help festivals phase out single-use plastics

RAW Bottles is the sister company to RAW Foundation, the charity that partnered with the Association of Independent Festivals (AIF) on the 2018 'Drastic On Plastic' Campaign. RAW provided the 'Drastic On Plastic' Action Pack to inspire industry change toward a 'pointless plastic-free' world, leading to over 60 AIF member festivals pledging to eliminate single-use plastic at their events by 2021.



SPOTLIGHT ON TACKLING SINGLE-USE PLASTIC

The UK uses five million tonnes of plastic each year, nearly half of which is packaging.³⁶ BBC series Blue Planet II sparked a wave of awareness about the global impacts of plastic pollution.

In response, festivals have made key commitments to address plastic waste:

- AIF's Drastic on Plastic campaign commits the more than 60 participating festivals to eliminate single-use plastic from their sites by 2021
- Live Nation's Green Nation environmental charter, announced in 2019, includes a global target for all

Live Nation owned and operated festivals, venues, clubs, and theatres to end the sale of single-use plastics by 2021. They also implemented a minimum 30% recycled content of rPET (recycled PET) water bottles at festivals in 2019.

- Glastonbury implemented a range of policies in 2019, including banning single-use plastic drinks bottles across the whole site including backstage areas, and mandating that all food service disposables including straws and hot drinks lids are to be made from paper, card, wood, or leaves and be fully compostable.

PLASTICS TO ELIMINATE:³⁷

- Water and drinks bottles
- Cups, plates, cutlery, food containers
- Straws and stirrers
- Badges and wristbands Fancy dress clothing and glitter
- Personal care and travel miniatures
- Signage, stickers and laminating
- Promotional items
- Tents, gazebos and cable ties
- Refuse bags

KEY RESOURCE: MAKING WAVES GUIDE TO PLASTIC FREE FESTIVALS

BIOGLITTER

Guilt-free festival sparkle with Bioglitter™

Glitter is traditionally made from plastic and is a cause of microplastic pollution in the environment and on festival sites! Bioglitter™ is an eco-friendly glitter brand that has created the world's first plastic free, TÜV certified biodegradable and verified microplastic-free glitter – to help festival-goers sparkle without damaging the environment. Read the full case study



NORDIC WRISTBANDS

Nordic Wristbands introduces Eco range at Greenbelt Festival 2019

Greenbelt Festival are on a mission to be truly free from single use plastic, but like many organisers struggled to find an environmentally sound option for wristbands. They encouraged Nordic Wristbands to develop a new range of responsibly sourced bamboo, hemp and cotton Eco wristbands in time for the 2019 event.

Nordic worked closely with Greenbelt to find the product that met their requirements, exploring different materials, a range of clasps and options to personalise the bands. Greenbelt chose Bamboo material and aluminum clasps for a completely plastic-free solution.

Nordic produced 17,000 wristbands in six different colours with screen-printed designs. The bands were fully secure, and more comfortable than plastic ones

"Working with Nordic on our wristbands this year was brilliant, from start to finish. They were super helpful during the process of our design and went out of their way to find the best deal for us. The bamboo wristbands we received were beautiful! They are incredibly soft on the skin, which is great. We ordered multiple colours and they all looked so striking. Many of our festival-goers like to keep their wristband on throughout the year too and I met one of them recently who still had his on - he said, "these are the best wristbands you've ever had!" Everyone enjoyed how nice they are on your skin, other fabric wristbands can be a little itchy. We often have customers who can't wear the wristbands due to the irritation they cause, but this year these same people loved wearing the bamboo wristbands from Nordic."

Hannah Burns, Greenbelt Festival Administrator



While plastic bans are an obvious step towards addressing events' contribution to the plastic crisis, they are not an environmental silver bullet, especially if single-use plastic is replaced with other types of single-use disposable.

Green Alliance's 2019 report 'Losing the Bottle: why we don't need single use containers for water' highlights that plastic alternatives including aluminium, glass, and cartons all come with their own environmental impacts, especially if their use grows to similar volumes as current plastic bottle consumption – and many alternatives on the market still contain some amounts of plastic.³⁸

The 2020 Green Alliance report 'Plastic Promises: what the grocery sector is really doing about packaging' highlights that although companies are under 'significant pressure' from the public to address plastic pollution, moving away from plastic packaging to other forms of single-use packaging carries high risks of simply shifting the environmental burden elsewhere, especially where appropriate recycling and waste collection and treatment systems are not in place for the substitute materials chosen.³⁹

As a festival community, we need to be aware of these risks and strike a balance between meeting audience environmental perceptions and demands, and being conscious of the environmental burdens associated with alternatives: we need to address plastic pollution in tandem with carbon emissions. This is a rapidly evolving

field, with competing claims from different interest groups and suppliers: there are no straightforward answers, other than a priority for reuse; aiming for an overall reduction in material use (through lighter or smaller forms of packaging and bulk serving); a preference for materials with a % recycled content; and ensuring our onsite waste streams are designed according to the materials on site.

When introducing significant new material streams to an event site, this should be done in consultation with the waste management company, to ensure appropriate recycling or processing infrastructure is available.

The 'best' material choice depends on a range of factors, including:

- Carbon emissions from its production (and transport).
- How likely it is to be captured in the right waste stream on site, and what infrastructure (e.g. deposit schemes, volunteers staffing bins, etc) is in place to make this happen.
- Where it will end up after the event – in landfill, recycling, or incineration.

BARNATION

Bar Nation pledge to eliminate single-use plastics

Bar Nation provide bar management and consultancy for festivals, venues and events. In 2019 they partnered with Less Plastic to deliver their commitment to reduce single-use plastics at events. They have pledged to eliminate single-use plastics from operations by 2020 and supply chain by 2022 and have created a transformation guide to help other organisations follow suit.



38. Losing the Bottle, Green Alliance (2019) https://www.green-alliance.org.uk/losing_the_bottle_methodology.php] This poses a challenge because the Carbon Trust estimates that the current average can in Europe accounts for around twice the greenhouse gases of a PET plastic bottle, although there is scope to decrease this by using hydropower to manufacture cans and further increase the rate of recycled content.

39. Plastic bottles vs aluminium cans: who will win the global water fight? Reuters (2019) <https://uk.reuters.com/article/uk-environment-plastic-aluminium-insight/plastic-bottles-vs-aluminium-cans-wholl-win-the-global-water-fight-idUKKBN1WWW0JQ>]

RECYCLING

There is a wide range of recycling rates between events, with many achieving less than 5% recycling while others are already surpassing the 50% target set by Festival Vision 2025.

Reducing overall waste and shifting to reuse can make it more difficult to achieve higher recycling rates, because the proportion of the remaining waste that is actually recyclable from what remains is likely to be less. If we want to maintain the 50% recycling target for 2025, events should be achieving 30% from 2020. Along with increasing recycling rates, we need to continue focusing on what material streams we bring into events in the first place.

The UK's waste sector is fragmented, with different councils accepting different waste streams. There is no uniformity across events or event waste contractors about bin types or colour codes for materials. Understandably, audiences and crew are confused with what waste to put in what bin.

Festivals with low recycling rates should focus on streams that are easiest to identify and process, such as PET bottles and aluminium cans.

Festivalgoers should be encouraged to 'When in doubt, leave it out' from recycling so not to contaminate other streams.

Bioplastics such as PLA can cause contamination problems in the recycling industry as they are hard to distinguish from regular plastic.

Festivals with more engaged audiences or those who are able to invest more in engagement and support can introduce additional waste streams and segregation on

site.

Clear messaging can help audiences recycle. One step further is to allocate volunteers to help at the bins: Friends of the Earth volunteer bin guardians at Electric Picnic helped to increase recycling by 9%.

Festival Republic use polyethylene-lined paper cups at some of their events and operate a deposit system to capture these as a separate waste stream in order to send them to a specialist waste processing facility and reduce contamination of other recycling.

Onsite volunteer sorting is the most effective way to significantly raising recycling rates and to gather accurate data. The Green Gathering calls this 'deep-recycling' and achieved 73% recycling and composting rates in 2019.

Even at festivals with exceptional recycling rates, items such as abandoned set furnishings and decorations can account for a substantial proportion by tonnage of general waste. This problem can be exacerbated for events with large numbers of individually managed stages, or events that pride themselves on their set décor and production.

We Love Green in France has long focused on reducing the environmental impact of its set décor. The event holds an annual competition for designers to submit their ideas in which environmental sustainability is a core criteria.

The Green Europe Experience (GEX) is a Creative Europe co-funded project launched in late 2019, bringing together We Love Green, Dour Festival (Belgium), Boom Festival (Portugal), Pohoda Festival (Slovakia), A Greener Festival, and the Green Operations Group. The network will focus on circularity of eco-designed scenography, decor and sustainable food.

EVERY CAN COUNTS

Every Can Counts: activating and inspiring drink can recycling at UK events

Every Can Counts (ECC) work with UK events and festivals to engage people with drink can recycling in a meaningful way by creating recycling 'activations' that both add to festivalgoers' overall event experience and deliver messages that resonate beyond the event. In 2019, ECC delivered 30 activations across a range of UK events, including Download Festival, Boomtown Fair, 2000trees and the Tough Mudder endurance event series.



NEXT LEVEL RECYCLING

Every material has the potential to be recycled (or down-cycled) into another product; however, whether this happens in practice or not comes down to whether it is financially viable and can be collected as a separate waste stream.

For example, TerraCycle's Zero Waste Boxes® can collect streams of single-use items commonly found at festivals like cigarettes, cable ties, wristbands, etc. and turn them

into products such as decking and furniture.

At Glastonbury 2019, a local enterprise called Stormboard, created toilets, the Water-Aid filling stations and the Shangri-la stage from non-recyclable plastic hoarding boards. Although these were not made from festival waste, their technology opens an opportunity for incorporating hard-to-recycle materials into circular festival infrastructure.

OTHER RECOVERY AND DISPOSAL

Some events are achieving Zero Waste to Landfill by sending residual waste to create Energy from Waste (EfW).

The Energy from Waste sector has grown significantly over the past decade, largely driven by councils and businesses looking to divert waste from landfill.

There is some concern that incineration is having, or will have, a negative impact on recycling rates as it requires less effort than segregation, and in that sense, it could de incentivise measures to reduce waste overall.



Daniel Farrell

SPOTLIGHT ON COMPOSTING, ANAEROBIC DIGESTION, AND 'COMPOSTABLE' PACKAGING

Packaging with compostable certification⁴⁰ can technically break down in both In-Vessel Composting (IVC)⁴¹ and Anaerobic Digestion (AD)⁴² - but it is often identified as a contaminant sent to be incinerated in Energy from Waste (EfW) facilities.⁴³

ANAEROBIC DIGESTION (AD)

AD plants must operate with near 0% contamination, which is very difficult to achieve at events.⁴⁴ The plants generally use a de-packing machine to separate out any contaminants – a process that also separates out compostable plates and cups, which are then sent to EfW.

IN-VESSEL COMPOSTING (IVC)

IVC offers a solution for composting dry food containers and wooden utensils and was the opted technology for the 2012 Olympic games, with a 2% target contamination. 34% of contamination was removed manually and mechanically - which puts the challenge for events into perspective. IVCs are very hesitant to accept food waste directly from the front-of-house of events, as it is technically difficult to remove non-compostable contaminants and just keep the biodegradable packaging and food waste. Waste contractor Critical Waste manually sorts through Glastonbury's food waste and sends all their compostable packaging including PLA lined cups to a local IVC.

CLOSED-LOOP COMPOSTING

Compostable packaging manufacturer, Vegware offer a 'closed-loop' system that promises collaboration between the manufacturer, collector and composter to compost packaging in a closed system. For example, at the 2019 Edinburgh International Book Festival, 22 x 240L worth of compostables were collected daily over the 17-day event and 100% sent for in-vessel composting.

In 2019, Vegware had 23 composting partners across the UK and this number is growing as the waste infrastructure evolves with the supply of new materials on the market. These composting sites are initially hesitant to work with front-of-house festival waste due to high risk of contamination. However festivals can incrementally prove competency and the back of house is a great place to start.

FESTIVAL INNOVATIONS IN COMPOSTING

'Into The Great Wide Open' festival (ITGWO) in the Netherlands used a rapid composting technology that composted food and compostable food packaging in 24 hours.⁴⁵ They were able to offer the audience compost made from the festival's waste – packaged as 'black gold' with seeds for growing – as a souvenir before the end of the festival in exchange for donations.

Festivals that would like to recycle compost onsite or locally need to be aware of the licenses required for handling commercial food waste. Animal products in compost can breed dangerous pathogens, making it essential to seek professional support both for complying with regulations and for safety.

40. For compost products, acceptable standards are EN 13432, EN 14995 or ASTM D6400. For making digestate products acceptable standards are BS EN 13432, DIN V 54900 or ASTM D6400

41. The in-vessel composting process mixes organic material, including food waste and compostable packaging, under strictly controlled environmental conditions within a sealed and fully enclosed purpose-built bunker.

42. Anaerobic digestion is the process of breaking down animal or food waste to produce biogas and biofertiliser. This process happens in the absence of oxygen in a sealed, oxygen-free tank called an anaerobic digester.

43. Working with compostable products and packaging in closed events (Wrap 2013)

44. Food waste recycling action plan for England (ADBA & REA)

45. Fast composting machine by Ecocreation technology

GRIST ENVIRONMENTAL

Grist Environmental recycles and diverts waste from landfill for all events in 2019

Grist Environmental works with festivals and events to help them improve sustainability through the effective management of waste. In 2019 they worked with events such as Camp Bestival, End of the Road and Larmer Tree Festival to increase recycling rates and divert landfill destined waste to energy recovery – in each case recycling 57-59% of all waste sorted, and recovering the remaining waste.

Grist know that the waste management process requires event organisers, waste contractors and the public to act together: To achieve this they work closely with event organisers to encourage the use of recyclable materials from the outset and to help set up onsite waste segregation systems that are designed to reduce the contamination of recyclable materials. Grist offer efficient waste collection and transportation with an added secondary sorting of collected waste streams leading to the re-use

and recycling of waste materials and the diversion of non-recyclable and contaminated waste from landfill.

In 2019 Grist worked with event clients to implement back of house systems to reduce the contamination of the waste collected in order to improve recyclability. Segregating glass, food and cardboard resulted in an immediate increase in the quantity and quality of recyclable waste streams.

Grist are now working with the industry to tackle the issue of food waste contaminating recyclable material at events. Finding an effective front of house food waste collection system that can be adopted across the industry would dramatically increase recycling rates. Segregating food waste reduces contamination and increases the quality and quantity of recycling and also produces energy (electricity and syngas) through anaerobic digestion.



SPOTLIGHT ON CAMPSITE WASTE

Campsite waste and abandoned camping gear remain a challenge for many outdoor events, although 2019 saw some events achieve steep reductions in the number of tents left behind by audiences.

WHERE DO TENTS GO?

In 2018, the Association of Independent Festivals reported that 10% of people attending its member events had left behind a tent during that year's festival season.⁴⁶

Compostable tent manufacturer Comp-A-Tent has been collecting data at multiple 50,000+ audience capacity festivals and has found that the rate of abandoned tents can be up to 77%. Comp-A-Tent estimated that 250,000 tents are abandoned every year at UK festivals contributing to over 900T of waste.

There is a persistent misconception that most abandoned tents go to charity. Festivals should not advocate this message as it can encourage further tent abandonment. In Festival Republic's 2017 customer survey that went out to seven festivals, the top reason for people leaving their tent behind was that they believed it would be donated to charity (39% of people). In reality, due to the time constraints of clearing a field and the human resources requirement, Festival Waste Reclamation & Distribution estimates only up to 10% of tents are salvaged – less at many events.

