green orchestras guide

a simple guide to sustainable practices

JULIE'S BICYCLE

BARBICAN

A popular orchestral venue and the home of the LSO, the Barbican has already made significant steps to reduce its emissions. These include the introduction of the 'Barbican Green Committee', which is raising internal awareness about the environmental implications of its operations. So far, the Barbican has sourced 55% of electrical energy contracts from renewable/green contracts, which has resulted in an annual CO_2 reduction of 315 tonnes (pa), as well as successfully achieving a 30% reduction in Air Handling Units' (AHU) sizing and energy by redesigning the Hall's ventilation system. It doesn't end there however, as the Barbican is also sourcing its heating and cooling for the centre from a high efficiency Combined Heat & Power system, equating to a saving of 2,700 tonnes in CO_2 emissions (pa) compared to the old system. They don't shy away from recycling either, and to date, they have and continue to recycle everything from paper to mobile phones, fluorescent tubes to batteries, computers to toner cartridges. Barbara Crabb, Head of Facilities, adds "we have recently won Clean City Platinum Award for the year of 2009 and are on a programme working towards both BS8901 and the ISO14001".

ST GEORGES BRISTOL

On the smaller scale, St Georges Bristol are also working to reducing their carbon emissions. Whilst they have been using recycled paper for their internal printing for the past couple of years, they have started shifting professional print materials onto recycled paper, as well as collecting all used paper and old publicity leaflets for recycling. Bar operations have also been considered, and local suppliers are used, including Bath Ales and Avery's Wines, while all bottles are recycled. Bicycle racks are provided and Director Suzanne Rolt notes that the venue are looking into how this may be extended – several of the staff already cycle to work. Energy monitoring is also underway, with Suzanne saying herself that she does "a walk around of the building first thing every morning to ensure nothing is on that shouldn't be!" Staff are alert to energy consumption around the building, and are constantly reminded to turn off lights, heating and more when it is not needed.

ROYAL SCOTTISH NATIONAL ORCHESTRA

The Royal Scottish National Orchestra (RSNO) is one of the first arts organisations in the UK to secure a sponsorship deal with a large transport operator – ScotRail. ScotRail provides free train travel across Scotland for the RSNO's musicians and staff, sending a great message to the RSNO audience and encouraging audiences to select greener forms of transport when travelling to and from concerts.

The RSNO has other green polices in place alongside the sponsorship, including encouraging staff and musicians to walk where possible, and suggesting car pooling and car sharing where travel by car is necessary. Simon Woods, RSNO Chief Executive, notes: "the key issue that we face in order to significantly reduce greenhouse gas emissions associated with touring, is musician's travel".

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1. Foreword

In the UK we can be justly proud of our orchestras. We have some of the best ensembles in the world, we regularly attract the most talented performers and conductors to our shores and our music reaches audiences all over the world. Protecting and nourishing our sector to ensure it continues to thrive is the first principle of sustainability. Thus far, then, sustainability has been framed for us largely in economic and social terms. However, environmental impacts are moving rapidly up the list of priorities as government, funders, performers and, most importantly, ourselves and our audiences are waking up to the possible consequences of inaction.

The emphasis on environmental sustainability at the 2009 ABO conference signalled this shift, and resulted in commissioning Julie's Bicycle to research sustainable orchestral touring, with funding from Arts Council England, British Council and Orchestras Live and support from the ABO. The findings will be published in April 2010. However as we have worked through the challenges posed by touring, we have also recognised the need for a practical and basic guide for orchestras, that addresses the environmental impacts in all we do: from office-based work to marketing and rehearsals.

The best orchestras thrive by seeking out new repertoire, artists, audiences and partnerships. The principles of self-determination and pre-emptive action are best served if we actively anticipate changes in the regulatory environment, and develop strategies for adapting our current business models. This does not mean, for example, that we should expect UK orchestras will no longer tour domestically and internationally – this is a vital activity for the orchestral sector economy. But we should expect touring to change and begin planning for this.

We must ensure that we are responsive to contemporary concerns - which will inevitably support the business case for action. Audience members - particularly younger ones - are showing an increasing tendency to make choices influenced by an organisation's approach to the environment. There is a new generation of staff, musicians and young people for whom this is a very compelling and serious issue. These people are making choices about their lifestyles, values, tastes and professions - choices in which our activities may be invoked.

As the issue of climate change permeates inexorably the public consciousness it becomes incumbent on us to account for our own operations. In the UK, music, publishing, film, galleries, museums, heritage, architecture and theatre are all developing strategic and collective responses to sustainability. These developments reflect and support shifts taking place in broader society. They recognise that transforming the industrial base of the creative and cultural industries can have an amplified effect: for while our sectors are not the greatest emitters we are the greatest communicators and can inspire great things.

We need a shared understanding of the implications of future regulations and social expectations as well as the resources and mechanisms we will need to transform practice. This guide suggests some first steps which place care for the planet at the forefront of sustainability. It is not intended as a prescriptive checklist but identifies quick wins and suggestions for where we might go next. Needless to say, if we all take them their impact will be far reaching.

Orchestras Sustainable Touring Steering Group

Kathryn McDowell (London Symphony Orchestra, Steering Group Chair), Andrew Burke (London Sinfonietta), David Butcher (Britten Sinfonia), Donagh Collins (Askonas Holt), Susanna Eastburn (Arts Council England), Simon Funnell (London Mozart Players), Cathy Graham (British Council), Peter Harrap (Welsh National Orchestra), John Hartley (Arts Council England), Paul Hughes (BBC Symphony Orchestra), Henry Little (Orchestras Live), Stephen Maddock (City of Birmingham Symphony Orchestra), Marshall Marcus (Southbank Centre, BACH), Keith Motson (Association of British Orchestras), Mark Pemberton (Association of British Orchestras)

CITY OF BIRMINGHAM SYMPHONY ORCHESTRA

The City of Birmingham Symphony Orchestra (CBSO) understands the emissions impact of audience travel, and promotes Birmingham public transport links to their advantage, with the addition of their own coach scheme established in 2001/2002 with partners Cheltenham Connection Coach. Proving a very popular scheme with visitors, the coaches run only to selected concerts, consisting of a total of 6 coaches, scattered throughout the Midlands. These include locations such as Bewdley/Kidderminster, Cheltenham, Lichfield/Sutton Coldfield, Solihull, Stratford-upon-Avon and Wolverhampton. Whilst sponsorship is still on the drawing board, the CBSO take the opportunity to improve the service with direct feedback from regular users, and last year (2009) won the UK Coach Award for Effective Partnership. The coach tickets are purchased as a 'combination ticket' – where concert ticket and coach are provided together for one great price, ranging from £24 to £46.50. A great step in the direction of audience travel emissions reduction, as well as making the CBSO's concerts more easily accessible to those who find transport a barrier to attendance!

