

## **Green-houses: is theatre the eco-vandal of the arts?**

Climate change is a very human issue. It is impossible to remain ignorant of our responsibility to combat it and protect our future. No action is too small to make a difference and the way we work in the future can lead this change. The sustainability of theatre buildings through power use, use of materials, and disposal of waste is of concern.

The total emissions from London theatres (excluding pre-production and audience travel) are approximately 50,000 tonnes of CO<sub>2</sub> per year. This is equivalent to driving a car 1.5 million times round the M25. This figure is only set to grow, particularly as productions use more energy to create ever more visually spectacular shows. It is now our duty to lead positive approaches to reducing these emissions by addressing the energy efficiency of productions and theatre buildings.

Outlined in a document entitled *Green Theatre – Taking Action on Climate Change*, a joint initiative between London Mayor Boris Johnson and leading theatre groups; theatre carbon emissions come from activities front of house (35%), heating and cooling of rehearsal space (28%), theatre offices and backstage lighting and power (9%) and stage electricals (9%), Mayor of London (2008a). The document is part of the aim to see London's theatres achieve a 60% reduction in their carbon emissions by 2025. The document does not however take fully into account audience travel which, according to the report, contributes a further 35,000 tonnes of carbon emissions per year. One third of London theatregoers still travel by car or taxi, providing 14% of the total audience travel emissions.

The question is, perhaps, why should theatres act on climate change? The answer is that theatre has the ability to tackle current issues, and not just through performance. There is a powerful opportunity to engage audiences through vision and inspiration that theatre is best placed to achieve. Margaret Hodge, MP, is quoted by The Theatres Trust (2008) as saying:

Theatre is ideally placed to show audiences what is possible; to set a good example in the way its building are run; to reflect what is happening in society and show people that living a lower carbon lifestyle is something to be excited about, to be energised and inspired by.

Theatres have a wide reach and therefore have the opportunity to demonstrate to their audience what is possible. Additionally, many of the suggestions for energy-saving will, in turn, save considerable amounts of money. As energy prices rise ever further and during the economic turndown, there is a financial urgency to take action. Being economically friendly also has a desirable image and therefore is attractive to audiences, staff, performers and others within the theatre and creative industries. The changes need not be expensive or difficult and needn't impose or compromise artistic integrity or quality. It is everyone's responsibility to act.

According to Allwood & Richards (2008), new government legislation in 2008 requires all new non-domestic buildings to assess their energy efficiency and obtain Energy Performance Certificates. This, of course, includes theatres and performance buildings. EPCs are required whenever a building is constructed, sold or rented. The purpose of the certificates is to give the new occupier information about the energy efficiency of the building. The

certificate also shows bench-marking ratings of the figure that the building would achieve if it was newly built to the latest regulations, as well as the average rating for similar buildings across the country. The certificate is also accompanied by a report setting out recommendations for improvement.

Display Energy Certificates are required for all buildings over 1000m<sup>2</sup> that are occupied in whole or in part by public authorities, and by institutions providing public services to a large number of persons and therefore frequently visited by those persons. The certificate must be displayed for visitors to see and are derived from actual meter readings and so provide an indication of actual carbon emission performance over the previous 12 months. Assessments are made by trained assessors and the report and recommendations show the expected time to recoup the initial investment through savings in energy bills.

London's Arcola Theatre is one of the UK's leading eco-friendly venues; their aim, to become the world's first carbon neutral theatre. The Arcola has installed a hydrogen fuel cell to power front of house lighting and selected main house shows and is placed in the foyer, providing a subject for discussion of the benefits and challenges of this pioneering technology. The Arcola also host environmental events and conferences such as the 'Green Sunday' initiative, an event held monthly where people come together to discuss and learn about climate change issues. Arcola also work closely with their production companies to ensure that their plays are as sustainable as possible. In 2010 they are preparing a 'Green Season' initiative and have partnered with Friends of the Earth to produce a play about climate change to be shown at festivals this summer. Arcola are also looking to work further within their local community to develop the theatre as a hub, Jones (2009b).

