Futuresonic/Futurecarbon:

The event manager's guide to coping with carbon emissions

"Over the last 12 months the temperature has been rising over climate change, with plausible deniability about its human causes evaporating. We decided that we needed to get involved – we run a festival, so we are alwayscommunicating with the media and talking directly to people so if not us, then who!" Drew Hemment, Futuresonic

While it is impossible to identify all carbon emissions, measuring the major polluting components in a consistent way creates a workable benchmark. This assists event organisers in navigating their way through the confusing world of carbon reduction strategies to work towards reducing their event's impact on climate change. Here is a practical guide on how to get started in making your events climate 'friendly', together with a case study detailing Futuresonic's annual festival in Manchester.

Some definitions

Carbon dioxide (CO_2)	A chemical compound released when oil, gas or coal (aka 'fossil fuels') are burned to create energy. Carbon dioxide is the major contributor to climate change.
Carbon emissions	The release of carbon dioxide into the atmosphere when fossil fuel energy is used. The average British lifestyle generates about 10 tonnes of carbon dioxide emissions a year (10,000kg).
Carbon offsetting	The practice of 'compensating' for carbon emissions by funding renewable energy projects or forestry projects (plants absorb carbon and release oxygen). Offsetting is increasingly contentious because it allows people to carry on polluting. Ideally, it should only be used when emissions are unavoidable.
Carbon credits or emissions allowances	Many countries have emissions trading systems that give large companies a specific number of carbon credits or emissions allowances. Each credit allows the company to emit one tonne of carbon. If a company has more allowances than it needs, maybe because it has installed some more efficient equipment, it can sell the spare allowances and these may be bought by another company that has too few.
Carbon neutral event	An event that has its carbon emissions balanced by carbon offsetting.
Carbon positive event	An event goes carbon positive when more carbon is offset than generated.
Carbon audit	Measuring the amount of carbon emissions generated by an event.
Carbon reduction strategies	Rather than just offset carbon generated, it is better to try and reduce the amount of fossil fuel energy used in the first place.
Carbon management strategies	A combination of carbon measurement, reduction and offsetting strategies used to make an event carbon neutral, or even carbon positive.

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Introduction

An increasing concern about the impact of climate change has led to the implementation of carbon management strategies for events worldwide. The first known offset activity was performed by the Levellers in 1998, inspiring artists and venues alike. Now Pearl Jam uses biofuel to power their tour buses and Manchester Metropolitan Student Union recently launched an environmentally friendly club night.

Event managers keen to minimise the carbon emissions created by holding an event can benefit from a developing common standard. A collaboration between FutureEverything, Imagination@Lancaster, the Tyndall Centre Manchester and Creative Concern has initiated a structured approach to managing carbon emissions caused by events. This approach has been endorsed by the NWDA and will be actively promoted by Culture Northwest.

In a pilot study of the Futuresonic annual three day festival, Tyndall discovered that the festival causes an equivalent amount of carbon emissions as 30-80 British citizens annually. The air and surface transport of musicians and visitors causes 99% of all carbon emissions generated by the event, at least 294,223kg of CO_2. An effective measurement and reduction strategy promoting the alternatives to car and airplane usage will go a long way in addressing the negative effect of carbon on the environment.

Futuresonic Case Study

The Northwest's cultural sector has the capacity to make a major difference when it comes to climate change. Responsible for more than 12% of the region's Gross Value Added (GVA), the sector has a significant economic footprint and sits in a powerful position to decouple growth and prosperity from an accompanying rise in carbon emissions. Futuresonic is an annual 3-day international festival of electronic music and media arts in Manchester attracting around 10,000 people.

The festival is presented by Future Everything who decided to 'do carbon reduction properly'. A collaboration between Future Everything, Tyndall Centre for Climate Change Manchester, Imagination@Lancaster and Creative Concern emerged, supported by the NWDA. **The objective:** to begin to develop a rigorous methodology for measuring the carbon emissions of events that would pass peer review by the scientific community but which would also be relatively user-friendly.