Comp-a-Tent's research shows that 36% of festival audiences believe tents are recyclable – and those who

believe this are four times more likely to leave their tent behind. The reality is that the cost of recycling the materials in tents outweighs the value created, and it is not feasible to recycle the large annual tonnage left behind – so almost all abandoned tents end up in landfill or energy-from-waste. Comp-A-Tent estimates that up to a third of tents abandoned in fields can be sourced back to two major retailers who market cheap tents as 'festival tents'.

Camping equipment is made of materials that are not really suitable for incineration. The polyester fabric used has a low calorific value, is coated in fire retardant chemicals, and the glass fibre from abandoned tent poles is incombustible and left as bottom ash.

Inflatable mattresses are made from PVC which, when burned, creates Hydrochloric Acid (HCl), a contributor to acid rain. Modern incinerators successfully filter the HCl from the flue-gas by neutralising it with an alkali to make a solid by-product. The process of incinerating these two products requires significantly more resources than the incineration of general household waste to make the by-products (bottom ash, flue gas) safe to legal levels.

RECYCLING AND LITTERING AT CAMPSITES

Eco-bond incentives, usually set in the region of £10 for returning a bag of recycling and general waste, have become widely adopted at event campsites. They improve recycling rates and campsite clean up during the event - and can also improve the overall audience experience. New companies such as MyCause allow festivals to out-source the management of eco-bond systems.

'Green' campsites or eco-camps have also become widespread, allowing audiences to voluntarily commit to better recycling and campsite practice in certain campsite areas, and working to foster a sense of community.

PRECEDENTS AND CAMPAIGNS

The AIF's 2019 'Take Your Tent Home – Say No To Single Use' campaign worked to coordinate audience messaging among its 60+ member festivals to tap into public concern about single-use plastic. They compared one tent to 8,750 plastic straws to help audiences visualise and quantify the problem.

Festival Republic's 2019 Zero Waste Festival Goer campaign enlisted festival goers, artists and staff to take environmental pledges that were amalgamated into three videos, one shown on each day at the festival, with the Sunday video focusing on taking tents home.

As a result, there was an observable reduction in abandoned tents, Reading Festival showing a 50% decrease in the amount of tents left compared to 2017.

Boomtown made sustainability the forefront of their storyline in 2019 with artists' and actors' participating in spreading environmental messaging in a fun way. There was a 200-volunteer team of 'Eco-warriors' who engaged with audiences in the campsites to recycle and reuse. The festival's climactic ending left the message 'Leave no trace'. As a result, tent abandonment went down from 44% in 2018 to 22% in 2019, a 50% decrease in one year, despite worse weather.

46. Take Your Tent Home. AIF (2019) <https://aiforg.com/initiatives/take-your-tent-home/>

APPROACHES THAT CAN HELP REDUCE WASTE AND INCREASE RECYCLING

- Work with contractors and concessions to limit the number of items and materials introduced into waste streams in the first place by focusing on reuse and setting clear material requirements for commonly used disposables.
- Engage festivalgoers in behavior change through campaigns and communications that start from the moment they buy their ticket.
- Provide clearly signed bin systems for segregating materials at source, both front of house and back of house. Use volunteers to support people in making the right bin choice.
- Contractually oblige concessions and contractors to segregate waste streams and materials from offices, kitchens, bars and compounds.
- Demand that cleaning contractors instruct their crew to segregate recyclables during litter-picking.

CAMPLIGHT

Camplight's circular economy solution to campsite waste

Camplight is a response to campsite waste left behind at UK events. They turn abandoned tents into usable camping equipment and rent them to festival-goers as a pre-pitched option. Since 2012 they have prevented 1,000 tents from going to landfill, and hired out over 4,500 – saving campers from needing to buy a new one. Read the case study.



PRECEDENTS

BOOMTOWN

Boomtown cut campsite waste by 50% in 2019

Boomtown Fair's Chapter 11 in 2019 saw a surge in the number of citizens taking responsibility for taking their tents & equipment home - with a 50% reduction in campsite waste. In their new 'zero waste' camping area they worked with Environmental Recovery Solutions to achieve a 90% reduction compared to 2018.



SHAMBALA FESTIVAL

in 2018 introduced a 'Bring Your Own Cup' initiative to help reduce the estimated 30,000 hot drinks cups used at the event. Audiences were charged a levy on single-use cups to encourage them to bring their own, and asked to use dedicated bins so cups could be sent to one of the few facilities in the UK able to process polymer-lined paper cups. In 2018, more than 12,000 disposable hot drinks cups were captured for recycling – an increase of over 50% from the previous year.



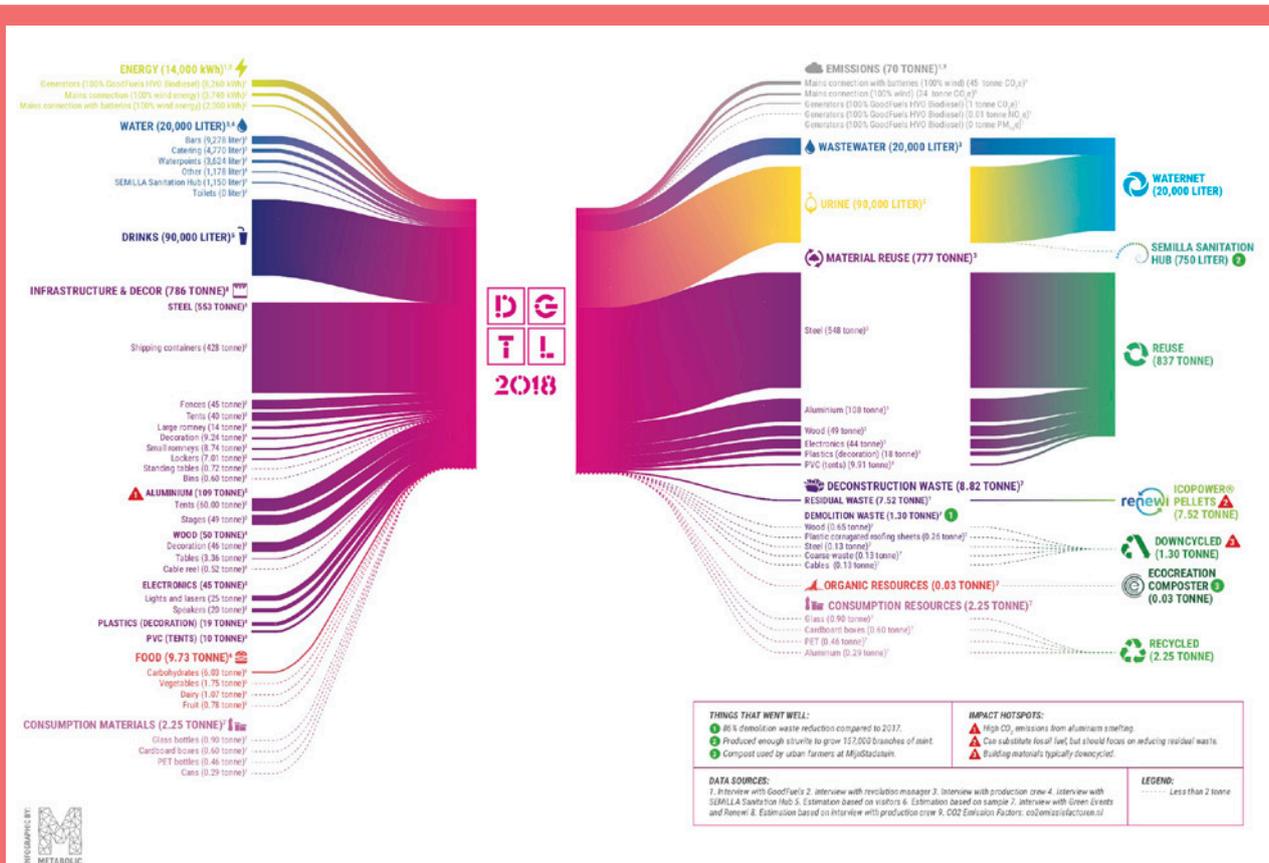
LIVE NATION & FESTIVAL REPUBLIC

Single use plastic bottles reduced by half at Live Nation & Festival Republic events in 2019.

Live Nation & Festival Republic implemented a single use plastic policy in 2019. This included a refill campaign directed at the audience, crew and artists with reusable bottles available for sale at the merchandise stands, all bottled water sold had a minimum of 30% recycled content and soft drinks dispensed from post mix dispense units or cans. This resulted in a reduction of single use plastic bottles by half.



Watt Eachus - Latitude Festival



DGTL FESTIVAL

DGTL Festival in the Netherlands has produced a 'material flow analysis' to better understand resource flows and specific opportunities to divert resources from ending up as waste. To do this they worked with consultancy Metabolic to collect detailed information about material types and waste streams entering and leaving the festival. They also engage audiences in a 'resource street' at the event, where people can watch waste being sorted and segregated, and experiment with new technologies like plastic pyrolysis.

OVERVIEW OF POTENTIAL FOR REDUCTIONS

The key ambitions of Defra's 2019 Waste Strategy are:

- Work towards zero food waste to landfill by 2030
- Recycle 65% of municipal waste by 2035
- Work towards eliminating all biodegradable waste from going to landfill by 2035
- Work towards zero avoidable waste by 2050

In its Net Zero report to the government, the Committee on Climate Change proposes the following, more ambitious, targets:

- A 20% reduction in avoidable food waste by 2025
- Eliminate key biodegradable waste (food, paper, card) from being sent to landfill by 2025 at the latest
- Recycle 70% of municipal waste by 2025 or earlier

OVERVIEW OF THE IMPACT OF WASTE ON UK CAMPING FESTIVAL CARBON FOOTPRINTS AND THE FEASIBILITY OF REDUCTION MEASURES

TYPICAL % THAT WASTE CONTRIBUTES TO THE ONSITE CARBON FOOTPRINT OF A CAMPING FESTIVAL	24%
TOTAL AMOUNT OF CO₂E PRODUCED BY FESTIVALS ANNUALLY DUE TO WASTE	5,500 tonnes
TOTAL AMOUNT OF WASTE GENERATED BY FESTIVALS ANNUALLY	25,800 tonnes
KEY OPPORTUNITIES TO REDUCE WASTE AND ASSOCIATED IMPACTS	<ul style="list-style-type: none"> • Reduce the amount of materials and resources consumed and reduce waste overall, with a focus on reducing avoidable food waste • Increase re-use rates for materials • Introduce reusable cups • Engage audiences in reuse and recycling initiatives , especially bringing refillable bottles and hanging on to their tents. • Eliminate biodegradable waste, especially food, sent to landfill

SUMMARY OF FEASIBILITY OF OPPORTUNITIES TO REDUCE WASTE

Waste reduction initiatives in the past 5 years have shown significant and measurable results across the events community. Interventions like reusable cups are now tried and tested and offer opportunities to build on other reuse initiatives.

Alongside reducing resource use overall, focusing on eliminating food and other biodegradable waste being sent to landfill offers a clear opportunity to reduce GHG emissions for all types of event. Continuing to improve recycling rates means helping to reduce GHG emissions from further upstream in the supply chain, from the extraction, processing, refining, and manufacturing of raw materials.

The 2019 season has seen notable progress in tackling campsite waste that has often exceeded festival organisers expectations: this momentum needs to be captured through further audience engagement to help cement a culture shift across all events that offer camping.





Impacts and solutions Food

IN SUMMARY

Greenhouse gas emissions are produced at every stage of food production: including the way land is managed, emissions arising directly from livestock and crops, fertilisers, processing, storage, packaging, transport, retail and waste. The majority of food related emissions occur at the agricultural production stage.⁵²

Unlike most other sectors of the economy, where CO₂ from the burning of fossil fuels dominates emissions, the most important greenhouse gases from the food system are methane (CH₄) – from ruminant livestock like cattle, sheep and goats, as well as rice grown in flooded paddy fields – and nitrous oxide (N₂O) from fertilized soil and animal manure. That said, land use change for agriculture is a big source of CO₂ emissions. There are also CO₂ emissions in the later stages of the food system, from the fossil fuel use in food processing, transport, storage and refrigeration.⁵³

Our food systems also have significant impacts beyond emissions including: pollution from agricultural run-off, water availability, soil degradation, desertification, deforestation, the catastrophic biodiversity loss we are seeing all around us, overfishing and the depletion of fish stocks, plus the social justice issues around human rights in the workforce and the displacement of people and loss of access to land as a resource.

Food waste exacerbates all of these issues because it means we have produced more food than would otherwise be necessary. We need to transform our food system into one that works both within planetary, and health boundaries so that we can feed nearly 10 billion people by 2050 – while still maintaining space for nature and non-human species.

These changes will need to happen in terms of efficiencies at production level, changes in dietary habits at consumption level and socio-economic shifts such as giving more power to local producers. Out of these three, changing dietary habits offers most opportunities for event organisers to make a difference.

The Committee on Climate Change has identified a shift to healthier diets with less consumption of beef, lamb, and dairy products as an important cultural shift that is needed to contribute to the UK reaching its net zero greenhouse gas emissions target.

Key scenarios in achieving these targets model a fifth of the UK's agricultural land shifting to tree planting, energy crops, and peatland restoration – underpinned by healthier diets and reductions in food waste.⁵⁴ Scenarios with higher ambition require more changes in consumer behavior and faster shifts in diet.

In the past five years, there has been a huge boom in public awareness about the environmental impacts of what we choose to eat, how it's raised or grown, and where.

The Economist declared veganism as one of the trends to look for in its 'The World in 2019' outlook, and it's easy to see signs of more plant-based diets becoming mainstream. A 2018 survey for 'Grocer' magazine found that 12.5% of people were non-meat eaters (vegetarian, vegan, or pescatarian) – the proportion was highest for those under 35 and for women. 12.5% of respondents to a 2018-19 Waitrose survey also identified themselves as vegan or vegetarian, although more than half of them said they did sometimes eat meat. A further 21% described themselves as 'flexitarian'.

Although these surveys were based on relatively small samples, they do reflect a trend also seen in the retail sector, which is launching more dedicated vegan and vegetarian offerings and seeing strong growth in these areas. For example, Mintel report that in 2019 UK plant-based milk sales increased by a third since 2015, while 'traditional' milk sales increased by just over 5% over the same period.⁵⁵

We need to transform our food system into one that works both within planetary, and health boundaries so that we can feed nearly 10 billion people by 2050 – while still maintaining space for nature

47. Food Systems and Greenhouse Gas Emissions. Food Climate Research Network Foodsource. <https://foodsource.org.uk/chapters/3-food-systems-greenhouse-gas-emissions>

48. Greenhouse Gases arising from the food system. Food Climate Research Network Foodsource. <https://foodsource.org.uk/23-carbon-footprinting-based-lca-approach-focuses-only-greenhouse-gas-emissions>

49. Net Zero: The UK's Contribution to Stopping Global Warming. Committee on Climate Change (2019) <https://www.theccc.org.uk/publication/net-zero-the-uks-contribution-to-stopping-global-warming/>

50. Net Zero: The UK's Contribution to Stopping Global Warming. Committee on Climate Change Technical Report (2019) <https://www.theccc.org.uk/publication/net-zero-technical-report/>

21-37% 12-14%

AN ESTIMATED 21% - 37% OF GLOBAL GHG EMISSIONS ARE FROM THE FOOD SYSTEM.⁵¹

CROPLANDS COVER 12-14% OF THE WORLD'S ICE-FREE LAND.⁵²

1/3

AROUND ONE THIRD OF ALL FOOD PRODUCED IN THE WORLD IS LOST OR WASTED.⁵³

85%

OF GLOBAL FISHERIES ARE NOW FULLY FISHED OR OVEREXPLOITED.⁵⁴

14.5%

LIVESTOCK ARE BY FAR THE MOST SIGNIFICANT CONTRIBUTOR TO FOOD-RELATED GHG EMISSIONS, CONTRIBUTING AROUND 14.5% OF EMISSIONS CAUSED BY HUMANS.⁵⁵

51. IPCC Special Report: Climate Change and Land, Technical Summary (2019) <https://www.ipcc.ch/srccl/chapter/technical-summary/>

52. IPCC Special Report: Climate Change and Land, Technical Summary (2019) <https://www.ipcc.ch/srccl/chapter/technical-summary/>

53. WRAP Food and Drink <http://www.wrap.org.uk/food-drink>

54. Food Systems and Contribution to Other Environmental Problems. Food Climate Research Network Foodsource. <https://foodsource.org.uk/chapters/5-food-systems-contributions-other-environmental-problems>

55. Food Systems and Greenhouse Gas Emissions. Food Climate Research Network Foodsource. <https://foodsource.org.uk/chapters/3-food-systems-greenhouse-gas-emissions>

The demand for food and drink to be a significant part of the event experience is bigger than ever and doesn't show any signs of slowing down, with event organisers and traders racing to introduce new concepts and experiences, and working to improve the variety and quality of food on offer.