The National Theatre has formed a partnership with Philips to replace its exterior and foyer lighting with highly efficient LEDs. The renewed lighting reduces the energy needed to light the 'flytowers' by 70%, saving £100,000 per year upon completion of the project. The five-year partnership will see Philips introduce new energy-saving schemes through a three-phase plan which includes replacing the SEEFAC sign with a Philips Vidiwall. This will give a reduction of 55 percent of electricity consumed, saving 30 tonnes of CO<sub>2</sub> per year alone. The National Theatre has also saved 50 percent of its overall water consumption by introducing infra red motion sensors to control urinal flushing. During toilet refurbishment, they also introduced low content cisterns and flow restrictors on taps. By aerating taps and showers, they were also able to improve their water usage, Mayor of London (2008a).

The Dominion Theatre, currently home to *We Will Rock You* in the West End, received the Mayor's Green Procurement Code 'Extra Mile Award' for their recycling and energy-saving programmes. Part of this programme is a battery-recycling scheme, to handle the disposal of some 544 AA batteries that are used each week in the stage microphones. They have also introduced recycling of paper, glass, aluminium, plastic and cardboard – placing recycling containers in the bar areas, as well as can crushers throughout the building. Their scheme also supports the recycling of fluorescent light tubes and other lamps, as well as mobile phones from the lost property and from their staff. Importantly, the Dominion also considers sustainable procurement, purchasing only recycled stationery and biodegradable cleaning products. All refuse bags, toilet rolls, hand towels and napkins are recycled. Non essential printing is reduced, what is printed uses an eco font that uses minimal ink and is double-sided to save on pages. Print cartridges are also recycled, with the Dominion being paid for the privilege. All computers are set to hibernate after 5 minutes of being not in use.

They have also installed light sensors in all toilets around the building and have installed water 'hippos' in backstage toilets which reduce water consumption. Unfortunately it is not currently feasible to use this front of house due to the high volume of use over a short space of time. All food and beverage products packaging is 100% recyclable, meaning that the pick-up after each show is now fully recyclable besides food stuffs, Sparks (2005).

At the end of 2008, all Live Nation venues were required to undergo an environmental audit. This takes the form of a questionnaire which provides a score for each venue and is useful for flagging up areas for improvement. Each venue now has environmental targets for 2009. The Dominion is currently the leading venue with a 73% score, Jones (2009e).

Here I have produced a diagram that I feel best represents the process of developing a sustainable approach within your organisation. Firstly, you should assess your current situation. In order to reduce your emissions, you must start by identifying where you can make changes. Secondly, make an action plan to articulate your goals and targets and outline your basic approach. Thirdly, involve staff; provide training to change their habits. Then, carry out your plan. Follow it carefully and meet your targets. Finally, be certain to keep accurate records. If you record your energy consumption, you can track how you are doing against your targets and also identify possible limitations or problems. The cycle is continuous, you must continue to re-assess and re-plan your approach as your situation changes.

At every stage of production, carbon emission savings can be made. In the management of venues, actions such as switching to low-energy compact fluorescent bulbs in the foyer and backstage lighting, and reducing the hours of operation by switching off or the use of motion sensors and timer switches can provide an overall saving of 12% of building CO<sub>2</sub> emissions Mayor of London (2008b). Further savings can also be gained by switching to compact fluorescents in that they produce less heat and so this lowers your need for air conditioning. They also require replacing less often and need less maintenance. According to Mayor of London (2008b), the cost of replacing these lamps will pay for itself in just two and a half years. Turning on auditorium heating later in the day, reducing temperature for night-time hours and lowering the thermostat in workshops and storage areas will also provide a CO<sub>2</sub> saving of up to 10%. In addition to this, by reducing the set temperature by 1 degree, it is possible to save an average of 8% on the heating bill. Also look to survey radiator and heater usage to see whether all radiators are needed. Switch off those in un-used areas. These are the invisible actions but can have the biggest advantages to energy saving. The visible actions such as recycling, although less advantageous, are nonetheless important and in addition are good for staff and audiences to observe. Reuse of materials, wherever possible, should always be the first choice. Where this is not possible, implementing recycling schemes for sets and props, batteries, costumes, bar consumables such as glass and plastic, waste electrical equipment, office supplies and stationery, and unused leaflets and programmes, will provide a variable CO<sub>2</sub> saving. Place recycling containers front of house in the bars and in staff areas, as well as backstage. Look to change your waste management provider to one offering recycling – this will also save money as less goes to landfill. If this is not possible, look to use a recycling company such as *The Laundry* who provide cheap recycling in central London. Sustainable purchasing should also not be overlooked. There are usually a number of alternative materials that will assist your carbon reduction. Sustainably source your office stationery, bar consumables such as napkins and disposable cups, toilet rolls and cleaning products. During maintenance, look at using environmentally