2. Introduction
Julie's Bicycle

Julie's Bicycle first considered the UK orchestral sector's climate impacts as part of *First Step: UK Music Industry Greenhouse Gas Emissions 2007*[1], research which scoped the UK music industry's greenhouse gas emissions over a full year. This report studied emissions across a creative supply chain and set the baseline and priorities for carbon reductions.

The orchestral sector has much in common with other music, theatre and performing arts in general: managing venues and office spaces, producing, touring, and recording performances and products, and attracting large audiences to live performances.

This introductory guide to sustainable practice provides a starting point for all those involved in the making, management and performing of orchestras. Understanding and taking responsibility for our own climate and environmental impacts is already a requisite of good governance, management and operations.

Many of the ideas in this plan - switching to low energy lighting, reducing energy consumption, substituting train for plane travel - can save money and will reduce emissions substantially. But the orchestral sector can do more even than that. As the impacts that our everyday decisions have on our climate are better understood we must continue to adjust and shape our work so that environmental consequences are accounted for. The excellence of the UK's orchestras already inspires music lovers all over the world. Perhaps our orchestras, by example, might also inspire audiences to care for the planet in new ways.

Alison Tickell

LONDON SYMPHONY ORCHESTRA

Longer lead times for orchestral touring can enable more efficiencies and GHG emissions reductions. The LSO tour planning team works up to 3-4 years in advance. This provides the LSO ample opportunity to book efficient and appropriate transport for their itinerary (although certain key train transporters such as Eurostar do not currently allow for such advance bookings). Two recent tours to Japan were an opportunity to explore this, and the LSO spent much of its time in Japan taking the train – described as "comfortable and relaxing" rather "than spending hours in airports". Choosing train journeys over flights cut their emissions drastically, and the high speed train network in Japan made this the obvious choice. Closer to home, the orchestra has started to increase its usage of train networks in the EU, mostly in Spain, Italy, France and the Benelux region. Although train networks are still being improved, LSO's managing director, Kathryn McDowell notes that once they are, it'll be great news for the orchestra, and will "really help us to travel around continental Europe."

[1] Bottrill, C., Lye, G., Boykoff, M., and Liverman, D. (2008). *First Step: UK Music Industry Greenhouse Gas Emissions for 2007*. Environmental Change Institute, Oxford University, Oxford.

3. Where to start

The first priorities are broken down into four key areas.

ENGAGEMENT

Governance

The Board commit to reduce greenhouse gas emissions and set a target for creating an environmental policy

Staff

Designate 'environmental champions' with specific 'green' responsibilities to raise awareness and enthusiasm. Involve staff in helping reduce environmental impacts.

Contractors

Write 'green' riders into performance contracts. This will ensure that suppliers are working with the orchestra and understand its commitment to reducing its environmental impacts.

MEASUREMENT

Identify the orchestra's carbon footprint

Management requires measurement. A number of organisations offer free or low cost surveys to help work out how much carbon and waste the orchestra is producing. See 'Resources' for more information.

Keep accurate records

Knowledge is power - measuring energy consumption allows for tracking against targets and identification of peaks in usage.

REDUCTION

Write an environmental policy

An environmental policy sets out the orchestra's commitment to becoming more sustainable, and identifies the methods and practical areas where the orchestra can reduce its impacts.

DISCLOSURE

Share progress

Move towards full public disclosure of carbon emissions, beginning with internal communications through to incorporating performance and target reporting into the orchestra's marketing.

BOURNEMOUTH SYMPHONY ORCHESTRA

In 2009, Julie's Bicycle released Jam Packed: Audience Travel Part I, which looked into the GHG emissions of audience travel to festivals – in particular, noting a full coach (50 person capacity) has the least carbon emissions of all the transport modes, with 22g carbon dioxide (CO_2) per passenger mile (almost 8 times more carbon efficient per person than travelling in a car with two people!). Bournemouth Symphony Orchestra have provided public coaches to their events for the past 10 years, providing a simple way to travel, but also a way to cut the substantial emissions caused by audiences travelling to performances. BSO are seeking sponsorship to extend the service, and currently provide coaches for audiences from Swanage, Weymouth and Shaftesbury, to their events at the Lighthouse in Poole on specific Wednesday events. A return ticket costs as little as £6 in advance, and calls at additional stops along the way. CEO Simon Taylor describes these routes as "very popular, reasonably priced and commercially viable". And it isn't just the audience travel that is taken care of, BSO also transport their musicians by coach for all of their concerts that are outside of Poole and Bournemouth, which covers approximately 70 concerts each year. To provide an additional incentive to travel by coach, should players wish to travel by car (or even car pool) they do not receive compensation for fuel use.