WWF estimates that the carbon footprint from food is 5.17 kg CO₂e per person per day in the UK.⁵⁶ That means the carbon footprint of people eating at events could be up to 66,600 t CO₂e annually.⁵⁷ Of course, as an events community, we can't single-handedly solve the challenges of the world's food systems: the people coming to our events need to eat wherever they might be. But we can focus on minimising the environmental impact of the selection of food on offer to audiences at our events by working closely with traders to build trust and meet our aspirations, and by improving the standards we set for the ingredients procured in our supply chains.

If we assume that the baseline carbon footprint from food of someone attending an event is roughly the same as the UK average carbon footprint from food per person per day, then even achieving a 10% reduction in carbon emissions from food across the whole event community would outweigh the impact of our direct emissions from waste: the potential is significant.

Perhaps even more importantly, we can work through the audience experience at our events to help support the cultural dietary shifts the Committee on Climate Change has identified as being so important: precedents across our community show our huge power to inspire audiences. In doing so, we can also reflect on-going shifts in consumer preferences and meet growing concerns among our audiences. One in three UK residents responding to a 2019 survey on climate action said they had already reduced the amount of meat they consume, with another 12% saying they planned to do so.⁵⁸

Shifting from a high-meat to a low-meat diet can help people to reduce their dietary emissions by a third.⁵⁹ Lastly, an estimated 10% of UK food waste (post farm-gate) comes from hospitality and food service. Festival food waste salvage scheme, Eighth Plate, estimate that 400 Tonnes of food (excluding campsite waste) is thrown away every year at UK festivals – the equivalent of one million meals.⁶⁰ As events, we can work with our traders and partners to reduce this figure.

REDUCING GREENHOUSE GAS EMISSIONS THROUGH MENU CHOICE

Generally, the foods with the highest greenhouse gas emissions are: ruminant meat (cattle, sheep, goats), followed by other meat including seafood, animal products (eggs, dairy); while plant-based foods have the lowest impacts.

In response, festivals and events including Way Out West (Sweden), Shambala (UK), Green Gathering (UK), DGTL (NL and ES) and more, have gone entirely meat-and-fish-free – some for many years. One significant reported by events that have taken this step is that there is a significant overall reduction in food waste across the site. Banning meat or dairy outright is a big step and may be beyond the ambition of many event organisers, but there are other ways to reduce meat and dairy consumption onsite including:

- Increasing the number of traders offering plant-based menus.
- Reducing the number of traders serving meat.
- Working with traders to reduce the amount of meat they use in their menus e.g. by blending it with vegetables and vegetable protein.

56. Food in a Warming World. WWF (2018) https://www.wwf.org.uk/sites/default/files/2018-03/Food_in_a_warming_world_report.PDF

57. Calculated using WWF figure of 5.17 kg CO₂e per day and our audience day figure of 12,885,040. Of course, this is a very rough approximation not based on direct data from events. Particularly for day-tickets or day events, not all meals might be eaten on site – and dietary choices at events may differ from 'average' days.

58. Climate Change: UK Citizens want the UK government to do more. The Commitment/Caplor Horizons (2019) <https://www.caplorhorizons.org/the-commitment>

59. Net Zero: The UK's Contribution to Stopping Global Warming. Committee on Climate Change (2019) <https://www.theccc.org.uk/publication/net-zero-the-uks-contribution-to-stopping-global-warming/>

60. 8th Plate – A Guide to Collecting Surplus Food From Events: FairShare, NCASS, A Greener Festival

The EAT-Lancet Commission has brought together current scientific evidence to present a 'planetary health' diet that is healthy for both people and planet. The recommended diet is flexitarian: largely plant-based but can include very small amounts of meat, fish, and dairy.⁶¹ It recommends consumption of no more than 98 grams of red meat (pork, beef, or lamb), 203 grams of poultry, and 196 grams of fish per person per week – or less. Getting there will mean reducing excessive consumption of meat in wealthier countries such as the UK. Food businesses can support through changing portion sizes

– for example, blending meat with vegetables or proteins in burgers, curries and stews, or using meat only as a garnish (if at all).⁶²

Detailed food carbon foot-printing for individual menus and events is complex undertaking due to the number of variables involved, although recent years have seen a growing number of food carbon calculators and carbon calculating services appear. As an events community, we would benefit from better engagement with these services to help inform future food strategies.

SHAMBALA'S ONE PLANET PLATE

Working with food carbon calculator CarbonCloud, in 2019 Shambala reached out to their traders, encouraging them to create their own 'One Planet Plate'- a meal that is responsible for 0.5 kg CO₂e compared to the average UK meal of 2 kg CO₂e. The best dish, voted by the audience, was rewarded with a trader award, which includes a 10% reduction on pitch fee.



CARBON FOOTPRINTS ON THE MENU AT ROSKILDE

In 2018, Roskilde festival in Denmark worked with CarbonCloud's climate impact calculator CarbonAte to mark all 400 food options served by 100 different traders at the event with climate labels. This meant that visitors to the event could see the carbon footprint of everything on offer and, if they wished to, make climate smart choices.



DAIRY-FREE SHAMBALA

In 2018, Shambala banned the sale of dairy milk in hot drinks across site. Dairy milk was replaced by a number of alternative products chosen for their environmental credentials. The sustainability team was able to calculate that using dairy alternatives in hot drinks reduced the festival's water footprint by almost 5 million litres, and its greenhouse gas emissions by an estimated 15 t CO₂e.⁶³



61. EAT-Lancet Commission on Food, Planet, Health <https://eatforum.org/eat-lancet-commission/>

62. EAT-Lancet Commission Brief for Food Service Professionals (2019) <https://eatforum.org/lancet-commission/food-service-professionals/>

63. Shambala has 'Gone Off Milk' (2019) <https://www.shambalafestival.org/big-news-shambala-has-gone-off-milk/>

SOURCING STANDARDS AND CERTIFICATION

Many events now set specific procurement guidelines for their traders. The process of setting such guidelines can help event organisers better understand their supply chain, the needs of their traders, and the impacts of specific food areas. Guidelines might include:

- Fruit and vegetables to be local or seasonal.
Note that: sourcing locally can reduce the amount and impact of transport miles however sourcing locally does not automatically mean lower emissions: heating greenhouses in winter can cause emissions that outweigh impacts saved from transport. Food miles on their own are not a good environmental indicator, and seasonality and agricultural methods are equally or more important – although sourcing locally may have other social benefits, and shorter supply chains mean greater supply chain transparency.⁶⁴
- Fruit and vegetables to be organic e.g. Soil Association certified
- Animal welfare: eggs to be free-range
- RSPO Certified Sustainable Palm Oil only
- Fairtrade certified coffee and tea only
- Sugar to be Fairtrade or sourced from within the EU (generally sugar beet derived)
- Restrict soy from unsustainable sources
- Sourcing fish that is a minimum 'Good Choice' or 'Best Choice' rating on the Marine Conservation Society Good Fish Guide
- Some events also ban specific brands on the basis of credentials or company ethics.

For produce that is hard to source within specific guidelines, events might suggest alternatives or make specific exceptions (e.g. bananas and local sourcing). Some events also create suggested or approved supplier lists for certain produce, to help traders quickly source food that meets event guidelines, sometimes negotiating cheaper rates with key suppliers in exchange for guaranteed custom from multiple traders. Centralising supply in this way can help support specific producers; ensure a high quality of produce, and create a new market for sustainable options by using collective procurement to manage cost.

Shambala's procurement guidelines include requirements that dairy is 100% organic, eggs are free-range, and fruit and vegetables are sourced from the UK and Europe where possible in order to limit the impact of travel emissions and support relationships with local food providers.

Some events like Green Gathering charge traders a 'bond' that may not be returned if traders are found breaking any specific conditions, such as serving only Fairtrade certified coffee, tea or bananas.

Roskilde in Denmark has slowly increased the target for the proportion of food served on site to be organic – from 30% in 2014 to 90% in 2017.

IS INTENSIVE FARMING ALWAYS BAD?

This is a hot topic in food research currently and the answers are complex: is it better to increase biodiversity locally on farmland – which generally means using less intensive and/or organic practices, which in term means lower yields and the need for more land to produce the same amount of food – or is it better to intensify production on existing farmland so we can spare the conversion of more land (habitat) into farmland? In principle, if biodiversity friendly farming is implemented alongside other systemic shifts - especially consuming less resource and land intensive foods (like reducing meat consumption, which needs both the land for the livestock and the land for growing the food for the livestock), so the risk of this so-called 'leakage' effect of converting more land into farmland is minimised. ⁶⁵

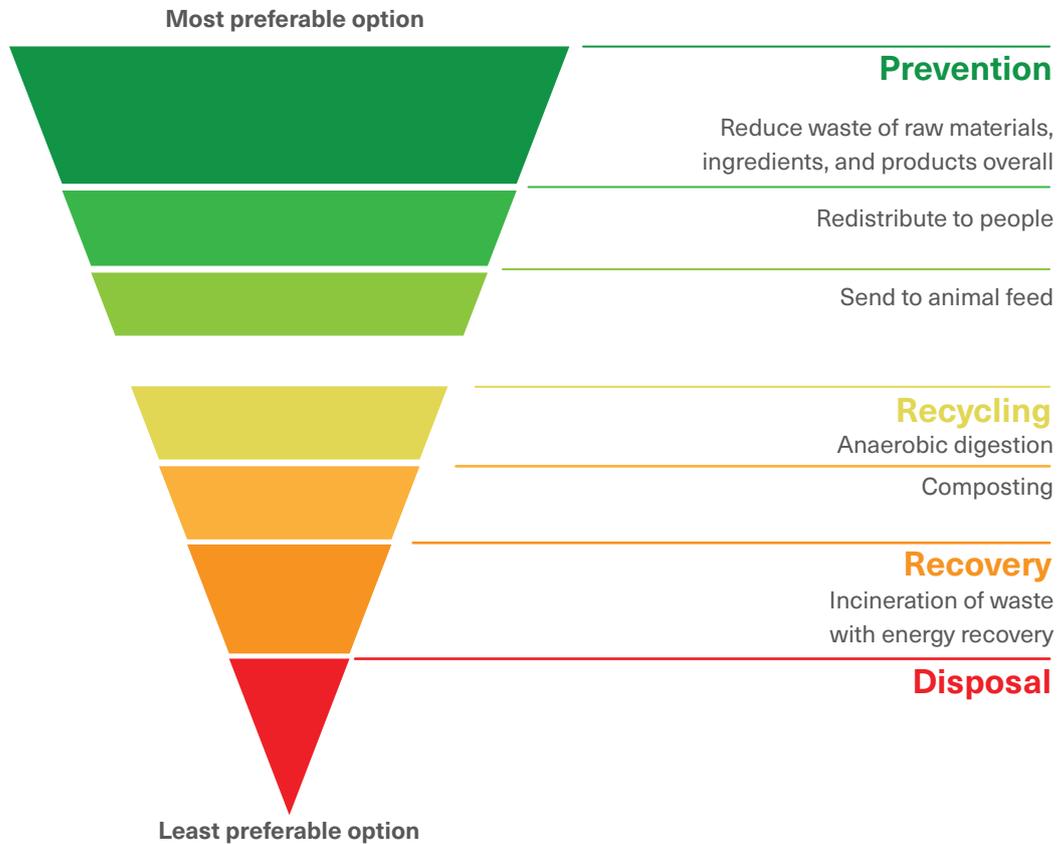
Similarly, animal welfare doesn't always mean lower environmental impact: more intensive livestock farming, for example, is generally more greenhouse gas and land efficient – although lower prices leading to higher consumption overall can more than undo these efficiencies. Of course, animal welfare and ethics on its own is also very good grounds to set sourcing standards and policies.

64. How important is transport? Food Climate Research Network Foodsource. <https://foodsource.org.uk/33-how-important-transport>

65. How do food systems affect land use and biodiversity? Food Climate Research Network Foodsource. <https://foodsource.org.uk/54-how-do-food-systems-affect-land-use-and-biodiversity>

FOOD AND DRINK HIERARCHY

The UK government's Food And Drink Hierarchy provides a framework for minimising the environmental impact of food waste:



Cutting food waste from events is an easy way to reduce our greenhouse gas emissions, by reducing 'wasted' emissions throughout the food supply chain, and emissions arising from the waste (especially if sent to landfill). Food surplus at events comes from misjudgements on how much food to bring to site; this can be caused or exacerbated by a lack of information or misinformation on attendance figures.

A number of events work with local food charities to redistribute salvageable food waste to people in need. Campsite collections of surplus food or campsite drop-offs for salvageable food are often overlooked as a way to reduce food waste, with weary audiences often more than happy to leave food so as not to have to carry surplus weight home.

EIGHTH PLATE

Eighth Plate redistributes 23 tonnes surplus festival food in 2015

Eighth Plate is an initiative created by A Greener Festival and the Nationwide Caterers Association (NCASS), which redistributes surplus food from festivals while helping to address food poverty in the UK by working with food distribution local charities. Launched in 2015, the project collected 23 tonnes of surplus food that year – the equivalent of 55,000 meals – and redistributed it via local FareShare sites.⁶⁶



66. <https://ncass.org.uk/mobile-catering-home/articles/eighth-plate-food-waste-scheme-rises-from-the-flames-of-arcadia-london>

CIRCULAR FOOD COURT

Circular Food Court at DGTL Festival

The Circular Food Court at DGTL Festival in Amsterdam in 2019 worked with local partners The Food Line Up and Instock to create a menu that was not just based on festival classics or what audiences wanted to eat, but instead on available local food surplus and “imperfect food” from local suppliers, to help effective food redistribution and to divert it from going to waste – closing the loop.



SPOTLIGHT: WORKING WITH TRADERS AND CATERERS

Caterers are adaptable, but many of our event policies such as higher welfare standards and compostable packaging can also impact on their operating costs. Being upfront about what changes you're implementing, sharing the burden where possible, and working with them to deliver change can yield the most effective results. Additionally, Green Trader Awards with incentives like reductions on pitch fees or preferential pitch locations for future event editions can be a powerful incentive.

In order to enable traders to meet Shambala festival's requirement for organic dairy products, the festival commissioned a Welsh producer to create a special batch of organic 'Shalloumi' once organisers realised there weren't any other options on the market.⁶⁷

Brewery Tuborg created its first organic beer in 2015 to meet demand from Danish festivals Roskilde and NorthSide, both of which were committed to serving organic food and drink onsite.

67. <http://www.festivalinsights.com/2017/02/scenes-meat-fish-free-shambala-2016-story-facts/>

SERVING UP CONVERSATIONS

Food can be a highly emotive subject and festival attendees may be resistant to changes if they feel it negatively affects their experience, costs them more money, or limits their 'freedom' to choose.

Some of these challenges can be met head-on by clearly explaining your reasons, supporting any changes through research, and providing plenty of opportunities for audiences to feed back via surveys or participate in the conversation on site.