friendly paints, recycled fibre carpets and sustainable timber. It is also important to work with suppliers and visiting production companies to encourage positive environmental behaviour. This can be achieved by specifying in contracts that companies must appreciate and comply with your environmental practices. It is possible to have a large impact through your supply chain. Look at adding recycling facilities in dressing rooms and backstage and encourage visiting companies through putting information on your environmental procedures in welcome packs.

Theatre throws up some additional difficulties in adopting sustainable actions through the nature of our work. Robert Longthorne, the Building Development Director of the Liverpool Everyman and Playhouse discussed how in their current capital project, sustainability rides at the top of the priority list. However, they have had difficulty in finding theatre-specific information, Jones (2009a). The biggest challenge they have faced is that demand for the highest energy use in theatre is over a short space of time. Particularly with toilets, water hogs cannot serve the high demand and to use rainwater harvesting would require a tank so large that there is not sufficient space to house it. This is a big issue that available technology cannot as yet solve. Changing people's attitudes and behaviours is also one of the biggest tasks. To be fully successful, we must remove the disconnection in people's minds between individual actions and climate change. In implementing a sustainability plan within a theatre, it is vital to understand the importance of involving and educating staff. One common approach is to create dedicated 'sustainability champions'. By giving a member of staff 'green' responsibilities, they are able to develop and promote understanding of other staff. However, the problem often found with this is that it becomes one person against everyone else.

Therefore, I believe it is important to find a way to put sustainability on everyone's agenda. By prioritising and making it part of strategy, it becomes everyone's responsibility. Success is largely dependent on the co-operation of staff and therefore, it is imperative to provide adequate training.

A further issue is in funding these changes. Although they can be as expensive or inexpensive as one likes, there is still a need to invest some money or time. Funding streams are a difficulty currently faced by the Everyman and Playhouse in sourcing eco-friendly systems for the redevelopment of the Everyman. Sustainability is not at the top of the agenda for any of the large arts or regeneration funders and therefore organisations often have to support these changes themselves. The Carbon Trust do however offer interest free loans for Small to Medium-sized Enterprises to upgrade to more energy-efficient equipment. Businesses paying Corporation Tax can also benefit from Enhanced Capital Allowances (ECAs) to get tax relief for the purchase of energy-saving technologies.

So we return to the question: is theatre the eco-vandal of the arts? According to Jones (2009c) Barry James of the Manchester Royal Exchange reflected on this:

Is theatre intrinsically 'un-green', given that we are making transient productions? Or is our impact no worse than (or even better than) other activities that would be alternative subjects of discretionary/leisure spending, e.g. the purchase of new clothes and other 'materialistic' habits?

In the bigger picture, theatre is arguably not the eco-vandal. London's annual CO<sub>2</sub>

emissions total 44million tonnes and therefore theatre, at 50,000 tonnes, only contributes a relatively small percentage of the total emissions.

Climate change is such a nebulous term that it is important to make it understandable and practical to everyone. I believe that there is a genuine desire to make efforts and the important fact is that each individual theatre can make a big impact. That said, if theatres were to work together, the impact could be much larger. The issue of CO2 emissions from audience travel can only properly be tackled by theatres working together. Revenue benefits and profile-boosting make it attractive and therefore I encourage us, as future managers, to consider the benefits to be had by making efforts into sustainability, together.