TURNER SIMS CONCERT HALL

Turner Sims is a concert hall located within the University of Southampton. As Concert Hall Manager, Kevin Appleby, notes, this means that the venue is embedded within a broader environmental project infrastructure, while the University plays an important role in ensuring the Turner Sims' green projects get the go ahead. Throughout the university grounds, a comprehensive recycling scheme is in place, where waste items such as paper, plastics and cans can be easily reused and recycled. The University also runs its own bus service, Uni-link, which has enjoyed year on year growth over the past 10 years and last year carried over 3.5 million passengers. Turner Sims promotes this as a simple transport option and is planning to provide incentives such as free bus rides home if holding a concert ticket. Whilst the majority of print publications including all direct mail letters are printed on recycled paper, and the Turner Sims guides are printed on 55% recycled paper, the brochures have now been made available online, in preparation for the launch of the new website in Summer 2010. Procurement of supplies – such as tea, coffee and more – are all sourced as Fair Trade. The University's automatic metering system within the grounds enables building users, such as Turner Sims, to analyse their energy usage and manage their footprint more easily. Alongside this improved energy management, in 2009 the University made substantial modifications to the duct work in the main air handling plant room – this in turn, helped to save energy in two ways – firstly by reducing the amount of cold air that would need to be heated, and secondly by reducing the necessity to humidify cold winter air, both of which make the space more comfortable for staff and audiences.

4. Leadership

> Who is it for?

Trustees, governing bodies, company directors and those with responsibility for orchestral governance and strategy.

The orchestral sector is part of the industrial economy, like any other sector. It will necessarily participate in the market transformation required to address climate change, and those providing governance for orchestras should be aware of and responsive to these developments. In the UK, the Climate Change Act has set out the likelihood of mandatory emissions reporting within the next few years, while the Carbon Reduction Commitment for the biggest UK energy users (not already part of the Europe-wide Emissions Trading Scheme), is already underway. Key funders including Arts Council England and British Council have recently indicated that environmental considerations and climate change will play a greater part in future priorities and funding strategies.

Creating company-wide commitment to environmental good practice will ensure orchestras are fit for purpose, and can also deliver substantial financial savings through increased energy and resource efficiencies. The implementation of effective monitoring systems will almost inevitably deliver benefits beyond immediate environmental considerations. Demonstrating leadership on these issues is also increasingly important in sustaining a vibrant organisational culture and relationship with audiences.

Trustees or company Directors can:

• issue a statement of commitment, signed by the governing body of the orchestra (e.g. the board, trustees, president), to reduce the greenhouse gas emissions produced from the orchestra's activities. In time, this should be developed into an environmental policy;

• embed clear environmental expectations and responsibilities in the orchestra's management structure;

• incorporate annual reviews and updates on sustainability targets regularly at board meetings;

• ensure the board is kept up to date on environmental legislation and regularly re-evaluate policies to reflect relevant changes.

ABBEY ROAD

Abbey Road now offers 'electronic scores', which can be hired and used by orchestras when using the studios. These electronic scores enable the composer to make amendments on music notation software, which can then be saved and loaded up direct to the music stands, saving endless printing of music. Although there are some cons – such as additional energy requirements and the inability to amend a section in rehearsal as easily as with paper and pencil – this is certainly an innovation which could reduce material waste.

MANAGEMENT

> Who is it for?

Orchestra management, promoters, agents

Identify the carbon footprint

Management requires measurement. A number of organisations offer free or low cost surveys to help work out how much carbon and waste the orchestra is producing. See 'Resources' for more information.

Write an environmental policy

An environmental policy sets out the orchestra's commitment to becoming more sustainable, and identifies the methods and practical areas where the orchestra can reduce its impacts. See 'Resources' for more information.

An environmental management policy typically:

- provides guidance on best practice in managing energy, waste, water and transport;
- sets environmental targets for reducing emissions in these areas for the next financial year;
- contains a plan with actions, responsibilities and deadlines for reaching targets;
- incorporates a process for monitoring and keeping accurate records;
- includes a plan for regularly reviewing the orchestra's success in reducing emissions and how to continually strive for better performance;
- incorporates environmental considerations into all purchasing decisions - from office paper and pens to green electricity and travel;
- can include reference to travel, including transport choice guidelines.

Buildings

Venues and offices produce significant emissions from energy use and waste. See the 'Buildings' sections for more comprehensive information on how to reduce emissions.

Touring contracts

Orchestras and agents can insert a green rider into contracts with promoters and venues to ensure a joined up commitment to reducing environmental impact. This can have a large impact throughout the supply chain. See 'Resources' for more information.

Staff

Form an energy management committee with clear energy management responsibilities to review progress.

Communicate the environmental policy to staff and musicians, and allocate 'green' responsibilities to specific staff members, or 'environmental champions'. See 'Resources' for more information'.

Ensure that commonsensical practice is embedded in staff behaviours: that lights are switched off, waste is reused or recycled where possible and heating and cooling settings are always correct and switched off when spaces are not in use.

5. Practical Actions

BUILDINGS

Whether owning or renting offices, in residence at a venue or renting rehearsal space, Orchestras can seek to influence building management to improve its energy efficiency, which in turn could achieve significant greenhouse gas emissions reductions and financial savings. While capacity to influence capital investment and building management decisions will vary, day to day practice within the building also have an effect on energy use, so staff engagement is key.

> Who is it for?

Everyone

> What does it include?

Venues, offices, recording studios and rehearsal spaces.

Measure energy use

An energy audit will provide a picture of energy use and how to manage and improve it.

An energy audit typically includes:

• measuring energy use (e.g. electricity, gas, oil);

• locating draughts and air leaks;

• checking the building's insulation is adequate;

• inspecting heating and cooling equipment;

• looking at lighting and bulbs.

Audits can be implemented internally or conducted by a professional. See 'Resources' for more information.

Create an implementation plan setting out targets and a schedule for action to reduce energy use and increase building energy efficiency.

When negotiating a new lease be aware of the buildings Energy Performance Certificate (EPC) rating and use this as an opportunity to ask landlords to upgrade building fabric. See 'Resources' for more information.

Keep accurate records

Knowledge is power - measuring energy consumption allows for tracking against targets and identification of peaks in usage.