The Garden O'Feeden is a venue at Shambala festival dedicated entirely to food, with talks, workshops on topics like waste food, palm oil, and post-Brexit farming. It's a space where attendees can debate and learn with food experts and specialists to challenge popular assumptions around food sustainability. When the festival went meat- and fish-free in 2016, they had prepared extensive FAQs on the website to help explain the reasons behind their

decisions to audiences (around 70% of whom were meat eaters) and to bring them along on the journey.

Roskilde Festival also tries to initiate conversation with its food offering: in 2019, Kutling & Ukrudt served Round Goby, an invasive fish species in Denmark that is having a devastating impact on local species including shrimp and clams. To date, there is not a significant commercial market for Round Goby as it is difficult to prepare – the stand at Roskilde is part of a larger project trialling new uses for this species. The initiative was funded through the Green Development and Demonstration Programme grant-making scheme run by the Danish Ministry of Food, Agriculture and Fisheries.⁶⁸

In 2018, Field Day in London asked Fat Gay Vegan (a food blogger with a big vegan following) to curate the vegan line-up of stalls for the festival, turning the offer itself into an experience.

68. <https://mst.dk/service/nyheder/nyhedsarkiv/2019/jun/sortmundet-kutling-paa-roskilde-festival/>

OVERVIEW OF THE IMPACT OF FOOD ON UK EVENT CARBON FOOTPRINTS AND THE FEASIBILITY OF REDUCTION MEASURES

<p>TYPICAL % THAT FOOD CONTRIBUTES TO THE ONSITE CARBON FOOTPRINT OF A FESTIVAL</p>	<p>Unknown – there isn't currently an accessible system in place to measure food impacts.</p>
<p>TOTAL AMOUNT OF CO₂e PRODUCED BY FOOD CONSUMPTION OF FESTIVAL AUDIENCES</p>	<p>Unknown. If it matches the average UK daily per-person food carbon footprint it could be up to 66,600 t CO₂e</p>
<p>KEY OPPORTUNITIES TO REDUCE FOOD CLIMATE AND ENVIRONMENTAL IMPACTS</p>	<p>Influence the selection of food on offer to audiences, with priority given to less emissions-intensive menus e.g. more plant-based options</p> <p>Work with traders and supply chain towards shared ambitions and set minimum standards for sourcing of ingredients</p> <p>Minimise food waste arising from events</p> <p>Engage traders in food waste salvage schemes (such as Eighth plate) to redistribute surplus food</p>
<p>SUMMARY OF FEASIBILITY OF OPPORTUNITIES</p>	<p>Huge potential to support the Committee on Climate Change net zero roadmap.</p> <p>Events can open new experiences and start conversations with audiences about the environmental impact of their dietary choices to inspire broader lifestyle shifts</p>

RECOMMENDATIONS

- 1. Establish minimum sourcing standards and trader procurement guidelines**
- 2. Reduce avoidable food waste by at least 20% by 2025 in accordance with Committee on Climate Change recommendations**
- 3. Reduce meat and dairy consumption**
- 4. Engage traders with initiatives like the EAT-Lancet planetary health diet**
- 5. Improve data collection on food impacts at events**



Impacts and solutions Water

Chapter Supported by:



IN SUMMARY

Water has to be recognised as a scarce and vital resource, including in the UK. Changes in rainfall driven by a changing climate, alongside population growth, are predicted to lead to supply and demand deficits across England and parts of Scotland and Wales by 2050, becoming widespread by the 2080s.⁶⁹ In particular, the South East is predicted to experience more frequent and widespread droughts.

The UK Met Office is predicting that UK summers will become drier overall, but when rain does fall, it will do so in heavier bursts.⁷⁰

Event organisers therefore have to be aware of the need to conserve water but must also be prepared for the potential catastrophic effect of too much water at the wrong time.

184.5 million litres

of water are consumed at UK music festivals every year

Areas of England, Scotland and Wales face risks of water shortages by 2050⁷¹

WATER USE AT EVENTS

While the direct carbon emissions from water use are negligible in comparison to energy use, water scarcity and other environmental issues associated with how we get water to audiences and manage it onsite still merit consideration.

Droughts can mean additional financial and environmental impacts for events, as water has to be transported from further away (increasing transport emissions). Drier seasons and hotter weather also drive up water consumption overall, as audiences drink (and shower) more and additional water is used to manage environmental conditions on site, for example damping down dust on roads and trackways.

If a site is connected to mains water, there are likely benefits. Bringing in water by tanker involves road miles with associated CO₂e emissions, with unused water often wastefully emptied onto the site post event.

Making use of a site with mains water is almost certainly going to reduce CO₂ emissions in comparison to an off grid site.

The current Julie's Bicycle benchmark for water use at camping events is 14.3 litres per person per day. This is slightly higher than the 2014 benchmark, potentially due to greater adoption of water refill schemes and/or a series of hotter and drier summers in recent years increasing water consumption.

The aim is not to reduce water use at all costs. For example, refill initiatives to eliminate plastic bottled water consumption onsite are likely to lead to an overall increase in water consumption recorded by events – but there are the huge benefits of reducing plastic waste and CO₂e emissions from the transport of bottled water.

However, treating water like the precious resource it is means reducing water wastage and being efficient in how we use it, for example in relation to taps, toilets, and showers – and in keeping leaks to a minimum.

69. Under pressure: preparing for UK water shortages. Gemma Holmes for Committee on Climate Change website, 2017. <https://www.theccc.org.uk/2017/09/12/pressure-preparing-uk-water-shortages/>

70. UK Climate Change Risk Assessment 2017 Evidence Report Technical Chapter 4: Infrastructure. Committee on Climate Change (2017).

<https://www.theccc.org.uk/tackling-climate-change/preparing-for-climate-change/uk-climate-change-risk-assessment-2017/ccra-chapters/infrastructure/>

71. UK extreme events – heavy rainfall and floods. Met Office. <https://www.metoffice.gov.uk/research/climate/understanding-climate/uk-extreme-events-heavy-rainfall-and-floods>

Associated with water use is water pollution. There has long been strong legislation in place to protect water in rivers and streams in and around event sites from pollution, with penalties for events that fail to do so.

Alongside this, the kinds of products like cleaning and personal care products we choose to use determines the chemical load of wastewater sent for treatment – and the risk of chemicals ending up in our waterways. With more and more festivals developing sustainable procurement policies and undertaking research into materials, there has been a steady reduction in chemicals used on site for cleaning with specifications for environmentally friendly chemicals where possible. For example, Portakabin are sanitation providers to TRNSMT and Glasgow Summer Sessions. Each year they liaise with the Sustainability Manager to discuss options for reducing or replacing chemicals, lowering quantities of certain products and minimising water waste.

Less visible and more complex is the water footprint of everything consumed on site – the amount of water that goes into growing the food and drinks we serve, and the

materials and stuff we use. Trying to estimate this is far beyond the scope of this report, but by reducing waste and the amount of stuff we use overall, and choosing to buy from suppliers who are themselves investing in water efficiency, we can also contribute to reducing the amount of water used in our supply chain. For example, many breweries are investing in reducing the amount of water required to make beer by investing in initiatives like steam capture and using gray water to clean equipment. Asking key suppliers for this information as part of contract negotiations can help put the issue on the agenda.

Contractors whose operations use a lot of water also have an opportunity to contribute to water conservation in the events sector by being more efficient and by investing in technologies like rainwater harvesting. For example, trackway supplier GT Trax invested in the development of a custom washing machine that uses recycled rain water to clean ground protection mats as early as 2009.

All of these can work towards reducing the risks and impacts of water deficits in the UK and at source.

SPOTLIGHT: WATER POLLUTION

One high risk of reduced water quality is from festivalgoers urinating in streams. This leads to an increase in ammonium levels, and if certain levels are reached, this could lead to a prosecution. Measures to prevent this are generally fairly simple; fencing off water courses by placing Heras fencing along the banks (ideally situated around 15m back from the river, although in some constrained sites this distance may have to be reduced); empowering environmental volunteers to walk the watercourse routes daily or twice daily to check for breaches of the fence, to clear any objects thrown in the watercourse and to note any areas where liquids could leach into the water. In addition toilets should be located away from watercourses and potential sources of pollutant such as oils from cooking or boneyards, should not be close to water or drains that lead to watercourses. This can be augmented by signage and communication for both festivalgoers and event staff, especially those working during build and break.

SPOTLIGHT: TOILETS AND SANITATION

The main source of GHG emissions associated with temporary toilets comes from the transportation of human waste by road. Other sources of impact are: the way the waste is treated; the chemicals (usually the blue liquid) used in the flush; and the use of drinking-quality water (which has been purified and transported) in some flush toilet options – in cases where they are not plumbed into a mains water supply.⁷²

Portable toilet suppliers are taking an increasing interest in sustainability and suppliers are beginning to stop using chemicals containing formaldehyde, which although effective, is difficult to dispose of. Products that are fully biodegradable and contain biocides to manage odour, rather than formaldehyde, are available. The strong blue dye is plant, not chemical based, biodegradable and is less harmful to the environment.

Compostable toilets use zero water and zero chemicals and can offer significant environmental benefits especially if waste can be stored, composted, and used on the land locally. They require some preparation such as trenching which may not always be practical, especially where public sites, such as parks, are used.

Vacuum toilets can also offer more water efficient sanitation for more luxury experiences, however there can be a trade-off with energy use as some use energy-intensive three-phase pumps.

CASE STUDIES



LOOWATT

Loowatt waterless flush festival toilets save 52,200 litres in 2019

Loowatt provide waterless flush toilets at UK events and capture the waste to be turned into energy and fertiliser. In 2019 they worked with 6 events, including Port Eliot, Wilderness and Black Deer Festival, overall saving 52,200 litres of water, collecting 28.3 tonnes of waste and creating 1,078 KWh of energy - enough to charge 22,000 smartphones!



SANI

SANI's vacuum toilets cut emissions, energy use and costs

SANI's water-saving sanitary toilets, showers and wash units require less water and less power than traditional festival solutions – on average emissions from wastewater transport are reduced by up to 80%, energy costs are cut by 30% through efficient units and distributors - and storage costs for fresh and wastewater are halved.

PRECEDENTS



MTD WATER

MTD Water: cutting water wastage and single-use plastic at events

MTD are a water management and plumbing company who value sustainability as key to their client offering. Innovation is a key factor and they are committed to investing in product development to keep up with the increasing demands of sites that are taking steps to ban the use of single use plastics. They have developed 'bottle refill stations' which provide a sustainable solution whilst also offering the opportunity for branding and sponsorship. MTD has also seen increased demand this year for a chilled water solution for the production workforce on event sites. Their 3-tap coolers offer a chilled, ambient and sparkling water supply for long periods of site occupancy.

MTD calculates projects using precise methods to ensure the correct water volumes are stored throughout an event and reduce water wastage on site. With a large portfolio of potable water and wastewater pillow tanks, MTD ensures transport is kept to a minimum by transporting multiple pillow tanks on a single pallet compared to that of a static tank. Similarly, MTD will calculate exact pipe lengths and routes prior to arriving on site so that transport utilisation is maximised. They endeavour to achieve 0% to landfill yearly.

Alongside these practical solutions, MTD are a signed up member of the event industry charity Energy Revolution, meaning they balance their carbon emissions to and from events with investment in renewable energy.

T IN THE PARK

T in the Park: preventing water pollution

Located in sensitive salmon country, the streams that ran through the T in the Park site (Scotland) were subject to a pollution prevention plan. Heras fencing kept festival goers away from the water and uniformed volunteers walked the banks three times daily to remove any objects thrown over.

No urinating signs were placed on fences and water monitoring equipment installed to monitor for ammonium, dissolved oxygen, turbidity, etc and send a daily report to SEPA, the fisheries association and other interested parties.



APPROACHES THAT CAN HELP REDUCE WATER WASTE ONSITE

- As a minimum, using percussion taps or non-concussive taps that automatically turn off after a short period of time at water points and showers.
- Using taps that need to be held open that stop issuing water as soon as the hand is removed, rather than timed switches, can yield even greater savings. Even if water continues to pour for just a second after each user, the wastage can be significant and the potential for pooling and flooding at the tap area significant.
- Work with contractors to minimise leaks across the site. Ask site maintenance to frequently check taps as leaks and jamming are common with heavy use.

At TRANSMT and Glasgow Summer Sessions, the sustainability team monitor all standpipes on an ongoing basis both through a pre-start walk-over and during the event. Issues they identify and ensure are promptly reported to the site manager include standpipes jammed in 'on' positions and standpipes missing no-drip trays. These continual inspections help minimise the amount of water wasted.

PEE POWER AT GLASTONBURY

Glastonbury has replaced the majority of its portaloos with compost toilets and long-drops. The festival also has a partnership with UWE Bristol to develop their PEE POWER® system onsite. In 2019 they installed a 40-person urinal, which converts urine into electricity to power lighting or charge mobile phones, while sanitising urine and producing plant fertiliser as a by-product. The system is being tested for introduction to off-grid areas to improve lives in refugee camps and in areas of the world with no sanitation or electricity.



Dan Regal - Bristol Live

OVERVIEW OF THE IMPACT OF WATER USE ON UK FESTIVAL CARBON FOOTPRINTS AND THE FEASIBILITY OF REDUCTION MEASURES

TYPICAL % THAT WATER CONTRIBUTES TO THE ONSITE CARBON FOOTPRINT OF A UK FESTIVAL	<1% (excludes transport)
TOTAL AMOUNT CO₂ PRODUCED BY UK FESTIVALS ANNUALLY FROM WATER USE	60 tonnes
TOTAL ESTIMATED WATER USED BY UK FESTIVALS ANNUALLY	184.5 million litres
KEY OPPORTUNITIES TO REDUCE WATER USE AND ASSOCIATED IMPACTS	Use of water conserving technology and minimising leaks; working with supply chain to reduce water footprint of products and services

SUMMARY OF FEASIBILITY OF OPPORTUNITIES TO REDUCE WATER WASTE

Not a huge potential for carbon reductions, but has other environmental considerations. Water scarcity is a high risk in some areas of the UK, and measures to reduce water wastage are straightforward to implement.



Impacts and solutions Travel and Transport

Chapter Supported by:



IN SUMMARY

While emissions from energy generation have fallen dramatically, transport emissions have stubbornly refused to budge in the last 20 years. In particular, road transport emissions have continued to grow since 1990, with traffic increasing by almost a third.⁷³ Air pollution from fossil fuelled vehicles causes serious health issues and the UK is still failing to meet statutory air quality limits.⁷⁴

Globally, aviation is responsible for 12% of carbon emissions from all transport sources, and around 2% of all global carbon emissions.⁷⁶ The majority of the world's population has never flown. It's estimated that 15% of the UK population takes 70% of all international and domestic flights in Great Britain.⁷⁷

Although attitudes to climate change are shifting, behaviour doesn't always align: More than 60% of UK journeys are by car,⁷⁸ and more than 75% of UK goods we consume travel across the UK in vans and trucks.⁷⁹

Beyond individual choices, we will need systemic changes to our transport system and incentives to travel in different ways that are driven by bigger picture government regulations, industry investment, and technological advancements. These systemic changes include:

- Reduced car ownership and fewer miles travelled overall
- Electrification of road transport
- Investment into, and more preferential pricing of, public transport - including trains and local buses.
- Incentives to constrain the growth of aviation
- Potentially, the deployment of hydrogen or other alternative fuels for heavy goods transport.

As an events industry we need to stand behind and support these large-scale changes, as well as emphasizing that every journey saved makes a difference to the climate and air quality.⁸⁰

Travel and transport of audiences, artists, crew and suppliers has consistently been found to make up at least 80% of an event's carbon footprint.⁸¹ Although there is more complete data on audience travel available, where other travel has been measured, it can make up around half of total transport-related emissions at a festival, although this can be hugely variable depending on the proportion of international audiences and artists. This presents a compelling argument to focus on greener journeys. It is also an area that organisers do not have direct control over and one that needs a change in social attitudes and transport habits.