Audit Methodology

The Tyndall Centre Manchester identified the key components of most events, to produce a methodology for measuring the energy used and therefore carbon emitted. Using information from the 2006 event, the methodology separates the event into places – venues and accommodation – and people – artists and visitors. It focuses on the activities that cause significant 'first order' carbon emissions, generated specifically for the event. These include artist and visitor transportation (long distance and local), hotel and venue energy consumption, electricity used by artists during rehearsal and performance and other activities as available. 'Second order plus' emissions, not directly caused by the event but used as part of it (e.g. food and beverage consumed), can be measured in the future.

Drawing together scientific research, available data, standards recommended by Defra and their best judgement, the team estimated the emissions of each component. While artist data was readily available, identifying visitor numbers was a key challenge and complicated as Futuresonic is a multi-event, multi-site festival with various day-passes over three days. An estimate was made based on ticket sales, venue capacity and the organisers' experience of visitor patterns of behaviour at the festival. Visitor and artist transport was estimated on a combination of known and estimated routes and vehicles. Where possible, transport was allocated emission costs according to the point of departure and per person. Hotel and self-catering used a recommended average emission cost per person-night and venue energy output was based on averages identified in a study of New Zealand venues, using per m^2 floorspace. As part of the venue emissions, the energy used by artists during performance and rehearsal was based on an assumed 9 hours of rehearsal and performance. A typical kit list was used to calculate electrical consumption of equipment used.

Results

Some statistics

1 person in one car driving from London to Manchester emits 57kg of carbon dioxide

4 people in one car driving from London to Manchester emit 14kg of carbon dioxide per person

A return flight from Japan to Manchester for 2 people emits 4,172 – 12,516kg of carbon dioxide

A return flight from Berlin to Manchester for 2 people emits 755 – 2,264kg of carbon dioxide

A tram traveling 16km (10miles) emits 0.5kg of carbon dioxide

A bus travelling16km (10 miles) emits 6kg of carbon dioxide

A walk or cycle of any distance emits no carbon dioxide

An electric guitar uses 0.375kWh per hour which over 9 hours emits 1.45kg of carbon dioxide

A bass uses 0.625kWh per hour which over 9 hours emits 2.42kg of carbon dioxide

Vocals and drums emit no carbon dioxide

(source: Futuresonic Carbon Audit 2007)

The Tyndall Centre Manchester put all the components and emission values together into a spreadsheet and calculated a total emission cost of the event of at least 297 tonnes i.e. 29.7kg per visitor to the festival.

Since the 99% of the emissions were transport related with air as a major contributor, Futuresonic's carbon reduction strategies should now focus on changing the way artists and visitors travel to the festival. At the 2007 festival, 10% of visitors will be asked where they have come from and how they came to the event. The website is also collecting point of departure information. This data is crucial to evaluate the success of promoting minimal carbon emitting methods of transport at future events.

The new emphasis on environmental issues at the Futuresonic festival has also inspired and shaped the organisers and artists' behaviour. The 2007 Social Technologies Summit has devoted a morning to exploring the sustainability of future arts and technologies. Audiovisual artists, LoVid are sending virtual facsimiles of themselves and will perform from New York to avoid the carbon generated by flights to Manchester.

Preparing for future events

In 2008, Futuresonic will encourage visitors, artists and venues to participate in the reduction of carbon emissions. They will also consider carbon emission costs when organising an event. An artist flying from Berlin emits less than one sixth of the carbon emitted by an artist flying from Japan. When choosing between different artists, the carbon dimension could tip the balance in favour of the artist closer to the UK or the one proposing to come using more eco-friendly transport.

Another objective is to reduce the number of passengers using the car mode of transport and increase the number of passengers using bus, tram or walking (see table below).

Local (Manchester) 1 day attendee transport emissions

Assumed mode of transport emissions (kg)	CO_2 emission factor (kg) per passenger (km)	Assumed distance travelled (km)	Assumed number of passengers	Passenger km	CO_2 emissions (kg)
Car	0.089	5600	16	89600	7974
Bus	0.03117	1040	16	16640	519
Tram	0.00567	1040	16	16640	94
Walk/ Cycle	0	320			0

(source: Futuresonic Carbon Audit 2007)

Futuresonic are considering further incentives for 'green' participants such as a GIP area (Green Inclined Person), price reductions and naming the carbon emissions of individual artists and venues.