Where building management systems are installed, use these to record plant operation. Identifying when and why energy usage is high can indicate areas for significant savings (e.g. high recorded energy usage could be as a result of heating/cooling/ventilation operating continuously or outside necessary hours). Monitoring also helps ensure heating, cooling and ventilation systems are suitably sized. Regularly service/maintain monitoring equipment to ensure accurate data monitoring. Online tools for energy monitoring are also available. See 'Resources' for more information.

Reduce energy use

HEATING, COOLING AND VENTILATION

Avoid areas being heated and cooled simultaneously.

Ensure that temperature settings are appropriate:

• establish a 'dead-band' control between heating and cooling so that neither is turned on until temperatures are outside acceptable levels of comfort (typically 18-24 degrees Celsius);

• avoid over-ventilation in cooling;

• reduce heating settings in summer and overnight (e.g. set heating in frost protection mode);

• introduce zone controls so energy is used only where it is needed;

• set the thermostat for lower temperatures in largely unstaffed workshops and storage areas;

• review operational times and parameters for heavy use equipment, including chillers (e.g. install automatic controls to reduce over-ventilation). Install timers where required.

• install air quality and temperature sensors in the auditorium to enable the system to run at a reduced rate when the auditorium is not fully occupied;

• locate thermostats away from draughts, direct sunlight, or sources of heat.

Turn on auditorium heating later in the day (closer to performance time).

Regularly check airflows from ventilation systems and ensure filters are clean in air-handling units.

Service thermostats regularly to ensure they are working correctly.

Oversized fan motors in HVAC systems waste energy. Fit a modern Variable Speed Drive (VSD) to control the supply fan motors where appropriate.

Avoid using electric heaters.

LIGHTING

Switch lights to low-energy bulbs (CFLs and LEDs) including auditoriums, exterior lighting, hoardings, front of house and

ROYAL ALBERT HALL

One of the UK's most well known venues, the Royal Albert Hall is currently using SMEasure, a sophisticated energy management tool developed by researchers from the ECI and promoted by Julie's Bicycle, in order to analyse, evaluate and reduce its carbon emissions. The unique venue has also drawn on JB research First Step to inform their energy performance benchmarking and support their participation in other emissions reductions schemes such as the UK government's new 'Invest to Save' plan, which is a commitment to reduce 10% of its carbon emissions by 2010. RAH are also part of an initiative looking to reuse existing Victorian tunnels and infrastructure to share heat between buildings in the South Kensington estate, ensuring venues and locations with excess heat (such as the Imperial College) share with those with less. This project requires the logging of electricity and heat consumption over the Estate, comprising of the Natural History Museum, Science Museum, V&A and Imperial College as well as the Royal Albert Hall. The project will also investigate the possibility of using an Aquifer Thermal Energy Storage system alongside the urban heat-sharing network, to store excess summer heat to use for the winter.

backstage, and stage lighting where possible. Using high efficiency compact fluorescent lighting (CFL) reduces power demand by around 60% as well as HVAC cooling needs. Fluorescent lighting provides ten times more light per wattage compared with standard tungsten bulbs.

Minimise the time that staging equipment is left running. Switch off lights and the lighting rig when not in use, including between rehearsals and performances.

Use motion sensors and timer switches to turn off lights in less frequently used spaces such as stairwells, store rooms and bathrooms.

If installing motion sensors, consider using them to switch off heating and ventilation in some areas.

Reduce exterior lighting hours and switch off exterior lighting in the daytime or fit a light meter in conjunction with a timer so that lights do not come on until needed.

Consider rewiring so that areas and equipment can be isolated and turned off when not required.

Where possible turn off all secondary lighting when the building is not in use.

EQUIPMENT

Set appliances to energy-saving mode.

Turn off computers, monitors, printers and photocopiers when not in use, overnight and on weekends. Even if all the equipment can't be switched off, turn off the monitor and printer and avoid using screen savers.

When purchasing or hiring technical equipment, ask about energy-efficient alternatives or enquire about more efficient ways to use technical equipment.

Improve energy efficiency

When replacement is necessary, install energy-efficient heating, cooling and ventilation systems. Employ building service engineers to investigate using heat recovery, heat pumps and absorption chillers.

Build efficiency payback into capital expenditure. For some heating and cooling investments, payback is achieved in around three years.

INSULATION

Install insulation in/around hot water storage tanks and pipes; electric heating cupboards; windows and doors; roofs and under floor; and external walls where practical.

Ensure building insulation is brought up to minimum standards and improve further where practical.

BOILERS

Check the boiler's efficiency rating. A is the most efficient. Consider switching to high efficiency/condenser boilers and convert oil boilers to gas.

Service the boiler annually: a well-serviced boiler can be 20% more efficient than a poor one.

Reduce the immersion thermostat (if there is one) to 60°C.

Use automated controls (rather than manual); install thermostatic valves in wet radiators.

Support renewable energy

Consider purchasing 'green tariff' renewable electricity. If the landlord has control over the electricity supplier, ask them to switch. Some smaller premises may not be able to do this because of

cost issues as some green energy suppliers are a little more expensive.

Investigate fitting renewable energy, particularly in large venues, e.g. solar thermal, photovoltaic, heat pumps, or wind power. Interest free loans are available from the Carbon Trust.

Depending on the scale of buildings and activities, installing a combined heat, cooling and power (CHP) system may be appropriate.

Reduce waste, reuse and recycle

Choose an environmentally friendly office supplier and use recycled materials, especially 100% recycled paper.

Use paper and other stationery fully and responsibly: print double-sided, use electronic rather than hard-copy mail-outs and invitations.

Operate a bin-less office with central recycling points.

Be aware of local council recycling requirements, and ensure recyclable items are separated and collected where necessary. If the landlord has control over waste management, petition for better recycling services.

Recycle and dispose of electronic waste and electrical equipment correctly.

Check regularly for dripping taps and fit washers where needed.

When refurbishing water fittings choose: low-content cisterns; dual-flush toilets; flow restrictors on taps; automatic taps; and aerating taps and showers.

Use filtered drinking water from the mains rather than bottled water.

Aim to use washable plates and cups where possible and biodegradable where not: try to avoid disposables in order to reduce landfill waste.