Transport is now the largest source of UK greenhouse gas emissions.⁷⁵

73. [Road Transport and Air Emissions, Office for National Statistics \(2019\)](#)

74. [Committee on Climate Change](#)

75. [DEFRA Air Quality Policy Paper Jan 2019 – Explaining Air Pollution – At a glance](#)

76. [Air Transport Action Group – Facts and Figures](#)

77. [Do 15% of people take 70% of flights? Full Fact <https://fullfact.org/economy/do-15-people-take-70-flights/>](#)

78. [Department for Transport National Travel Survey 2016](#)

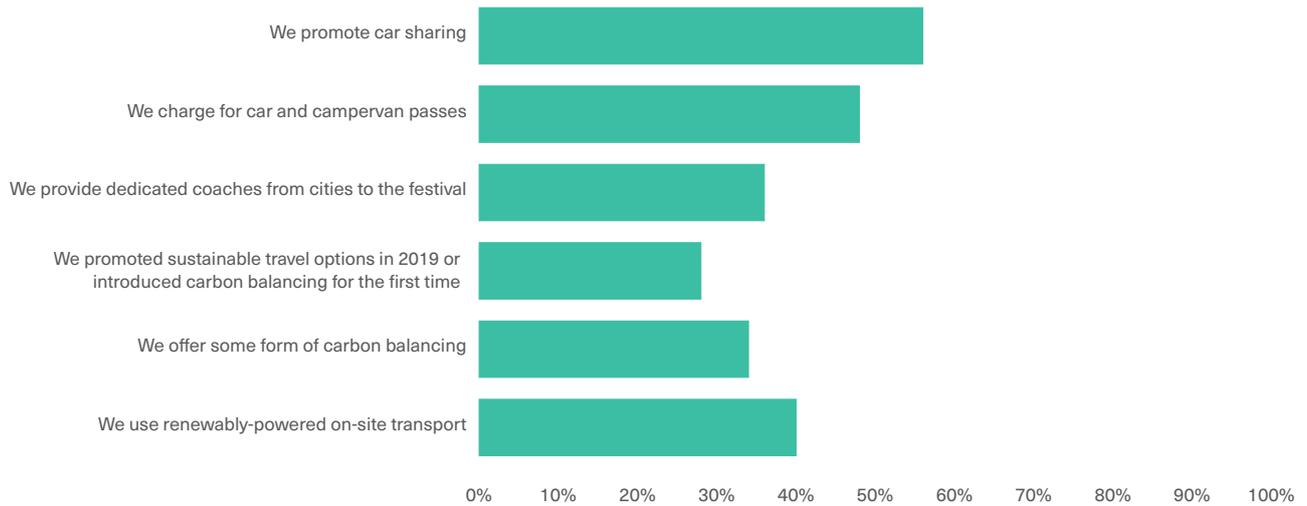
79. [Road to Zero - Department for Transport Freight Report 2016](#)

80. [Behaviour change, public engagement and Net Zero Oct 2019 Imperial College, London for the Committee on Climate Change](#)

81. This is excluding embodied emissions from food and materials consumed on site. The exact breakdown will vary based on whether artist and crew/contractor/supplier travel are included alongside audience travel or not. In particular, the contribution of audience travel varies considerably according to demographic and location. For example, city-based events tend to receive a much higher percentage of their audience by public transport (or event walking/cycling for those with a local focus).

AUDIENCE TRAVEL INITIATIVES REPORTED BY FESTIVAL ORGANISERS

POWERFUL THINKING INDUSTRY GREEN SURVEY 2019



There is a trend towards increased measurement of transport impacts in recent years.

Of the festivals and events assessed by A Greener Festival in 2018:

67%

measured audience transport methods, up from 53% in 2017



42%

measured audience car occupancy, up from 26% in 2017



AUDIENCE TRAVEL

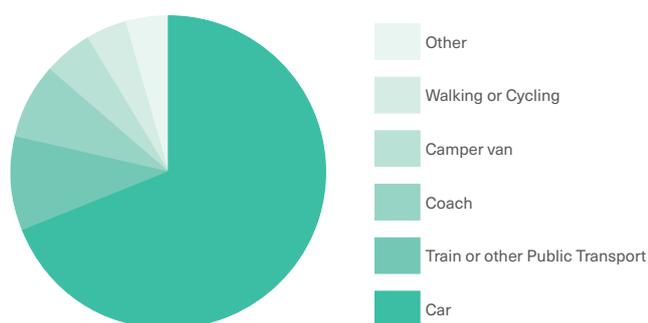
The location and demographics of an event determine the audience travel footprint. Surveys show that family festival audiences rely on cars for convenience, flexibility, and carrying the amount of stuff needed – or perceived to be needed (especially for younger children).

Events with an older demographic may depend on cars for mobility and carrying weight of gear.

Ticketed events offer more opportunities for engagement through box offices and direct communications channels than free, un-ticketed events.

City centre events with good public transport links obviously offer advantages and tend to have lower audience travel carbon footprints (unless they are marketed specifically at international tourists).

UK Greenfield Festival Audience Travel by Type



Average car occupancy: data collected by Julie's Bicycle and A Greener Festival both suggest an average car occupancy of 2.9, up from 2.6 in 2015; although the ratio of respondents travelling in cars with 2 occupants or fewer in audience survey data from the AIF and CGA suggests it may remain slightly lower than this.⁸²

CGA FESTIVAL SURVEY 2019 IN PARTNERSHIP WITH ENERGY REVOLUTION

84% RESPONDENTS STILL TRAVELLED TO FESTIVALS FOR ALL OR PART OF THEIR JOURNEY BY CAR:

9%

on their own

30%

two people in a car

45%

two or more people

THOSE AGED 55+ ARE MORE LIKELY TO TRAVEL ALONE, WHILE YOUNGER FESTIVALGOERS ARE MORE LIKELY TO TRAVEL WITH 2 OR MORE PEOPLE.

THOSE UNDER 34 ARE MORE LIKELY TO USE PUBLIC TRANSPORT, WITH 40% OF 18-24 YEAR OLDS AND 30% OF 25-34 YEAR OLDS CHOOSING TO TRAVEL THIS WAY.

82. Medians of combined datasets from Julie's Bicycle CG Tools, A Greener Festival published at <https://www.agreenerfestival.com/consultancy-research/juicy-stats/>, CGA Travel: Festival Insights (2018) <https://www.festivalinsights.com/2018/07/report-festival-goers-travel/> and AIF Ten-Year Report (2018). Although there are some differences in the scopes of the different surveys, there was sufficient overlap and consistency to provide this estimated picture.

UK NATIONAL TRAVEL STATISTICS AND TRENDS

Train trips in the UK have risen 56% since 2002. Apart from in London, bus trips have decreased by 40% since 1985 due to lack of investment, cut back services and price rises.⁸³ Therefore it's likely that audiences will perceive train travel as a more reliable transport method, whereas local bus services may have a lower reputation. However, the Association of Independent Festivals reports that, based on audience surveys between 2007 and 2017, the proportion of their festival audiences travelling by train fell from 18.3% to 7.9%.

The percentage of young people with driving licences fell between 1992 and 2014: from 48% to 29% among 17-20 year olds, and 75% to 63% among 21-29 year olds.⁸⁴ Festivals appealing to those under 30 may have greater opportunity to divert to other travel modes.

In the UK the sale of petrol and diesel cars will be banned by 2040 as part of the *Road to Zero strategy*, with a current consultation to bring the ban forward to 2035 and many calling for an even earlier 2030 date.⁸⁵ But current trends suggest that policies don't go far enough, the Committee on Climate Change has said current government strategy is insufficient,⁸⁶ and we will likely need overall reductions in traffic and road miles in order to achieve reduction targets.⁸⁷

Electric vehicles (EVs) have the potential to reduce greenhouse gas emissions by over 50%.⁸⁸ Although there are ethical, human rights, and environmental issues associated with the mining and manufacturing of batteries, they remain essential to shaping a zero carbon energy future. The EU is currently working on a framework to support a more sustainable battery supply chain.

Currently, policy and research are looking at how we alleviate the environmental (and human) impact of the shift to batteries. Sales of electric passenger vehicles are forecast to rise by nearly 75% in 2020 to 66,000 units, pushing the market share to 2.9%, and are projected to increase further to 4.2% of all car sales in 2021.⁸⁹ Data from individual festival surveys shows that between 1-2% travelled by electric car in 2019, an increase from 2018.⁹⁰ We can estimate that by 2025 about 10% of festival audience car users will be coming by EV, and in ten years around a third will have switched. Continued EV growth will have implications for future charging infrastructure provision at festival sites, although this will need to be powered via mains grid or batteries in order to be sustainable.

Mobility as a Service (MaaS) is a term used to describe digital services, often smartphone apps, through which people can access a range of public, shared and private transport, using a system that integrates planning, booking and paying for travel. These developments are likely to be relevant to events in the near future.

83. Department for Transport 2017.

84. Chatterjee et al, 2018 Changes in Level of Household Car Ownership.

85. Road to Zero Department for Transport July 2018: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/739460/road-to-zero.pdf

86. Letter from Lord Deben on the government's Road to Zero Strategy, Committee on Climate Change (2018) <https://www.theccc.org.uk/publication/letter-to-chris-grayling-and-greg-clark-assessment-of-the-road-to-zero-strategy/lord-deben-to-chris-grayling-greg-clark-on-road-to-zero/>

87. Briefing: More than Electric Cars. Lisa Hopkinson and Lynn Sloman, Transport for Quality of Life, Friends of the Earth (2018).

88. Cambridge Econometrics Fuelling Europe's Future February 2018: https://europeanclimate.org/wp-content/uploads/2018/02/FEF_transition.pdf

89. Society of Motor Manufacturers and Traders (SMMT): <https://www.smmt.co.uk/wp-content/uploads/sites/2/WEBSUM-SMMT-CARLCV-MARKET-OUTLOOK-Q4-19-Final-060120.pdf>

90. Individual reported festival occupancy rates.

42.7%

OF PEOPLE SAY DISCOUNTED PUBLIC TRANSPORT TICKETS WOULD BE AN INCENTIVE TO USE PUBLIC TRANSPORT TO FESTIVALS

30%

OF PEOPLE SAY THEY WOULD USE PUBLIC TRANSPORT TO TRAVEL TO FESTIVALS IF IT GUARANTEED FAST-TRACK ENTRY

over multiple years. Source: AIF Audience Survey 2017: Travel Incentives

APPROACHES THAT CAN HELP REDUCE THE IMPACTS OF AUDIENCE TRAVEL

- 1. Collect audience travel information via surveys and postcode data, including asking audiences about barriers or incentives to greener travel**
- 2. Provide subsidised tickets and other benefits to local people to increase the share of your audience arriving with a lower transport footprint**
- 3. Increase car occupancy and limit the number of cars by: reducing the number of car parking spaces or tickets available, introducing car parking charges (with discounts for cars carrying 3+ passengers), offering incentives to those sharing cars with 3 or more passengers**
- 4. Increase public transport use by providing incentives to those who can show valid public transport tickets, and provide free and frequent late night shuttle buses from stations to the event**

- 5. Offer incentives for walking or cycling via VIP upgrades, showers, etc; ensure safe bicycle lock-up options are provided, and partner with cycle tour operators (for greenfield events)**
- 6. Engage marketing and communications teams to support messaging around greener transport throughout the audience journey, and partner with external campaigns promoting sustainable transport**
- 7. Offer audiences the option to offset or balance carbon emissions from travel**

PRECEDENTS

CAR SHARING

Festival Republic promote both GoCarShare and Liftshare with incentives such as priority parking, free car parking for the first 100 cars, and VIP upgrades. At Download Festival, this has saved approximately 16 tonnes CO₂e. At Boomtown, 39% attendees travelled by car with two or more people. Those travelling with the car-share

company, GoCarShare, benefited from early Wednesday entry at no extra cost, as well as entry to a competition to win tickets for the following year. GoCarShare now work with over 100 festivals and report that over the last decade 70,000 people have been brought together to share festival journeys.

DEDICATED COACHES AND PUBLIC TRANSPORT

Shambala Festival reduced their overall festival carbon footprint by 10% by offering dedicated coaches with Tuned In Travel, with £20 off adult tickets when bought with a coach ticket. A fifth of tickets for every tier were set aside for coach travel packages.

In 2019 Boomtown continued their hugely successful policy of offering a significant percentage of total tickets as coach packages only, with 20% of the audience arriving by coach. Public Transport Saver Tickets are

cheaper than standard festival tickets and allow free early Wednesday access for those who also purchase coach tickets, shuttle bus tickets from the train station, or travel by bicycle.

Tuned in Travel works with festivals to organise coaches and minibuses from around the UK, using ticketing data to identify key routes, and offering flexible journeys with different drop-off locations and incentives. Best results are achieved by working with the official ticketing partner

to engage at point of sale, and with the support of the festival marketing and communications team from early on. They use the latest emission standard vehicles and local operators. Carbon balancing is integrated into their ticketing through a partnership with Energy Revolution.

The Big Green Coach offer dedicated coaches to festivals from around the UK, creating bespoke incentive packages to encourage take up. Festival Republic work with The Big Green Coach, offering travel packages with incentives

CYCLING

Festival Republic's Tour de Picnic is a fundraising and fitness challenge where participants cycle 80K or run 17K to Electric Picnic Festival, Ireland, each raising a minimum of €450 for charity (registration fee included) and are awarded their weekend festival ticket at the finish line. In 2019, a total of 939 participants cycled a total of 53,520 km and ran 4,471 km.

At Download Festival, Heavy Metal Truants includes 50 cyclists covering 162 miles over 3 days from London to Download Festival at Donington Park, raising money for charities. Riders receive a VIP upgrade for the Friday of the festival. Participants in the Big Boomtown Bike Ride from either London or Bristol can purchase cheaper Saver Tickets to the festival, and get early access, a free programme, shower pass and drinks vouchers.

In 2019, 1% of Shambala festival's audience arrived by

such as the opportunity to win festival tickets (and coach travel) for the following year, and side of stage tours at the event. Additionally, Big Green Coach run an activation tent at every event, speaking to audiences about sustainable travel and asking UK festivalgoers to pin where they came from on a large map of the UK – allowing BGC to identify which areas of the country need more access to coach travel.



James Bridle - Download

MEASURING IMPACTS

Cambridge Folk Festival and Greenbelt have both carried out detailed audience surveys and calculations to calculate impacts and target changes. Cambridge Folk Festival's post-festival survey also asked about attitudes to car share, public transport and electric vehicles. Festivalgoers indicated that knowing about the drop in emissions if car sharing increased would motivate them to make more of an effort to do so. Greenbelt carried out a detailed Travel Survey at audience arrival in 2016 with volunteers from Manchester Metropolitan and Leeds Beckett Universities. The majority of vehicles (73%) were cars, 16% SUV/MPV and 6.8% motorhomes. The majority of vehicles carried 2 people, but there were also a

significant number of single travellers (11% car travellers).

98% of Welsh border eco festival Green Gathering's carbon footprint is travel thanks to their efforts to reduce onsite emissions. The festival uses its website to highlight how every kilo we carry in our vehicles increases emissions and gives handy info on how to pack light. Luggage trikes and wheelbarrows are available at the festival site so audiences don't have to bring their own. The festival also partners with Camplight, who help them and numerous other festivals by pre-pitching tents as another way to cut down on gear.

CARBON BALANCING

Energy Revolution is a charity that works with the live events industry to tackle the environmental impacts of fossil-fuel travel miles. They work with festivals, events, suppliers, audiences and artists to first measure and reduce travel emissions and help balance unavoidable emissions by collecting donations - 100% of which are invested in renewable energy projects that also facilitate community benefit. Set up in 2015, they now work with over 55 UK events and their audiences, and 40 suppliers to balance travel carbon emissions through voluntary or built-in donations. As of 2019 they had helped their members balance over 13 million fossil fuel travel miles with donations going to support projects such as Bristol

Energy Co-operative and The Converging World as well as community wind and solar projects across the UK.