I would like to leave you now with three final facts. Mayor of London (2008a) states that:

- Lighting an office overnight wastes enough energy to heat water for 1000 cups of tea.
- Switching off non-essential equipment in an office overnight saves enough energy to run a small car for 100 miles.
- If all central London theatres switched the rig on at the 'half hour' they could collectively save over £100,000 a year in energy costs alone.

Thank you for your time and contemplation. I welcome all questions to [blog@theatrejunki.com](mailto:blog@theatrejunki.com).

Tim Jones

## Resources:

Advice for music venues: <http://www.juliesbicycle.com/>  
Arcola Energy: <http://www.arcolaenergy.com>  
Arts Council England's Eco-toolkit:  
[http://www.artscouncil.org.uk/aboutus/project\\_detail.php?rid=8&id=379](http://www.artscouncil.org.uk/aboutus/project_detail.php?rid=8&id=379)  
Better Buildings Partnership: <http://www.lcca.co.uk/>  
Car Share Network: <http://www.carshare.com/>  
Carbon Trust – interest free loans:  
<http://www.carbontrust.co.uk/energy/takingaction/loans.htm/>  
Carbon Trust: <http://www.carbontrust.co.uk/>  
Courier Systems offer a carbon neutral courier service: <http://www.courier-systems.co.uk/>  
Eco-friendly cleaning products: <http://www.eco-works.co.uk/>  
Energy Saving Trust: <http://www.energysavingtrust.org.uk>  
Energy Surveys:  
[http://www.carbontrust.co.uk/energy/assessyourorganisation/energy\\_survey.htm](http://www.carbontrust.co.uk/energy/assessyourorganisation/energy_survey.htm)  
Energy Technology List: <http://www.eca.gov.uk/etl>  
Enhanced Capital Allowances: <http://www.carbontrust.co.uk/energy/takingaction/eca.htm>  
Environmentalism and the performing arts: <http://www.ashdendirectory.org.uk/>  
FirstMile recycling: <http://www.thefirstmile.co.uk/>  
Global Action Plan provide free carbon audits: <http://www.globalactionplan.org.uk/>  
Green Theatre Calculator: <http://www.theatretrust.org.uk/news/show/322>  
Green Theatre Plan: <http://www.greeningtheatres.com/>  
Green Tourism Business Scheme: <http://www.green-business.co.uk/>  
Lamp recycling: <http://www.mico.co.uk/>  
LDA Envirowise: <http://www.envirowise.gov.uk/>  
LED Lighting: <http://www.pixelrange.com/>  
London Remade – Green Procurement Code: <http://www.greenprocurementcode.co.uk/>  
London Remade Solutions: <http://www.londonremade.com/greening-the-office/>  
Measure your carbon footprint: <http://www.carbonfootprint.com>  
Mobile phone recycling: <http://www.envirofone.com>  
Paper recycling: <http://www.thelaundry.biz/>  
Print cartridge recycling: <http://www.officegreen.co.uk/>  
Recycling of redundant IT equipment: <http://www.maxitech.biz/>  
Recycling: <http://www.loopsolutions.co.uk/recycle/index.html>  
Recycling-led waste management: <http://www.greenstar.co.uk/>  
Ride to Work Scheme:  
<http://www.evanscycles.com/ride2work?rw.cm=Google,PPC,ride+to+work&OVMTc=Exact&site=&creative=2299363976&OVKEY=ride%20to%20work&rw.cm=Google,PPC,ride+to+work&gclid=CMG476HYpJcCFQRBMAodSFZt-Q>  
The Green Stationery Company – suppliers of recycled stationery:  
[http://www.greenstat.co.uk/storefront/evolution\\_index.html](http://www.greenstat.co.uk/storefront/evolution_index.html)  
Theatres Trust: <http://www.theatretrust.org.uk/>  
TippingPoint - arts and climate change: <http://www.tippingpoint.org.uk/>

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