Your turn

Future Everything, Tyndall Centre Manchester, Imagination@Lancaster and Creative Concern suggest that the methodology and emissions calculations developed for this project can begin to form part of a common standard for measuring the carbon emissions generated by events. The project output has been fully supported by the NWDA and is already contributing to the development of the Northwest Climate Change Action Plan. If all event organisers use the same standard for measuring carbon emissions at their events, it will be possible to compare data across the sector and the region. Gradually over the next few years, we will see a picture emerge of the key polluting aspects of events. We can also develop and share techniques for reducing them.

Getting started with measuring your own event for carbon emissions

Since transport is the biggest factor in carbon emissions caused by events, it should be the primary focus in any carbon reduction strategy. Often, the very act of measuring methods of transport can have an impact on how people travel to events. It feels good to say, "I came by train."

1.Tools needed

Futuresonic/Tyndall Centre Manchester Carbon Emissions Calculator.
www.futuresonic.com/07/eco2.html

2. Information to collect

Artist numbers
Visitor numbers
Method of transport used
Distance traveled

3. Developing a travel measure for your event

1. Identify number of artists attending event
2. Ask each of them the method of transport they plan to use and expected distance
3. Split your data into long distance, regional and local transport
4. Input this data into the Emissions Calculator
5. Identify expected number of visitors to the event
6. Plan to survey 10% of the visitors
7. On day of event, ask 10% of visitors as they arrive (or at a convenient point) how they came to the event (mode of transport) and their postcode
8. Split your data into long distance, regional and local transport and multiply your values by 10 to get an estimated value for 100% of visitors
9. Input this data into the Emissions Calculator
10. The Emissions Calculator has preset algorithms that will help you work out the total carbon emissions generated by travel to your event
11. If you divide the total carbon emissions by the number of visitors and artists, you will have a carbon emission travel cost per visitor. You want to get this value to zero.
12. Offset your event by buying enough carbon credits to match the total carbon emissions generated by travel. Buy good quality credits, e.g. Global Cool, Pure, Equiclimate.

4. Note your Emissions data here.
Find the Emissions Calculator at www.futuresonic.com/07/eco2.html

Long-Distance Travel

Attendees

Number of passengers	Direct Distance (km)	Mode of Transport

Artists

Number of passengers	Direct Distance (km)	Mode of Transport

Regional Transport

Attendees

Approx total number of attendees	
Approx % of attendees from regional areas	

Artists

Number of artists travelling regionally	

Local Transport

Attendees

Assumed Number of Travel Instances	
Assumed Average Distance from Venue (Km)	

Artists

Assumed Number of Travel Instances	
Assumed Average Distance from Venue (Km)	

5. Data analysis

Once you have the total carbon emission cost and per visitor emission cost for travel to the event, play around with the data. Look at carbon reduction strategies and think of ways you could offset or reduce the carbon emissions for the event. Is there an artist coming from a long distance or using an airplane when they could use the train. Are there incentives you can offer visitors who walk, use public transport or car share?