In 2018, Download and Reading festivals have balanced the journeys of those who choose to travel by car by adding £1 to every car parking pass sold, 100% of which was donated to Energy Revolution. Reading balanced 551,773 average car miles or 170,360 kg CO₂e, and Download balanced 1,024,194 average car miles or 316,220 kg CO₂e. In 2018, donations were invested in Solar for Schools to support two local primary schools close to the festivals to install 30kw peak systems that will provide them with clean renewable energy.

DRIVING CHANGE

Behaviour, including transport choices, is determined by:⁹¹

- **Capability:** we need the necessary physical abilities and required knowledge – e.g. physical stamina to carry gear on public transport, knowledge of available public transport options
- **Opportunity:** we need the social and physical factors and infrastructure in place to do something – e.g. availability of reliable public transport options or low carbon transport options, social norms
- **Motivation:** at the moment in time where we make a decision or take an action, we need to be more motivated to make a particular choice than any other, either consciously or subconsciously through habit or emotion

TUNED IN TRAVEL

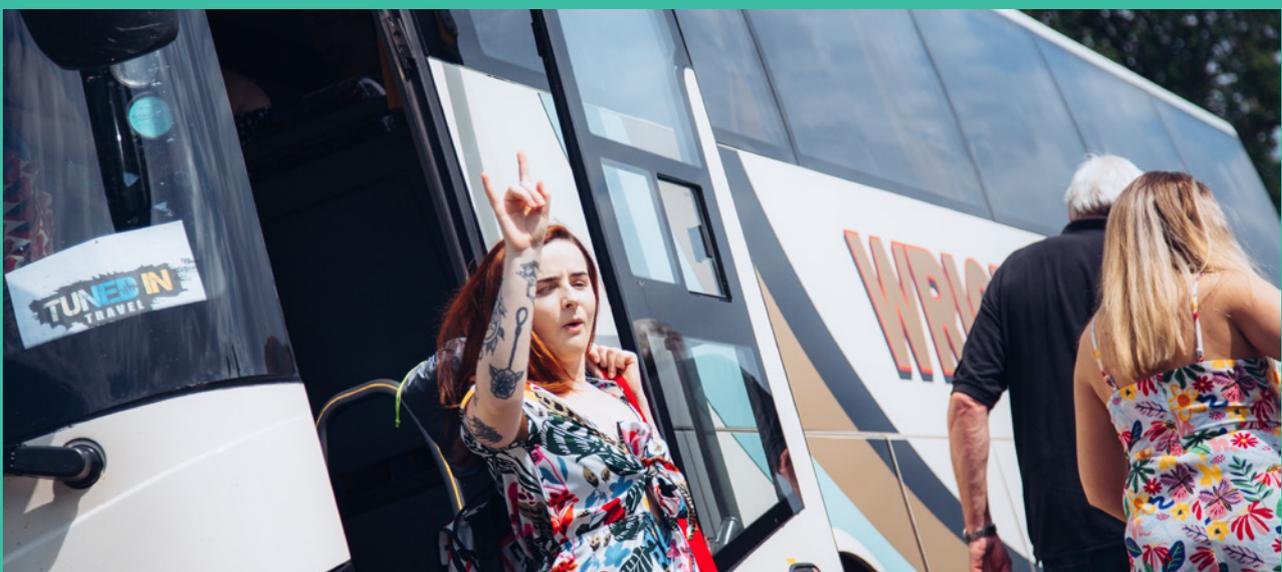
Tuned in Travel: reducing and balancing festival travel carbon emissions

Tuned in Travel are an innovative and environmentally-conscious events travel company offering safe, affordable and greener travel to festivals and music events across the UK.

They tackle the environmental problem of passenger travel emissions by offering festival-goers the option to travel by coach or with friends and family in a private hire vehicle. By choosing Tuned in Travel, audiences are reducing the number of vehicles taken to an event, decreasing traffic issues and environmental impacts. Further to this, Tuned in Travel offset 100% of the carbon emissions on all of their customers' bookings through investment in renewable energy with the charity Energy Revolution.

For one of their festival partners they analysed passenger data collated from the first year and identified a demand for the shuttle service from the stations to the event; by offering an improved, more regular shuttle service this year there was a 85% increase in sales with the event. By providing a reliable service year on year, they are able to decrease the number of individual vehicles taken to an event thus reduce overall event carbon footprints.

Tuned in Travel help festivals create bespoke passenger transport packages, using local transport operators and using bio-fuel, electric and euro6 compliant vehicles wherever possible.



91. The Behaviour Change Wheel, Susan Michie, Lou Atkins & Robert West <http://www.behaviourchangewheel.com/>

92. Centre for Climate Change and Social Transformations – CAST, Cardiff University Centre for Climate Change and Social Transformations – CAST, Cardiff University

SO HOW DO WE APPROACH A TRANSFORMATION?

1. **Make a Stand.** Communicate your event's intention to be net zero carbon travel, ask everyone to get on board, and tell them how. Engage early.
2. **Promote Co-benefits.** You're more likely to be heard if you resonate with peoples' values. Talk about the co-benefits of sustainable travel alongside the carbon reductions:⁹²
 - Clean air
 - Health and wellbeing
 - Protecting nature
 - Less congestion
 - Incentives and financial benefits
3. **Create the Community.** Share success stories that help everyone feel part of a shared effort that adds up to big changes. Research shows that acting as a collective spurs people to make better choices.⁹³
4. **Understand Decisions and Tailor Your Offering.** Understand what drives people to their transport choices – including cost; age demographic; travelling with children; camping equipment size and weight; going with friends; doing what everyone else does; flexibility; reliability, late night availability; safety; and mobility. You can get this information from surveys, and use the responses to tailor your solutions, creating targeted incentives and disincentives.

CONTRACTOR AND SUPPLIER TRAVEL AND TRANSPORT

Moving goods by road consumes about 50% of all global diesel used.⁹⁴ Light commercial vehicles and heavy goods vehicles (HGVs) make up 15% and 5% respectively of travel miles in the UK.⁹⁵ Empty load HGV mileage, where a lorry has delivered goods and then returned back empty to base, is estimated at a huge 30% of the total.⁹⁶

More efficient vehicles and logistics will help, but for road haulage to meet zero carbon climate targets the future will need to involve a mixture of electric vehicle technology, hydrogen fuel cells and hydrogen combustion engines, and advanced biofuels, none of which is ready to be deployed at scale. We can therefore expect that contractor transport will be powered by diesel for much longer than other parts of festivals' travel footprint. This means our focus should be on reducing the number of vehicle movements and transport mileage.

Our research suggests that contractor travel emissions can vary widely; between 15-50 tonnes CO₂e for medium-sized festivals. It is likely to total between 4-10% of a festival's transport footprint.⁹⁷

Every event will be different, but current knowledge suggests that for production infrastructure, marquee mileage may be highest, with portacabins, power, loos and bars as other significant contributors to HGV transport.

Typical Medium-sized Festival Contractor Travel Emissions by Sector⁹⁸



93. International Transport Forum Is Low-Carbon Road Freight Possible? 2018
 94. Department for Transport 2017
 95. Department for Transport 2018, RFS0125
 96. Powerful Thinking research
 97. Lansdowne Warwick Contractor Survey 2019

APPROACHES THAT CAN HELP REDUCE THE IMPACTS OF CONTRACTOR TRAVEL

Research undertaken by Powerful Thinking/Lansdowne Warwick encouragingly shows that most contractors already target methods for travel impact reduction including: route optimisation, return loads, load maximisation, tire and fuel efficiencies, driver awareness, lift shares, and investment into more efficient vehicles. Low Emission Zones are helping to speed up the business case for upgrades to cleaner vehicles. More than 50% of contractors reported they had looked into electric vehicles and would consider using them on-site if charging were available. Quite a few already liaise with other suppliers to share loads, but the majority have indicated that a festival-organised online platform for sharing could be of interest.⁹⁹

1. **Collect information on mileage, vehicle type, and empty load mileage associated with your event from key contractors.**
2. **Choose local contractors and suppliers, prioritising the most significant by distance or transport volume**
3. **Speak with contractors about your ambitions to reduce travel impacts and options like load sharing. Find out what they are doing and their future investment plans, e.g. introducing electric vehicles for small/medium loads. Further information to guide contractors on fuel and carbon savings can be found at The Freight Portal.¹⁰⁰**
4. **Engage contractors in offsetting or balancing the carbon footprint of their services – although the focus always needs to be on reductions first. Carbon balancing or offsetting could be included in contracts.**

Future trends may include the use of biomethane as a low carbon fuel for heavy goods vehicle transport, however the infrastructure for deployment at scale remains in its infancy.

98. Powerful Thinking Contractor Travel Questionnaire 2019

99. The Freight Portal is run by the Energy Savings Trust, the Low Carbon Vehicle Partnership and Department for Transport. Estimate based on most recent travel mode breakdowns reported by festivals, most recent average reported car occupancy rates of 2.9, and using average return distance travelled to greenfield events from prior Julie's Bicycle research and UK Music figure of 4.9 million festival visitors. Note: actual emissions from audience travel may be lower as not all 4.9 million festival visitors will have travelled to greenfield sites, however it is beyond the scope of this report to apportion greenfield vs. urban audience figures. Conversely, some urban festivals may have a higher % travel mode of visitors flying to attend events.

100. Estimate based on most recent travel mode breakdowns reported by festivals, most recent average reported car occupancy rates of 2.9, and using average return distance travelled to greenfield events from prior Julie's Bicycle research and UK Music figure of 4.9 million festival visitors. Note: actual emissions from audience travel may be lower as not all 4.9 million festival visitors will have travelled to greenfield sites, however it is beyond the scope of this report to apportion greenfield vs. urban audience figures. Conversely, some urban festivals may have a higher % travel mode of visitors flying to attend events.

PRECEDENTS

FLAT PACK INNOVATION TO REDUCE NUMBERS OF HGVS

CONTINEST

Continest Technologies folding containers reduce transport emissions by 80%

In 2019 Continest supplied temporary infrastructure solutions for the FIS Alpine World Ski Championship in Sweden, helping the global sports event meet strong sustainability goals around travel carbon emission reduction. Through the innovative design of Continest's folding container units, transport was reduced from 40 to just 8 trucks resulting in an 80% cut in CO₂e emissions.

The FIS Championship's Local Organizing Committee's decision to use Continest's disruptive folding containers reflected their aspiration to create a sustainable global sport event. Besides its sustainability, Continest's innovative technology solution was also financially competitive.

Continest delivered and built 122 Continest units, for the Main Service Area to host the national teams service centre for equipment suppliers with units ranging from site offices to accommodation to sales kiosks. All 122 Continest foldable containers were transported with only 8 trucks in comparison to the normal containers that would have needed 40.

Continest's service team built and fitted out the 122 containers in 7 days operating in extreme weather conditions and sometimes working in -23° and snowstorms. As part of the breakdown requirements all 122 units were removed in a record 56 hours.

Continest's innovative market-leading foldable container solutions typically result in an 80% cost cut on logistic and storage costs, and a similar reduction of CO₂ and GHG emissions.



ROUTING EFFICIENCIES AND ALTERNATIVE FUELS

European music transport specialist Pieter Smit works with artist tours at all scales. All their vehicles are Euro VI compliant (the latest European emission standard at the time of writing), and they are exploring future electric and hydrogen fuel cell options. Electric charging availability and cost is still an issue throughout Europe, so their current focus is on HVO fuel. In 2019, they carried out HVO pilots with Eurosonic and Into The Great Wide Open

festivals in the Netherlands. They have installed a home base with HVO so their customers can choose fuel type. Logistics ensure vehicles stay close to venues, rather than returning to base after load-in, to save miles, and they collaborate with competitors and colleagues on specific projects to save empty loads and travel costs. They also have invested in 25 meter long trailer combinations, which save 30% fuel per drive.

SPOTLIGHT: TRADERS AND CATERERS TRAVEL AND TRANSPORT

A typical concession may travel 50 miles in a diesel van creating approx. 20 kg CO₂ – this can add up across all traders and concessions.

Approaches that can help reduce the impact of concession travel

- Choose locally based traders and caterers
- Ask traders to vehicle share – consider centralising deliveries by operating an approved supplier list for e.g. serveware
- Engage contractors in offsetting or balancing the carbon footprint of their services- this could be included in pitch prices.

Cambridge Folk Festival has reduced traders and caterer’s travel by 33% since 2016 - saving over 2.5 tonnes CO₂ by choosing more local traders. They carry out an onsite survey of all their concessions and engage them with initiatives via their Terms and Conditions and other communications on vehicle sharing.

ROCK CITY STAGE CREW

Rock City Stage Crew tackle travel impacts and aim for carbon neutrality by 2020

Rock City’s aim to become Carbon Neutral by 2020 meant tackling the CO₂ emissions from crew travel, which makes up a large percentage of their overall carbon footprint. In 2019 they fitted 9 fleet vehicles with low emission EcoBlue Engines and installed a 30KW solar panel system on their office roof - this converts approx. 26,000 kwh per year, offsetting over 13 tonnes of CO₂, equivalent to 32,000 travel miles. In 2017 they also balanced the CO₂ emissions from over 250,000 travel miles through investment in renewable energy with charity Energy Revolution.



ARTIST TRAVEL AND TRANSPORT

APPROACHES THAT CAN HELP REDUCE THE IMPACTS OF ARTIST TRAVEL

- **Collect travel data from agents and artists – for artists doing multiple dates on the same continent, apportion flight impacts accordingly.**
- **Minimise ground transport impacts by organising shared vehicles and minibuses from hotels and key travel connection hubs, and choosing an electric or hybrid car provider for ground transport bookings.**
- **Pick local hotels or onsite camping solutions where possible.**
- **Consider the impact of artist travel as part of booking: consider a booking radius or giving preference to artists able to travel by train; celebrate local talent; and consider building in a budget contingency for what can be higher costs for train travel vs. air travel.**
- **Eliminate exclusion zones or exclusives to allow artists to better plan their touring routes.**
- **Work with artists to amplify information about public transport and car-sharing initiatives with their fans.**
- **Engage artists in offsetting or balancing the carbon footprint of their travel – this could be included in contracts.**

PRECEDENTS

Greenbelt Festival fly in a small amount of artists each year but ask them to travel by train once they land. They encourage UK artists to travel by train and have a dedicated service collecting artists from the station using the “Band Wagon”. They also encourage as many artists as possible to stay onsite using the glamping option to avoid hotel runs.

Valhalla electronic music festival at RAI Amsterdam in the Netherlands booked an entirely Dutch line-up for their 2018 edition, successfully selling out and helping to celebrate the local scene.

Hay Festival partners with BMW who provide electric/hybrid cars for use to transport artists to and from the train station.

ONSITE VEHICLES

Several festivals have been trialling electric alternatives for onsite vehicles over the last few years. Buggies, trikes, bikes and plant, such as aerial working platforms, can be electric – however, these need to be charged from an electric source and not diesel generators in order to be environmentally beneficial. Going forward we are likely to see a much bigger take up in electric onsite vehicles. HVO buggies are now also common, although fuel needs to be sourced sustainably. Drones may become a future method of delivery to transport small essential items around a large site: cargo delivery drones already operate commercially in China, Switzerland and Africa.

Smaller sites can ensure people walk or cycle with handheld trolleys used for loads. A key action for all festivals and events is to engage with crew and contractors to ensure vehicles are not used unnecessarily and there is no engine idling.

INTO THE GREAT WIDE OPEN

The Dutch festival located on an island aspires to change and declares itself a fossil-free zone. The ferries to get to the festival are diesel-fuelled, but the passengers pay for the fuel to be replaced in another ship to advanced biofuel via the Good Shipping Programme. The festival has partnered with SkyNRG, a company developing aviation fuel alternatives from sustainable feedstocks such as waste oils from biological origin and agricultural residue, for artists flying in.