Compost food waste - use a super-efficient system in the workplace or encourage employees to take it home to their compost bin. Some local councils have a food waste collection service.

Where catering facilities are provided, work with the contractor to reduce waste to landfill and increase the local, seasonal, meat-free, dairy-free and organic choices.

Procurement and supply chain

Greening the orchestra's supply chain can have a significant impact on resources and materials use, with little cost to the orchestra.

Communicate to service contractors coming into the building the orchestra's environmental policy and practices so that cleaners and technicians don't needlessly waste energy.

Award new contracts on the basis of value for money and whole life costing, not just the lowest price; green purchases may have lower operating or disposal costs.

Choose environmentally friendly cleaning products wherever possible.

Venues can incorporate environmental guidelines into contracts with artists, contractors and suppliers which:

• specify that touring companies and suppliers comply with the venue's energy, recycling and waste management practices and policy;

• create financial incentives to reduce energy consumption with visiting companies. More accurate meter measurements would enable venues/rehearsal spaces to factor energy consumption by equipment and lighting

into the costs allocated to the performance/space hire.

Staff

Ensure 'environmental champions' have clear responsibilities, particularly in measuring energy use, and provide training around energy efficiency practices.

Communicate environmental policy and cost savings to staff to motivate and maintain action. Where possible, provide incentives to staff who reduce their energy usage.

Agents

Negotiate to have 'green' riders in contracts between musicians, soloists, conductors, promoters and venues, encouraging green commitments from venues and, where possible, create financial incentives to reduce the environmental impact of tours and performances.

Think about include offsetting travel and other emissions in tour budgets.

Where possible try to rationalise routing and organise residencies for your orchestras to minimise the environmental impacts of travelling.

Book travel as early as possible to reduce the costs of choosing more environmentally friendly transport, such as train travel.

Where lower impact travel may increase travel time for musicians, ensure facilities for maximising musician well-being are considered in tour planning.

See 'Travel and Touring' for more information.

Promoters

Encourage agents and orchestras to include 'green' riders in contracts, and know what promoted venues can offer to reduce the orchestra's environmental impact getting to, and performing at, the venue.

Ensure that tours make the best use of an orchestra's travel, by encouraging join up between venues, minimising 'exclusion zones' and developing education and outreach opportunities.

Market the venue or festival to orchestras and audiences on the basis of its environmental credentials. See 'Marketing' for more information.

TRAVEL AND TOURING

Touring is key to reaching the widest audiences, but can also be emissions intensive. Shifting away from air travel delivers emissions savings, but current train booking practices, fares and scheduling pose challenges for orchestras who plan well in advance. The orchestral sector may benefit from working collectively to influence the transport providers in these areas.

> Who is it for?

Orchestra management, musicians, soloists, conductors, agents, and everyone involved in planning touring and travel

Measure travel behaviour

The best place to start is to carry out a travel audit of the orchestra's travel behaviour to identify where the greatest impacts lie. See 'Resources' for more information.

Travel policy

Build travel considerations into the environmental policy. This could include, for example, a commitment to use the lowest-emission transport for the orchestra, conductor and soloists when cost effective (e.g. ground travel only within the UK). See 'Resources' for more information.

Pre tour planning

Think about minimising greenhouse gas emissions from musician and instrument travel when planning tours. Evaluate the carbon savings of different travel modes alongside musician well-being and cost to determine the most efficient travel options.

A quick opportunity to save greenhouse gas emissions is to rationalise air travel: planning could allow switching from planes to inter-city trains.

Where possible, develop opportunities for residencies and multiple performances in one locale to showcase the orchestra while reducing the travel impacts and duplicate trips.

Book travel as early as possible to take advantage of public transport early bird and group travel discounts, increasing the cost effectiveness of choosing more environmentally responsible transport.

Plan instrument shipping by ground transportation to avoid freighting by air. Where feasible, such as for percussion, use locally sourced instruments.

Reduce the impact of necessary travel

Travel by rail rather than flying, substituting domestic and European flights with train journeys.

Choose public transport or coaches to transport musicians and instruments where possible, particularly in place of individual car travel for local and regional performances.

Where car travel is unavoidable, promote car sharing and offer transport for instruments to maximise the number of people per vehicle.

A quick win for energy and carbon saving, which is often undervalued in transport, is to adopt an eco-driving style and to improve staff driving efficiency in both company and personal vehicles. See 'Resources' for more information.

Where possible for urban concerts and rehearsals, use public transport for local travel. If unavoidable, ensure car-pooling or use low emission taxi companies.

Procurement and supply chain

Incorporate 'green' riders into contracts with venues and suppliers to reduce tour and performance impacts. These could include asking for advance information about each venue, such as recycling, energy management plans, sourcing sustainable food, and local low impact transport for longer engagements and rehearsals.

Choose sustainably and locally sourced merchandise and low-carbon CD packaging for music sold at events.

Select hotels based on good environmental guidelines and performance.

Staff

Communicate the orchestra's commitment to lower-carbon touring to the musicians, soloists and conductors, to explain transport choices.

Let the musicians, soloists and conductors know about environmental information for tour venues, such as local recycling and public transport options for longer engagements, to reduce impact while on tour.

WILTSHIRE MUSIC CENTRE

The Wiltshire Music Centre may be a smaller venue in comparison to our other case studies of the Barbican and Royal Albert Hall, but it is still making significant progress on reducing their emissions. It's not just their recycling scheme and their plans for bicycle racks that interest us, but their energy management, which really jumped off the page. In Spring 2010, the Centre will be undergoing a new development – the installation of 96 solar panels which will cover 50% of their daytime energy consumption. This, with the appropriate funding, is a giant leap in the direction of a huge reduction in carbon emissions, and it doesn't stop there.