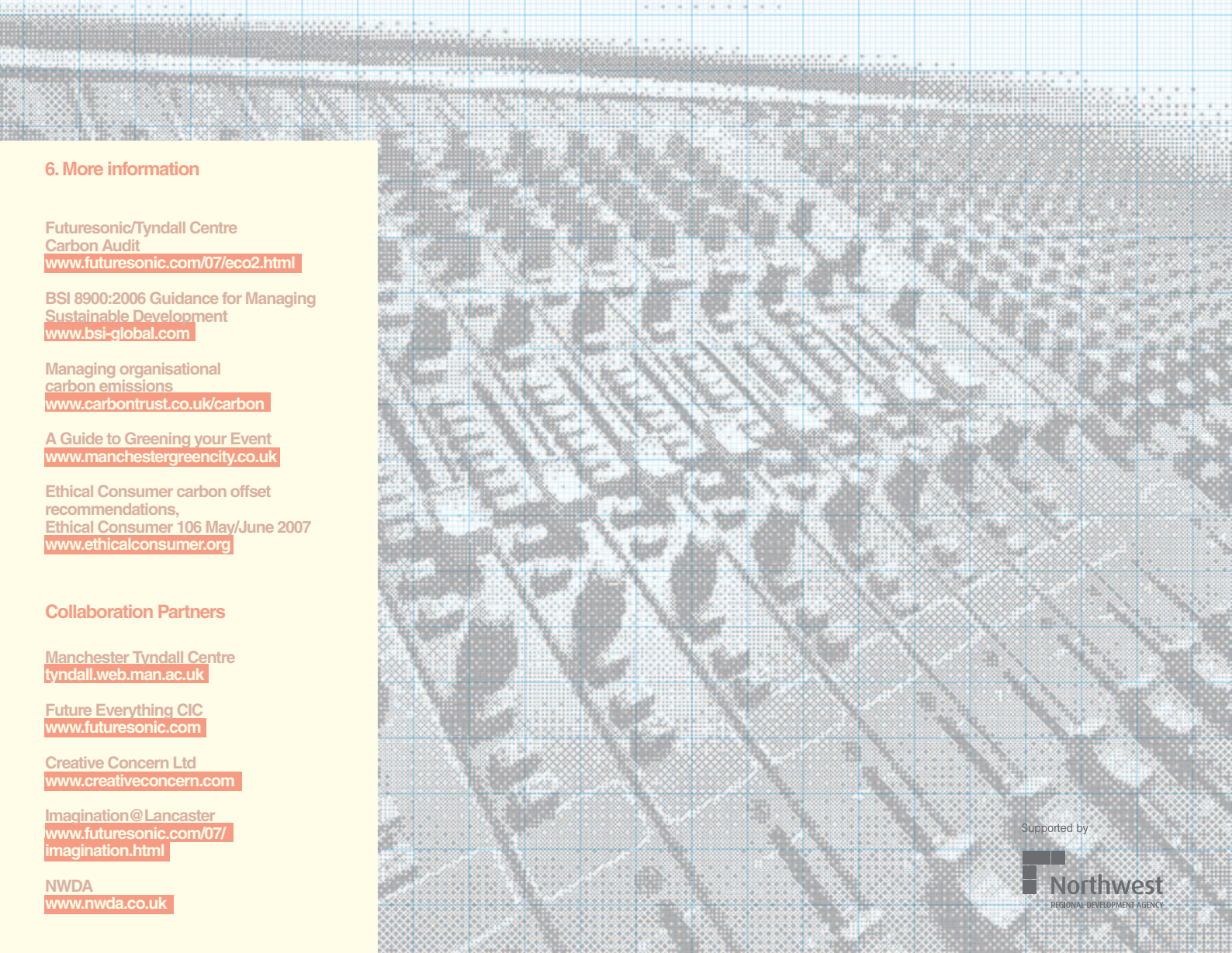
Use this information as part of your decision making for your next event.

Carry out the same measuring process at every event and see if you can get your average carbon emission travel cost per ticket down to zero.

Share your data with the Tyndall Centre Manchester.

Join the growing list of events that are measuring their carbon emissions and trying to go carbon neutral. Share your experiences with them.

"The cultural sector is a key player in the development of the Northwest. We must play our part in recognising the need for change and work to deliver sustainable events and programmes."
Aoife Flanagan, Marketing Manager, Culture Northwest.



6. More information

Futuresonic/Tyndall Centre Carbon Audit
www.futuresonic.com/07/eco2.html

BSI 8900:2006 Guidance for Managing Sustainable Development
www.bsi-global.com

Managing organisational carbon emissions
www.carbontrust.co.uk/carbon

A Guide to Greening your Event
www.manchestergreencity.co.uk

Ethical Consumer carbon offset recommendations,
Ethical Consumer 106 May/June 2007
www.ethicalconsumer.org

Collaboration Partners

Manchester Tyndall Centre
tyndall.web.man.ac.uk

Future Everything CIC
www.futuresonic.com

Creative Concern Ltd
www.creativeconcern.com

Imagination@Lancaster
www.futuresonic.com/07/imagination.html

NWDA
www.nwda.co.uk

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