OVERVIEW OF THE IMPACT OF AUDIENCE TRAVEL ON UK GREENFIELD FESTIVAL CARBON FOOTPRINTS AND THE FEASIBILITY OF REDUCTION MEASURES

TOTAL AMOUNT OF CO₂e PRODUCED ANNUALLY BY AUDIENCE TRAVEL TO UK FESTIVALS	Up to 126,860 tonnes*
TOTAL AMOUNT OF CO₂e PRODUCED ANNUALLY BY ARTIST, CREW, AND CONTRACTOR TRAVEL TO EVENTS	Unknown
KEY OPPORTUNITIES TO REDUCE AUDIENCE TRAVEL IMPACTS	<ul style="list-style-type: none"> • Reduce car travel in favour of walking, cycling, public transport and dedicated coaches through incentives, bundled tickets, and building locally based audiences • Increase car occupancy
KEY OPPORTUNITIES TO REDUCE ARTIST AND CONTRACTOR TRAVEL IMPACTS	<ul style="list-style-type: none"> • Sourcing products and services locally • Integrating travel impact considerations in booking decisions

SUMMARY OF THE FEASIBILITY OF OPPORTUNITIES TO REDUCE TRAVEL IMPACTS

Feasibility can vary depending on event demographic, but organisers can exercise a significant level of control over how people arrive at events through their policies and decisions. Small shifts in travel and transport can lead to carbon savings greater than the operational emissions of the industry.



Impacts and solutions

GOVERNANCE

IN SUMMARY

50%

Of festivals have a sustainability coordinator / someone responsible for sustainability in the team

1 in 3

Festivals introduced a new environmental policy and/or action plan for their event in 2019

Just over 25%

of festivals have a specific budget for environmental sustainability¹⁰²

The processes by which decisions are made and how they are implemented (or not implemented) will decide whether we meet our environmental targets or not.

Festival organisation is fast-paced and relies on the collaboration of countless moving parts. Most festivals operate with a small skeleton of full-time staff, outsourcing key production services and taking on large numbers of temporary contractors and volunteers for the duration of the event. This can make environmental governance challenging, as many events:

- Lack an environmental policy or multi-year strategy,
- Are unable to implement their environmental objectives and best-laid plans on paper or to keep them at the forefront of decision-making among competing priorities and relentless deadlines.
- Struggle to engage contractors, freelancers, external suppliers, and audiences in environmental actions and initiatives.
- Fail to measure and evaluate the impact and success of their environmental interventions.

Where festivals and events are successfully implementing a wide range of actions on the ground, they often lack the strategic frameworks or oversight to pull everything together into a clear vision with targets and an overarching direction.

These challenges can be overcome by creating a working environment in which environmental action is built into ways of working and held up as a clear priority, effectively creating a sustainable 'culture' in their organisations.

¹⁰². All stats from Powerful Thinking's Event Industry Green Survey, 2019

TABLE: PRINCIPLES OF SUCCESSFUL AND PRACTICAL ENVIRONMENTAL GOVERNANCE

Reference to external targets, frameworks, and priorities, such as the Committee on Climate Change Net Zero roadmap.	Understanding of relevant legislation and how it applies to our work, e.g. The UK Climate Change Act.
An environmental policy and multi-year strategy with SMART targets – specific, measurable, achievable, relevant, and time-bound.	Mechanisms for tracking progress and emissions reductions – ‘measure to manage’. This might include external auditing and/or verification through certification schemes.
Clear responsibilities within the organisation – including roles in the core team with responsibility for strategic oversight and implementation.	Dedicated resource for environmental initiatives, including a specific ring-fenced budget line.
Ensuring decisions remain critical and backed by research or evidence, and an understanding of environmental priorities and impact.	‘Rapid imperfect prototyping’: finding opportunities to take risks and trial new services or technologies in contained areas of the site.
Inclusion of environmental requirements, clauses and targets in contracts with suppliers with methods of oversight and enforcement.	Long-term relationships and investment with key suppliers.
Commitment to sharing expertise and learning with others in the industry.	Establishing shared culture in the team where environmental considerations are seen as part of everyone’s responsibility including freelancers, volunteers and suppliers.
Transparently communicating environmental initiatives to audiences, including how they can support them.	Celebrating achievements among suppliers, team, traders, volunteers, audiences, etc.

ENVIRONMENTAL ACTION BEYOND THE EVENT SITE

A holistic approach to environmental action also considers how our financial decisions support the global shift away from a fossil-fuel-powered society.

Key areas for consideration:

- Switching to a 100% renewable electricity supplier for the office helps support additional renewable energy generation in the UK.
- Shift your pensions out of fossil fuel investments – ask your current pension provider what their investment policy is in relation to climate change and switch if necessary.
- Ask your bank about their policy with regards to fossil fuel investments and consider switching to an ethical bank.

Julie's Bicycle has an on-going partnership with Good Energy to help creative businesses across the UK switch to a 100% renewable electricity tariff. To date, 53 creative organisations have made the switch, representing over 10,100 MWh of clean power.

The charity running the **Edinburgh Science Festival** have introduced a ban on accepting sponsorship from oil companies after protests from climate campaigners, stating; "With climate change issues ever-present and urgent, we feel increasingly compromised by the conflict between accepting sponsorship from fossil fuel companies and programming events that scrutinise the main causes of climate change."

PRECEDENTS

Festival Vision 2025 uses the UK Climate Change Act carbon budgets to help define festival industry GHG emissions reduction targets.

Shambala Festival has taken an all-encompassing approach to environmental action for more than ten years. Alongside being instrumental in getting industry initiatives including Powerful Thinking, Festival Vision 2025, and Energy Revolution off the ground, they have also pioneered individual actions, backed up by research and data, shaping an environmental journey over time with shifting areas of focus – from energy, to plastics and waste, and most recently, food.

This has included:

- Shifting to 100% renewable energy.
- Being one of the first UK events to introduce reusable cups and a 'Bring Your Own Bottle' refill campaign in 2014.
- Going meat- and fish-free in 2016, and going dairy-free in 2019.

Each newly introduced initiative is supported by research, extensive engagement with audiences and the supply chain explaining the reasons behind the shift, and reporting and evaluating successes using data collected.

Festival Republic has employed a full-time sustainability coordinator since 2007 to oversee on-the-ground implementation of sustainability initiatives across its

festivals. In 2019, they were heavily involved in shaping the new sustainability charter for the global Live Nation business along with other Live Nation representatives across Europe. Key targets for the Green Nation charter include greenhouse gas emissions reductions and ending the sale of single-use plastics. In the process, Live Nation introduced new roles for Head of Sustainability, Europe, and Head of Sustainability for UK and Ireland.

Greenbelt Festival is taking a staged approach to collecting as much data as possible on different areas to inform action. In 2018, they looked at their recycling rates in detail, and in 2019, they focused on measuring energy consumption across site.

Open-House in the Netherlands was a start-up incubator bringing together events including electronic music promoter ID&T, research institutions, and key government agencies around specific events sustainability challenges including power provision. This type of model allows event organisers and technology developers to co-invest in specific supply chain gaps or challenges – and even resulted in a collaboration with the Red Cross in the Netherlands for mobile renewable energy solutions that could be taken to humanitarian contexts such as refugee camps.

One promoter has used a three-year policy to engage suppliers called 'ask, require, switch' – if by the third year of a contract changes haven't been realised, the promoter will re-tender to enlist a new supplier better able to meet their environmental objectives.

DGTL Festival has established a set of core environmental actions that are easily transferable between countries that are shared across their whole event portfolio in the Netherlands, Spain, and other international locations: reusable cups, a smart power plan for generator efficiency, and a meat- and fish-free food policy. Their flagship event in Amsterdam is used to trial new and pioneering initiatives, including working with INNOFEST

who bring new start-ups to pilot their products and services onsite – for example, the Semilla Sanitation Hub, which purifies urine into drinking water and has possible future applications for humanitarian contexts.

The 'Green Deal: Circular Festivals' in the Netherlands is an initiative supported by the Dutch Ministry of Infrastructure and Water Management co-initiated by Green Events International. Through the Green Deal, festivals will experiment with new targets and pilot initiatives in a bid to move to a more circular festival industry by 2025. Participating UK festivals include Boomtown, Shambala Festival and Boardmasters.

FGH SECURITY

FGH Security engage team to save 200,000 plastic bottle from landfill

In 2018 FGH Security set out to engage their team in eliminating the use of single-use plastic items and hot drink cups at events in support of the AIF's Drastic on Plastic campaign. So far, the project has led to a total reduction of 200,000 plastic bottles and 120,000 cups being sent to landfill.



PLAYPASS

Playpass smart tech for sustainability

PlayPass has incorporated a suite of options into its RFID software to enable festival organisers bars and caterers to accurately manage reuse schemes on their events. The company work with clients to support carbon reduction initiatives with smart technology and offers plastic-free wristbands and cards.

GREEN NATION

Live Nation Entertainment, the world's leading live entertainment company, announced their Green Nation charter in May 2019, setting out global sustainability goals and targets for all Live Nation owned and operated venues, clubs, theatres and festivals.

The primary targets are reducing greenhouse gas emissions by 50% by 2030, and ending the sale of single-use plastics at all Live Nation owned and operated venues and festivals by 2021.



Marc deGroot for Festival Republic

UPDATING A VISION FOR THE UK FESTIVAL AND OUTDOOR EVENTS INDUSTRY

TARGETS

The UK Climate Change Act 2008 commits to a 51% reduction in UK carbon emissions from 1990 levels by 2025 and a new **net zero** target by 2050 (i.e. a 100% reduction, up from the previous target of an 80% reduction). Many environmental campaigners say this is not enough to halt irreversible climate change, and that we should be aiming for net zero emissions by 2045, 2030, or even 2025.

Because we do not have a 1990 baseline of carbon emissions for the festival industry, the first The Show Must Go On report chose to use a baseline from 2014, based on the fact that the events landscape had changed so dramatically in the preceding 25 years and no concerted, unified effort to reduce emissions had been made to date.

This baseline estimate of **19,778 tCO₂e** from the core impacts of energy, waste, and water has **increased to 24,261 tCO₂e** in 2019, driven by the growth of the festival industry and visitor numbers overall.

Although the estimated 20% growth in onsite emissions across the sector since the last edition of The Show Must Go On is far less than the reported 50% growth in festival

visitor numbers in the same period of time, efficiencies and relative reductions are not enough to solve the climate crisis: we need to peak emissions and lock in steep absolute reductions in greenhouse gas emissions within the next few years.

In terms of relative emissions per audience day, we have achieved an up to 18% reduction per audience day from energy and waste, mainly driven by diverting waste from landfill.¹⁰³ Even this is short of the 35% reduction required by 2020 under Climate Change Act carbon budgets.

Significant emissions reductions opportunities remain untapped. In particular, events need to focus on realising emissions reductions from energy use on site.

We need to achieve a 50% reduction in emissions by 2025, and net zero by 2050

103. Emissions reductions may be overstated owing to a high/conservative baseline set in the original 2015 Show Must Go On report, for which it was assumed that 100% of waste was sent to landfill due to widespread uncertainty around recycling figures. While energy-from-waste has undoubtedly become more widely adopted, event organisers are getting smarter about recycling, and volumes of waste per audience day have reduced, this reduction figure should be treated with some caution.

The GHG Protocol develops standards and guidance for how companies and organisations should account for their greenhouse gas emissions, based on the level of control a business has. These are divided into Scopes 1, 2, and 3. Scope 1 emissions are from 'assets that are owned or controlled'. For festivals and outdoor events, this generally includes

- Diesel powered generators, lights, etc where the festival is buying the fuel. Note: some power providers also include these emissions in their own Scope 1 accounting, but guidance published by the European Network of Construction Companies for Research and Development (ENCORD) suggests that fuel purchased by an organisation for use in plant and machinery at 'projects' should be counted within Scope 1 – and the construction industry offers a useful model for the outdoor events sector.
- Gas used on site or used to heat offices
- Fuel use in on-site vehicles owned or operated on site
- Fugitive emissions from refrigerants used in freezers, refrigerators, air-conditioning equipment, etc.
- Scope 2 emissions are from the generation of electricity purchased and used – e.g. in festival offices, and mains grid electricity used on site – although more events are making efforts to connect to the grid, this remains a relatively small percentage of energy consumption from the sector overall.

CAN WE STILL ACHIEVE A 50% REDUCTION IN ANNUAL UK FESTIVAL EMISSIONS BY 2025?

YES. IT WILL TAKE CONCERTED INVESTMENT AND ACCELERATED EFFORT TO SCALE UP EXISTING TECHNOLOGY AND EXPERTISE IN THE CURRENT MARKETPLACE, DRAWING ON PIONEERING PRECEDENTS FROM EVENTS ACROSS EUROPE. FIVE YEARS INTO THIS DECADE OF CHANGE INITIATED BY THE SHOW MUST GO ON REPORT IN 2015, WE RECOGNISE THAT WE NEED TO SPEED UP THE PACE OF REDUCTIONS, ESPECIALLY ON ENERGY.

ONE POSSIBLE SCENARIO WOULD MEAN:

- **REDUCING OVERALL DIESEL USE BY 50% FROM PRESENT-DAY LEVELS, FOR EXAMPLE WITH 17% OF THIS REDUCTION FROM A SHIFT TO MAINS GRID OR BATTERY POWER AND THE REMAINING AN ABSOLUTE REDUCTION THROUGH EFFICIENCIES AND BETTER SPECIFICATION.**
- **ZERO-WASTE-TO-LANDFILL IMPLEMENTED ACROSS THE WHOLE EVENTS INDUSTRY (SIGNIFICANTLY REDUCING METHANE EMISSIONS) ALONGSIDE A 10% REDUCTION IN OVERALL WASTE VOLUMES.**
- **AS AN INDUSTRY, WE NEED TO SET AND COMMIT TO A RENEWED PLEDGE TO DELIVER SCIENCE-BASED TARGETS FOR GREENHOUSE GAS EMISSIONS REDUCTIONS IN LINE WITH A 1.5°C OR A WELL BELOW 2°C CLIMATE CHANGE SCENARIO. THIS SHOULD COVER AS A MINIMUM THE EMISSIONS FROM ENERGY USE ON SITE.**

BEYOND THE FESTIVAL SITE

We can make a meaningful contribution to mitigating climate change that reaches far beyond our event sites. We can use our collective voice to continue urging our audiences to take action; highlight and amplify campaigns to make change at a political and systemic level; lead by example and, in creating the right conditions in the ways we run our events, inspire and normalise new behaviours. Achieving net zero carbon emissions will take a significant cultural shift that reaches deep into all of our lives.

As events, we can amplify calls for more ambitious government policy that supports a transformation that

reaches far deeper than individual action, even as we create environments that enable our audiences to question what it might mean to live within the ecological boundaries of our planet.

We can also build on the specific skills and circumstance of our industry: our event sites are mini cities for which we need to solve infrastructural challenges including power, waste management, and the provision of water, food, and sanitation. We should not underestimate the opportunity this offers to develop and test new pioneering technology that can help address challenges in the wider world.

SPOTLIGHT: CAMPAIGNS, CREATIVE PROGRAMMING AND INSPIRATION

Festivals across the UK have partnerships with environmental and climate charities and campaigns, including Greenpeace, Friends of the Earth, Extinction Rebellion and more.

Global Green at Electric Picnic is a pop-up eco-village of green ideas, inspiration and action. For over a decade this area, coordinated by Cultivate, has been the 'conscious heartbeat' of the Electric Picnic Festival with activists, artists, makers, musicians, foodies and poets from across Ireland hosting activities and conversations. In 2016, Shambala festival decided to go meat- and fish-free, in order to spark a conversation with their audiences about the environmental impact of what we choose to eat. After the first year, 77% of respondents to the post-event survey voted to keep Shambala meat and fish free, rising to 94% in the second year. **One in three** respondents (not counting the third of attendees that were already vegetarian or vegan) also responded saying they had reduced their meat and fish intake since the festival, showing that we can effect cultural shifts far beyond our event boundaries.