The Trust's Environmental Working Group has plans for internal management (listed in the Trust's recently adopted Environmental Policy and Action Plan). They are currently working on staff awareness and look forward to expanding this to external core users and key partners in May. With this in progress, the Trust's CEO and Artistic Director Keith Nimmo is also working with Salisbury Playhouse to plan an event in June to include wider stakeholders. One of a series of Regional Arts Development Days delivered through W&SAA (Wiltshire & Swindon Arts Alliance), this aims to get over 20 local arts organisations actively involved in environmental and sustainability issues. The Centre has also signed up to Climate Friendly Bradford-on-Avon's pledge to make the town Carbon Neutral by 2050. This group is Lottery Funded, and aims to reduce carbon emissions, promoting a greener way of life and raising awareness of climate change within the area.

Not forgetting the Centre's public presence, following the launch of its new website in January, an Environmental Page is soon to be added. This will cover the Trust's activities and work planned to further reduce the Centre's environmental impact. With this in place, Keith notes that "by the end of March 2011, we aim to be able to account for our environmental impact and all improvements made".

AUDIENCE TRAVEL

> Who is it for?

Orchestras, promoters, venues

Measure current impact

Carry out a travel audit to identify the impacts of audience travel and prioritise the most effective actions to manage and improve it. See 'Resources' for more information.

Inform the audience

Provide travel information at the point of booking and with the ticket and programme:

• provide greater visibility and links to public transport options on the venue, promoter and orchestra websites;

• make service updates about public transport available at the performance to help audiences get home;

• provide links to walking maps, walking buddy initiatives and car sharing schemes on venue, promoter and orchestra websites.

Encourage public transport use, walking and cycling

Work with local authorities and travel operators to ensure public transport services work for concertgoers.

Secure special ticket discounts for people arriving via public transport.

Provide coach facilities and agree deals for special coach transport services to events.

Provide "ticket plus transport" options at the point of booking.

Increase car park charges.

Secure special ticket discounts for people arriving on bicycle.

Provide secure bike storage at venues, festivals and concerts.

SAGE GATESHEAD

On celebrating their 5th Birthday, The Sage Gateshead released some figures which were collected over their first five years – in which time they have reduced their carbon footprint significantly with electrical and gas consumption already reduced by 25.61% and 28% respectively. Sage Gateshead have also taken further steps to become an environmentally responsible and sustainable business, by signing up to the 10:10 commitment which aims to reduce their carbon emissions by 10% in 2010. Alongside this commitment, they are actively engaged with BS 8901, and all projects including energy usage and impact are closely monitored by their Green Team, dedicated to reducing the venue's environmental footprint any way possible. One of the newer, innovative projects they are starting is to discourage visiting artists consuming endless new bottles of water instead of accepting tap water, as well as installing electric vehicle charging points outside the venue. All of these issues are high priority to the Board, and with their Chair Lord Puttnam, who led for the Government in the House of Lords on the Climate Change Bill, Sage Gateshead looks to show the way forward.

PERFORMANCES AND REHEARSALS

Orchestras have limited opportunities to reduce environmental impacts at venues and in rehearsal spaces. However as high-profile incoming clients, orchestras do have a degree of influence and can start by asking more of their spaces. The key areas to think about are energy use, travel to the venue, and reducing waste while there. A few ideas include:

• where possible, choose venues and rehearsal spaces that have good energy performance and energy management plans in place. If regularly used venues do not, ask why not;

• let the orchestra know about the venue's energy and waste management practices, including where to recycle, and a reminder to switch off lights and equipment when not in use;

• think about buying renewable energy certificates or carbon offsets to reduce the impact of energy use during, and travel to and from, performances and rehearsals;

• for performances, make announcements of changes at the venue and online, and avoid printing additional inserts for programmes;

• 'green' riders can be incorporated into contracts encouraging better environmental behaviour.

See 'Buildings' and 'Travel and Touring' for more information.

RECORDINGS

Choose to record live performances. This will reduce the impacts from travel and energy use for additional recording sessions at studios.

Digital delivery of recordings cuts out transportation and emissions resulting from product materials processing. This can deliver particular benefits for orchestras' own labels where production and distribution is centralised rather than licensed globally. However digital music still carries with it an emissions profile via the energy required to store, deliver, stream and playback the music. These impacts are still being determined at this stage – but should be considered when assessing the GHG emissions benefits of music delivery.

With physical product, one of the largest sources of greenhouse gas emissions from recordings is the actual manufacture of CDs and CD packaging. This impact can be reduced by thinking about choosing card-based rather than plastic (jewel case-packaged) packaging. By moving to a pure card option the greenhouse gas emissions from the packaging itself can be virtually elminated. Even a combined card and plastic packaging option would reduce greenhouse gas emissions substantially.[2]

[2] Moving to a pure card option would reduce greenhouse gas emissions from packaging itself by around 95% (excluding transportation and distribution). Moving to a combined card and plastic option would reduce greenhouse gas emissions from packaging itself by over two thirds (excluding transportation and distribution). Julie's Bicycle (ed.), Arup, Environmental Change Institute and Purchasing for Profit (2009). *Impacts and Opportunities: Reducing the Carbon Emissions of CD Packaging*. Julie's Bicycle, London

MARKETING

> Who is it for?

Orchestra management, promoters, venues.

*See 'Buildings' for more information.

Greening marketing

Choose electronic delivery for mail-outs and marketing materials. Consider shifting to soft copy for key, typically 'high run' documents, such as annual reports.

Wherever possible, use products and supplies from certified sustainable sources. Only use 100% recycled paper and low toxicity inks for programmes and other published material.

If producing merchandise, choose low environmental impact options for CDs, clothing, etc.

Promotion

Work with visiting artists who are environmental champions to make specific performances or tours low carbon.

Look for sponsorship from companies who can help reduce emissions, e.g. travel operators providing free or low cost train travel to performances.

Audiences

Tell the audience about the orchestra's commitment to go green: make performances a source of inspiration and a showcase for better thinking and technologies such as low carbon performances.

Show how the orchestra or venue has reduced its greenhouse gas emissions over the last year, and highlight targets for reductions over the coming season.

Secure special ticket discounts for people arriving via low impact travel or public transport.

Provide or promote a simple carbon calculator on websites, and at point of ticket purchase, to show concertgoers how much they can reduce their emissions by travelling, for example, via public transport versus car travel.

BRITTEN SINFONIA

For a special performance marking the fourteenth United Nations Climate Change Conference in Poznañ in December 2008, the Britten Sinfonia elected to travel to the event by public transport, with the support of global organisation, Greenpeace. "We travelled by train to Brussels, then picked up two coaches from there" says Concerts Director Hannah Donat, "the players were happy with the arrangements, as we had luxury sleeper coaches and they enjoyed the novelty of the experience". According to Hannah it was relatively straight-forward to plan, and Britten Sinfonia would definitely like to use this as an option again in the future. "We would love to travel this way again" says Hannah, "but it was very expensive...we would only be able to do this again if we had the time available in the schedule and the budget!"

Inside the UK, Britten Sinfonia also travel to their smaller events by coach, including Bradford-on-Avon, Dartington, Leeds and Cockermouth in the Lake District.

6. Glossary

Carbon Dioxide. A naturally occurring gas, and a by-product of burning fossil fuels and biomass, as well as land-use changes and other industrial processes. It is the principal anthropogenic greenhouse gas that affects the Earth's radiative balance. It is the reference gas against which other greenhouse gases are measured and therefore has a Global Warming Potential of 1.

Carbon Dioxide Equivalent (CO_2e). The universal unit of measurement used to indicate the global warming potential (GWP) of each of the six Kyoto greenhouse gases. It is used to evaluate the impacts of releasing (or avoiding the release of) different greenhouse gases.

Compact Fluorescent Lightbulbs (CFL). Compact fluorescent light bulbs are 75% more efficient than incandescent light bulbs and last up to 10 times longer. When the light is switched on the current causes gases inside the light bulb to produce ultraviolet light which excites a fluorescent coating in the tube, emitting visible light.

Climate. Climate in a narrow sense is usually defined as the "average weather," or more rigorously, as the statistical description in terms of the mean and variability of relevant quantities over a period of time ranging from months to thousands of years. The classical period is three decades as defined by the World Meteorological Organization (WMO). These quantities are most often surface variables such as temperature, precipitation, and wind.

Climate change. A change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability over comparable time periods.

Copenhagen Accord. The outcome of the 15th Conference of Parties at the United Nations Conference on Climate Change held in Copenhagen in December 2009. It was hoped the Conference would replace or extend the Kyoto Protocol (see below) which will expire in 2012. However the outcome was an accord reached between the US, China, India, Brazil and South Africa which still has to be endorsed by the 193 countries at the talk in order to become an official UN agreement. Countries have been asked to submit their pledges for curbing carbon emissions by 2020, by February 1st 2010. The Accord recognises limiting temperature rises to less than 2°C above pre-industrial levels.

Direct emissions. Emissions that are produced by organisation-owned equipment or emissions from organisation-owned premises, such as carbon dioxide from electricity generators, gas boilers and vehicles, or methane from landfill sites.

Emissions. The release of a substance (usually a gas when referring to climate change) into the atmosphere. Global warming. The continuous gradual rise of the earth's surface temperature thought to be caused by the greenhouse effect and responsible for changes in global climate patterns.

Global Warming Potential (GWP). The GWP is an index that compares the relative potential (to CO_2) of the six greenhouse gases to contribute to global warming i.e. the additional heat/energy which is retained in the Earth's ecosystem through the release of this gas into the atmosphere. The additional heat/energy impact of all other greenhouse gases are compared with the impacts of carbon dioxide (CO_2) and referred to in terms of a CO_2 equivalent (CO_2e) e.g. Carbon dioxide has been designated a GWP of 1, Methane has a GWP of 21.

Greenhouse Effect. Trapping and buildup of heat in the atmosphere (troposphere) near the Earth's surface. Some of the heat flowing back towards space from the Earth's surface is absorbed by water vapour, carbon dioxide, ozone, and several other gases in the atmosphere and then reradiated back toward the Earth's surface. If the atmospheric concentrations of these greenhouse gases rise, the average temperature of the lower atmosphere will gradually increase.

Greenhouse gases (GHG). The current IPCC inventory includes six major greenhouse gases. These are Carbon dioxide (CO_2), Methane (CH_4), Nitrous oxide (N_2O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), Sulphur hexafluoride (SF6).

Heating, ventilation and air-conditioning (HVAC). HVAC systems control the temperature, moisture level and air quality inside buildings.

IPCC. The Intergovernmental Panel on Climate Change. A special intergovernmental body established by the United Nations Environment Programme (UNEP) and the World Meteorological Organisation (WMO) to provide assessments of the results of climate change research to policy makers. The Greenhouse Gas Inventory Guidelines are being developed under the auspices of the IPCC and will be recommended for use by parties to the Framework Convention on Climate Change. Indirect emissions. Emissions that are a consequence of the activities of the reporting company but occur from sources owned or controlled by another organisation or individual. They include all outsourced power generation (e.g. electricity, hot water), outsourced services (e.g. waste disposal, business travel, transport of company-owned goods) and outsourced manufacturing processes. Indirect emissions also cover the activities of franchised companies and the emissions associated with downstream and/or upstream manufacture, transport and disposal of products used by the organisation, referred to as product life-cycle emissions.

Kyoto Protocol. The Kyoto Protocol originated at the 3rd Conference of the Parties (COP) to the United Nations Convention on Climate Change held in Kyoto, Japan in December 1997. It specifies the level of emission reductions, deadlines and methodologies that signatory countries (i.e. countries who have signed the Kyoto Protocol) are to achieve.

Light emitting diode (LED). Light emitting diodes radiate light when electricity is passed through a semiconductor. LEDs are more than 80% more efficient than incandescent light bulbs, which use electricity to heat a filament which glows when hot. Replacing incandescent light bulbs with LEDs reduces energy demand for both lighting and for heating.