Award-winning **Bluedot** festival has shown audiences' appetite to celebrate science and the environment. By creating opportunities for audiences to engage with scientific ideas as part of the wider events programme, and putting scientists on the main stage alongside music, the event helps to build urgently needed scientific and environmental literacy and an emotional connection to Earth.

Festival Republic has been working together with Greenpeace since 2016 on their cup and bottle deposit return scheme on site.

Many event production professionals have been instrumental in supporting environmental protests such as Extinction Rebellion, lending their expertise and in areas including technical production.



Drivers of change

WHAT IS HOLDING US BACK?

According to Powerful Thinking's Industry Green Survey 2019, the three most common frustrations or barriers to action for event organisers are:

1. COST IMPLICATIONS
2. LACK OF INTERNAL TIME TO MAKE CHANGES OR IMPLEMENT NEW PRACTICES
3. INABILITY OF CONTRACTORS TO DELIVER SUSTAINABLE OPTIONS

Encouragingly, lack of expertise – identified as a key barrier in 2015 – no longer features, pointing to a more environmentally literate events community that feels more supported and confident to make changes.

However, cost was identified as a key barrier by more than 8 in 10 events. New services and solutions – and more recently, the 'idea' of 'green' – can attract a premium – but economies of scale can be achieved through collective commitment that gives suppliers the confidence to invest in new equipment and bring new services to scale.

With only one in four festivals saying they have a specific budget for environmental sustainability, there remains a tangible disconnect between environmental action as a priority issue and the (financial) resources we dedicate to it as a community.

DRIVERS OF CHANGE

Change is driven by; legislation, consumer opinion, opportunity, cost and company ethos - or by a combination these reasons.

The main driver for sustainability identified by respondents to the Powerful Thinking industry green survey is **overwhelmingly the internal commitment of the company, staff, or festival team**; followed by **audience expectations** as a secondary driver.¹⁰⁴

LEGISLATION

Much like in 2015, there is currently no legislation directly regulating event environmental performance beyond long-established pollution and contamination laws. Some wider environmental policies and legislation, such as the landfill tax, continue to have a direct impact on the cost of resources and services. While these kinds of legislation can influence sourcing decisions and planning for events and the supply chain, legislation remains a relatively weak driver of change for festivals to date.

104. Festival and Event Industry Green Survey 2019, Powerful Thinking (2019)

However, the outdoor events sector is still subject to the UK Climate Change Act 2008, which sets a statutory target of reducing UK carbon emissions to net zero by 2050.

Upcoming highlighted legislation likely to impact event environmental initiatives include:

- UK single-use plastics ban: a total ban on plastic stirrers (and plastic stemmed cotton buds) from April 2020, and significant restrictions on the availability of plastic straws.
- EU single-use plastics directive: a total ban on single-use plastic plates, cutlery, straws, and drinks-stirrers by 2021, and an obligation on all member states to set significant reduction targets for other single-use plastic items, including cups.¹⁰⁵

CONSUMER ATTITUDES

Recent event audience surveys suggest environmental action and credentials is an issue of increasing importance for audiences, and this trend is unlikely to reverse in the coming years as awareness of the climate emergency continues to grow.

A survey undertaken by CGA in 2019 saw more than half of respondents say that they care more about the overall environmental, social and sustainability impacts of festivals than they did the previous year.¹⁰⁶

When selecting which festival to attend in 2019, one in five consumers cited, 'the festival promotes environmental sustainability,' as a major factor – ranking behind other factors such as; 'previous experience', 'overall line-up', and 'friends and like-minded people going'; but ahead of 'that the festival supports charitable causes' and 'the provision of non-musical attractions and entertainment.'

In Ticketmaster's State of Play: UK Festivals audience survey, two in three festivalgoers said they wanted 'to see reduced waste at festivals'.¹⁰⁷ Nearly as many festivalgoers said they wanted 'to see more eco-friendly initiatives' - more than selected, 'greater variety of events/activities', 'more communal/chill spaces', and 'more photo opportunities' - suggesting that visible environmental action is starting to rate as an important part of the festival experience.

REPUTATION, COMMUNITY RELATIONSHIPS, AND LICENSE

The outdoor events industry continues to receive negative press exposure for the amount of waste and tents left behind at the end of events, even though 2019 has seen significant improvements in this space. Issues such as littering and congestion can have a significant impact on the relationship with local communities and may affect the licensing process. As the public becomes more aware of issues such as air pollution, we can expect this area to grow as a driver for change.

In 2019, two thirds of the UK's district, county, unitary and metropolitan councils (i.e. local authorities) declared a climate and ecological emergency,¹⁰⁸ many of them putting in place their own greenhouse gas reduction targets that are more ambitious than the UK Climate Change Act national targets. As these begin to be translated into action, we can expect greater questions to be asked of how festivals, particularly larger events, will support councils to meet them.

COMPANY ETHOS AND STAFF COMMITMENT

Personal conviction and company ethos are the main driver for environmental action in the event sector to date, especially in the absence of meaningful legislation driving action.

Two in three festivals now report having a sustainability coordinator or someone responsible for sustainability in the team. However, there remains a value-action gap between our passion for taking action, and the level of resource (financial and otherwise) needed to make change at the scale and speed required. Some of the precedents in this report show what is possible even with the stretched budgets and competing priorities familiar to all of us.

105. Council adopts ban on single use plastics (2019) <https://www.consilium.europa.eu/en/press/press-releases/2019/05/21/council-adopts-ban-on-single-use-plastics/>

106. Festival Audience Attitudes to Sustainability. CGA (2019) <https://www.cga.co.uk/report-tag/consumer-research/>

107. State of Play: UK Festivals. Ticketmaster (2019)

108. Declare a Climate Emergency, figure retrieved at 5 January 2020. <https://www.climateemergency.uk/blog/list-of-councils/>

Vision

ACTIONS

The UN IPCC tells us that in order not to exceed 1.5 degrees we need, “rapid, far-reaching and unprecedented changes in all aspects of society.”

This is a challenge to all of us to fundamentally change how we work.

- **Make a commitment to be actively involved in positive change by signing up to the Vision 2025 pledge.**
- **Work as a community of committed events to broaden the measurement and monitoring of impacts using tools such as the CG Tools carbon calculator and certifications such as A Greener Festival Assessment and Creative Green.**
- **Reduce emissions and impacts using the current resources, support and expertise available.**

ACTIONS FESTIVALS CAN TAKE: FOR 2020 AND 2021

Year	Action
<p>Actions for 2020</p>	<ul style="list-style-type: none"> • Sign up to the Festival Vision 2025 pledge • Create or update your environmental policy with aims and targets • Create or update a Green Action Plan or checklist for your event • Nominate someone with specific responsibility for environmental action or hire a part- or full-time sustainability manager • As a minimum, measure and report your events' energy, waste, and water data using the free CG Tools carbon calculators. For events already collecting this data, expand your data collection to include audience and contractor travel surveys • Include energy monitoring and efficiency targets in contracts with power providers • Create a specific budget line for environmental initiatives • Consider signing up for the A Greener Festival Award, Julie's Bicycle Creative Green Certification, or other external assessment.
<p>Actions for 2021</p>	<ul style="list-style-type: none"> • Review progress and data from 2020 to update action plans and refine targets • Collect data on food to set an industry baseline – including procurement by volume and across key categories, food waste, and improved data on composting and anaerobic digestion rates across the industry • Share case studies and experiences • Engage supply chain through contractual agreements

Year	Action
<p>Actions for Long term</p>	<p>Some of the most meaningful interventions for emissions reductions we can and need to aspire to include:</p> <p>ENERGY:</p> <ul style="list-style-type: none"> Investment into better specification, real-time monitoring, and energy management for efficiency, resulting in an overall reduction in energy use. Embrace opportunities for introducing smart grid technologies on site. Sector-wide move away from generator power to mains grid electricity (thus allowing us to benefit from broader investments into grid decarbonisation) and batteries, preferably charged by renewable energy generation either on or off-site. Where generators are unavoidable, specify sustainably sourced traceable biofuel from suppliers, and continue working on due diligence of the biofuel supply chain. <p>FOOD:</p> <ul style="list-style-type: none"> Significantly scale up sector-wide focus on providing plant-based and lower-meat-and-dairy food options at all events to support a wider cultural shift Reduce avoidable food waste by 20% by 2025 in accordance with Committee on Climate Change recommendations <p>TRANSPORT:</p> <ul style="list-style-type: none"> There are ways in which event organisers can start exercising greater control over how audiences are travelling to events, especially those located at greenfield sites – including setting aside an escalating share of event tickets only available bundled with dedicated coach or public transport travel Create event-specific and monitored reduction targets for travel and transport emissions from audience, contractor, and artist travel <p>WASTE AND MATERIALS USE:</p> <ul style="list-style-type: none"> Eliminate biodegradable waste sent to landfill by 2025 or earlier Sector-wide introduction of reusable cups, preferably unbranded or generically branded to maximise re-use Sector-wide focus on refill initiatives to significantly reduce sale of all kinds of single-use packaged water Sector-wide approach to food serve-ware and packaging, working with waste management contractors and treatment facilities to identify the optimal solution(s) Sector-wide focus on improving sustainable sourcing of timber and other building materials for set and scenery, and improved re-use and recycling of all set materials



MEASURE



PLAN



IMPLEMENT



REVIEW

Summary of Recommendations

ENERGY

1. Continue aiming for a 50% reduction in diesel use by 2025 through efficiencies, better specification, and shifting to mains grid and/or battery power.
2. Plan for longer-term phasing out of diesel generators underpinned by greater use of mains grid, battery, and renewable energy sources
3. Build fuel reduction targets into contracts with energy suppliers

RESOURCE USE AND WASTE

1. Reduce total tonnage of waste annually by 5-10%
2. Segregate materials onsite
3. Eliminate biodegradable waste from being sent to landfill
4. Aim for 50% recycling and composting rate (of total materials present onsite)
5. Improve accuracy of reporting

FOOD

1. Establish minimum sourcing standards and trader procurement guidelines
2. Reduce avoidable food waste by at least 20% by 2025
3. Reduce meat and dairy consumption
4. Engage traders with initiatives like the EAT-Lancet planetary health diet
5. Improve data collection on food impacts at events

WATER

1. Use water conserving technology across site
2. Work with contractor to minimise leaks
3. Ensure robust measures are in place to prevent pollution of local waterways

TRAVEL AND TRANSPORT

1. Measure audience, contractor, and artist travel and set reduction targets.
2. Reduce car travel and increase car occupancy, with a focus on high-control measures such as bundling a set proportion of festival tickets with dedicated coach travel for greenfield events.
3. Consider carbon balancing or offsetting initiatives to recognise unavoidable emissions.

MAKING BETTER USE OF WHAT WE ALREADY HAVE BY CUTTING OUT WASTE, WHETHER IT'S FUEL, FOOD, PACKAGING OR CONSUMPTION, OUGHT TO BE A NO-BRAINER AS IT WILL NOT ONLY SAVE MONEY BUT IT COULD SAVE OUR PLANET.

Bob Wilson, Head of Events, Greenpeace UK

Festival Vision: 2025: The Pledge

WE AIM TO ACHIEVE A 50% REDUCTION IN FESTIVAL- RELATED GHG EMISSIONS BY 2025.

We, the UK festival industry, are deeply concerned about the potentially irreversible impacts of the climate crisis. We recognise that the increased GHG emissions caused by human activities is affecting the quality of life of millions of people today and has potentially devastating consequences for future generations. Therefore we pledge that we will play an active role in creating a positive future by:

- Taking action to make our businesses and our industry more environmentally sustainable and actively managing our carbon-related impacts.
- Speaking out to our audiences and stakeholders and using our creative voices to contribute to the public narrative about positive change.

As a participating festival we will put in place measures to achieve this by:

- Reducing waste where possible and aiming for 50% recycling rates.
- Reducing reliance on fossil fuels and aiming to reduce diesel consumption by 50% by 2025 compared with 2014 figures.
- Working with audiences, suppliers and artists to positively influence travel choices and reduce travel-related emissions.
- Working with the supply chain to improve accountability and the sustainability of food sourcing.
- Working together as an industry to share experiences (positive and negative) about the changes we make, sharing best practice and working toward industry standards where appropriate.
- Measuring and recording our key impacts in order to measure progress.
- Sharing information to enable (anonymous) annual reporting for the industry e.g. working with Powerful Thinking and other closely affiliated organisations such as Julie's Bicycle and A Greener Festival.

SIGN UP TO THE PLEDGE AT

www.vision2025.org.uk





Key Resources

Topic	Free Guides and Tools	Industry Initiatives	Paid-for services or specialist consultants
Tracking impact / certification	Julie's Bicycle Creative Green Tools	Festival Industry Green Survey	A Greener Festival Awards Julie's Bicycle Creative Green
Governance and overall strategy	JB Guide to Writing Environmental Policy & Action Plan	Festival Vision 2025	Julie's Bicycle Kambe Events Ideas Lansdowne Warwick A Greener Festival Green Events International Hope Solutions Sustainable Sidekicks
Energy management	Powerful Thinking Smart Energy Guide Powerful Thinking Factsheets and Templates Julie's Bicycle Creative Green Tools Julie's Bicycle Biofuels Guidance	Powerful Thinking	SMART Power ZAP Concepts Energy Logging
Resource Management	Julie's Bicycle Guide to Waste Management at Outdoor Events RAW Foundation Making Waves Plastic-Free Festivals Guide WRAP Understanding plastic packaging and the words we use to describe it [PDF] Hope Solutions Factsheet - It doesn't stack up: how disposables compare to reusables Julie's Bicycle Sustainable Procurement Guide	AIF Drastic on Plastics Take Your Tent Home – Say No To Single Use	Hope Solutions Comp-A-Tent A Greener Festival Ideas Sustainable Sidekicks

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Transport	Julie's Bicycle Jam Packed Audience Travel Report Energy Revolution Travel Guide	Energy Revolution	Lansdowne Warwick
Food	Sustain Good Food for Festivals Guide The University Caterers Organisation Greenhouse Gas Footprint Calculator for different menu options	8th Plate	CarbonCloud
Office Impacts	Julie's Bicycle Practical Guide: Greening the Office Julie's Bicycle & Good Energy: How to Buy Sustainably Sourced Power	Creative Energy Project	Julie's Bicycle

Note this is not a full directory of services and suppliers in each of these areas – instead, it is intended as an overview of free guides and resources, industry initiatives, and key consultants/experts able to offer additional support in each area.

ABOUT POWERFUL THINKING

Powerful Thinking is a not-for-profit industry think-tank founded by the event industry in 2010 to help understand and take action on environmental impacts. Co-founded by Julie's Bicycle and Chris Johnson (Chair), the group includes: Festival Republic, the Association of Festival Organisers (AFO), the Production Services Association (PSA), the Association of Independent Festivals (AIF), the National Outdoor Events Association (NOEA), the Nationwide Caterers Association (NCASS), Kambe Events, Brown Fox Comms, Lansdowne Warwick and Smart Power.

THE FACT IS THAT NO SPECIES HAS EVER HAD SUCH WHOLESALE CONTROL OVER EVERYTHING ON EARTH, LIVING OR DEAD, AS WE NOW HAVE. THAT LAYS UPON US, WHETHER WE LIKE IT OR NOT, AN AWESOME RESPONSIBILITY. IN OUR HANDS NOW LIES NOT ONLY OUR OWN FUTURE, BUT THAT OF ALL OTHER LIVING CREATURES WITH WHOM WE SHARE THE EARTH.

Sir David Attenborough

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