United Nations Framework Convention on Climate Change (UNFCCC). The Convention on Climate Change sets an overall framework for intergovernmental efforts to tackle the challenge posed by climate change. It recognizes that the climate system is a shared resource whose stability can be affected by industrial and other emissions of carbon dioxide and other greenhouse gases. The Convention enjoys near universal membership, with 189 countries having ratified.

7. Resources

General

Business Link
www.business link.gov.uk
Extensive information on environmental management systems, policies, taxes and tax breaks.

The Carbon Trust
www.carbontrust.co.uk

Energy Savings Trust
www.energysavingtrust.org.uk

Global Action Plan - environmental training for businesses.
www.globalactionplan.org.uk

Carbon measurement methodologies

GHG Protocol
The GHG Protocol is the internationally recognised standard for corporate accounting and reporting of greenhouse gas emissions developed jointly by the World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD).

ISO14064-1 – Greenhouse gases
A specification with guidance at the organisation level for quantification and reporting of greenhouse gas emissions and removals.

Department of Environment, Food and Rural Affairs/Department of Energy and Climate Change
In line with the UK Climate Change Act 2008, DEFRA/DECC have published guidance on emissions reporting for businesses including guidance on what conversion factors to apply to the activities included within the carbon footprint.

Driving and Travel

AA Environmental Driving
www.theaa.com/aattitude/driving-truths/environment/index.jsp

EcoDriving
www.ecodriving.com/eng/

The Man in Seat Sixty-One - a site to help plan overland travel instead of flying.
www.seat61.com

The Transport Direct - includes useful planning information and free tools to add to websites for calculating travel emissions.
www.transportdirect.info
See also GHG Measurement below.

Transport for London employee Travel Policy
www.tfl.gov.uk/assets/downloads/.../travel-at-work-policy.pdf

Environmental Management Systems

ISO14001 – Environmental Management System Provides a framework for the development of an environmental management system and the supporting audit programme.

BS8555 – Building on BS EN ISO 14001 and the EU Eco-Management and Audit Scheme (EMAS), this British Standard provides guidance to all organisations on the phased implementation, maintenance and improvement of a formal Environmental Management System (EMS).

BS8901 is the British Standard that provides requirements for planning and managing sustainable events of all sizes and types.

Offsetting

The UK Government has a new Quality Assurance Scheme for Carbon Offsetting. Find out more at Directgov http://tinyurl.com/y9am6b6 or Act on CO_2 http://tinyurl.com/ygvdzph

Procurement

Green Procurement Code
For help with designing a green procurement policy and incorporating green specifications into bought or designed products or services. www.greenprocurementcode.co.uk

Green Electricity Marketplace
A site to find out more about green electricity tariffs.
www.greenelectricity.org

Regulatory schemes

Energy Performance Certificates (EPCs) and Display Energy Certificates (DECs).
Mandatory for any building being built, sold or rented, the EPC includes an A-G rating of the energy efficiency and carbon emissions of the building. DECs are required of buildings occupied by a public authority or institution and buildings more than 1,000m2 in floor area.

The Carbon Reduction

Commitment (CRC)
An emissions trading scheme that will achieve reductions and affects all government departments and large businesses whose annual half-hourly metered electricity use is above 6,000 megawatt-hours (MWh).

Sustainability Reporting
The Global Reporting Initiative (GRI) is a network-based organisation that has pioneered the development of a widely used sustainability reporting framework. They are committed to its continuous improvement and application worldwide. This framework sets out the principles and indicators that organisations can use to measure and report their economic, environmental, and social performance.

TOOLS

Action Plans and management

Eventberry eventberry.com
Eventberry is a web-based tool designed to enable sustainable event management and BS8901 compliance.
See also Arts Energy Toolkit and DCMS Toolkit (below)

Energy and Emissions Monitoring and Management

SMEasure smeasure.org.uk
SMEasure is a web-based tool for building energy use analysis and carbon monitoring. Unlike the calculators listed above which are an annual or one-off "snapshot". Using regular meter readings and incorporating weather-energy analysis, SMEasure analyses building performance on a weekly basis. It has been developed specifically for the needs of small and medium-sized businesses.

GHG Measurement

Arts Energy Toolkit artsenergy.org.uk
Arts Council England has developed a self-assessment web-based toolkit for arts organisations to help them implement an effective energy management programme including an action plan. Measures building energy use only, in kWh but not CO_2

Carbon Trust http://bit.ly/4yoQ0K
Web-based calculator that helps organisations calculate their annual carbon footprint using data on fuel and vehicle usage, the company's electricity bill and employee travel. An indicator tool that uses energy bills and sector type is also available.

DCMS Toolkit http://bit.ly/5ugUFg
A downloadable document-based toolkit that provides guidance on how to develop a carbon policy and gather data to produce an annual carbon footprint.

IG (Industry Green) tools juliesbicycle.com/industry-green
Web-based tools designed specifically for creative sector organisations to measure and benchmark annual GHG emissions resulting from venues, festivals and outdoor events and offices.

Voluntary, sector-specific initiatives or awards schemes

British Standards Institute (BSI) and International Organisation for Standardisation (ISO)
Provide both guidance for implementing an environmental management system (see below) and a standard against which organisations can be certified by a third party assessor.

The Building Research Establishment's Environmental Assessment Methodology (BREEAM)
Can be applied to all non-residential building refurbishments and new builds.

The Carbon Trust Standard
Awarded to organisations that measure, manage and reduce their carbon footprint.

Carbon Disclosure Project
Operates the only global climate change reporting system for any organisation wishing to, or requested to, publicly report their greenhouse gas emissions and climate change strategies.

EMAS - the Eco-Management and Audit Scheme
A voluntary initiative established by European regulation to improve companies' environmental performance.

Industry Green
A certification scheme tailored to the creative industries. Industry Green provides a framework for ongoing GHG emissions reductions.

The Green Tourism Business Scheme
The national sustainable tourism certification scheme for the UK.

8. Thanks

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