

A green splatter graphic with a black silhouette of a shark swimming to the right, positioned behind the main title.

Green Visual Arts

Helping London's visual arts sector
take action on climate change

**FRIEZE
ART
FAIR**

JULIE'S BICYCLE 

MAYOR OF LONDON

**Greater London Authority
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Foreword by Boris Johnson, Mayor of London

I want London to be the best big city on the planet. Already our great capital boasts the most diverse, stimulating and pioneering cultural offer which contributes not only to our quality of life but injects hundreds of millions into the economy every year. My vision is for London to also become the leading low carbon city, harnessing the opportunities – environmental and financial – that come with becoming drastically more energy efficient.

This is an exciting time for London. We are transforming the look and feel of the city through our programmes to improve the environment – the Barclay's public bike hire scheme is one very visual example. But we are also using the galvanising power of the Olympic and Paralympic Games to usher in a wave of new green ideas and enterprises, not least

those stemming from the development of a vibrant new metropolitan quarter in the east of the city.

I am delighted that our creative industries are ready to help take on this challenge. London's artists, galleries and fairs are recognised around the world as leaders in their field. They also directly employ over 8200 people and in 2008, arts organisations in London contributed £827 million of gross value to the UK economy. These industries can also put across a powerful message to their audiences here in London and across the world, extending the impact of their good practices.

Noble aspirations for the environment are of course, no use unless accompanied by tangible, practical measures. We have already collaborated well with London's music, theatre and screen industries,



creating effective, workable guides setting out specific areas where the creative sector can make a vital contribution to the city's carbon reduction targets and save money at the same time in tough economic times. These templates have been adopted with enthusiasm by scores of organisations and indeed, are now being replicated across the world.

I applaud the creative organisations that have already come on board, using their clout to help us meet our environmental goals. I have no doubt this latest guide will unleash even more inspiring ways to make our capital a less polluted, environmentally caring city.



Boris Johnson

Mayor of London



Matthew Slotover

Co-director, Frieze Art Fair

The visual arts sector in London spans many different types of organisation – large and small, public and private, established and new. Some are peripatetic, others inhabit permanent spaces, in buildings both modern and decades old. Amongst this diversity, there is much mutual support and common cause. In that spirit it has been a great pleasure for Frieze to coordinate this guide.

The arguments around climate change and the need for reduction of carbon emissions do not need rehearsing here. As a sector the visual arts in London is responsible for over 200,000 tonnes of CO₂ each year. The aim of this guide is to survey where the emissions lie, and to begin to outline some tangible and realistic steps organisations can take to reduce them.

Julie's Bicycle ran Frieze's first carbon audit in 2007. They

identified our use of generators running diesel at Frieze Art Fair as a major source of emissions. We have worked with our suppliers this year to run the fair on 100% recycled vegetable oil biodiesel, reducing the Fair's footprint by 60%.

This guide has been tailored to the specifics of organisations who work in the visual arts. Some of the suggestions are one-off actions that can be completed quickly and could save our organisations money; others are long-term and require planning and investment. I hope it proves useful for all.



Matthew Slotover

Co-director, Frieze Art Fair



Thank you

The following individuals and organisations have supported the development of this guide. We would like to thank them for their contributions.

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- Affordable Art Fair
- Antony Gormley
- Artangel
- Artsadmin
- Bow Arts Trust
- Camden Arts Centre
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- Central Saint Martins
- Chisenhale Gallery
- Constantine
- Cornelia Parker
- Creative Climate project, Open University
- Cubitt Gallery and Studios
- Engage in the Visual Arts
- Frieze Art Fair
- Furtherfield.org
- Gagosian Gallery
- Gasworks Gallery and Studios
- Greener Museums
- Hayward Gallery & Visual Arts
- IBID Projects
- Institute of Contemporary Arts
- Institute of International Visual Arts (Iniva)
- Martinspeed
- Michaela Crimmin
- Natasha Rivett-Carnac
- National Federation of Artists' Studio Providers
- National Portrait Gallery
- Parasol Unit
- PLATFORM
- Proboscis
- Royal Academy of Arts
- Royal College of Art
- RSA
- Sadie Coles HQ
- Serpentine Gallery
- Space Studios
- Stephen Friedman Gallery
- Tate Britain
- Tate Modern
- Victoria Miro
- Visual Arts and Galleries Association (VAGA)
- Whitechapel Gallery
- Workplace Co-operative 115
- Zoo Art Fair



Context

Why have we produced this guide?


The visual arts sector in London is made up of world renowned artists, publicly funded institutions, commercial galleries and art fairs. It is of vital importance to the capital, directly employing over 8,200 people and involving many more as volunteers. In 2008, visual arts organisations in London contributed £827 million of gross value to the UK economy, yet the sector has an impact far beyond what any statistics can convey. Even this assessment of economic productivity underestimates the sector's wider impacts, particularly in community development and bringing visitors to London.

The visual arts sector in London generates 220,442 tonnes of greenhouse gas emissions per year. Whilst this may be a relatively small proportion of London's total emissions, because of its influence the sector has a

key role to play in reducing London's overall emissions and making us a low carbon capital. In the current economic climate the imperative for taking such action is clear.

Why act now?

The measures set out within this guide will help you save money in both the shorter and longer-term. Adopting energy efficiency measures, renewable technology and linking up to decentralised energy will reduce reliance on increasingly expensive and potentially unreliable energy supply. It could also help you make money by taking advantage of initiatives like the government's Feed In Tariff. The creation of a low carbon creative sector in London will enable business to attract new investment from 'green' investors. This is at a time when traditional public sector funding streams are becoming harder to access, freeing up money to be recycled back into the arts. All of this is over and above the



comparative advantage of being seen to respond to a discerning global audience. So there is a great opportunity for the visual arts to use their unique wider influence and contribute to meeting London's target to reduce CO₂ emissions in London by 60 per cent by 2025.

The leading low carbon city


The Mayor's vision is that by 2025, London is one of the world's leading low carbon cities, with a thriving low carbon economy, some of the world's most energy efficient buildings, a secure and efficient energy supply, and world class low carbon transport.

In support of that vision, the Mayor has published the Draft Climate Change Mitigation and Energy Strategy for consultation. This Strategy aims to set out the policy framework and key delivery programmes in London which will work to make this transition a reality. It brings together Mayoral actions that are already under

way and further proposed measures. It has been developed with a number of aims: to reduce CO₂ emissions to mitigate climate change; to maximise economic opportunities from the transition to a low carbon capital, to ensure a secure and reliable energy supply for London; and to meet national and international climate change and energy objectives.

The Mayor will also publish his Draft Municipal and Business Waste Strategies for public consultation in autumn 2010. Both strategies set out plans to reduce London's waste, increase reuse and recycling rates, and use any remaining waste as fuel to generate energy. The strategies have been developed primarily to reduce the environmental impact of London's waste (particularly on climate change) in the most cost effective way.

The advice in this guide is consistent with the Mayor's climate strategies and if you



follow all the guidance you'll be able to play your part in helping London to achieve its target of a 60% reduction in CO₂ emissions by 2025.

Taking action

The guide starts by working out the carbon footprint of the visual arts on London. This was made possible by data contributions from over 50 organisations covering over 1000 individual museums, galleries, studios and art fairs. This estimate of the footprint is simply the first stage to help you understand your relative role and inform the action you could take.

The guide contains practical advice to help you reduce the impact of your own activities. The most important advice is to start doing something now. Often the global scale of this challenge, the assumption that it will cost money, sourcing trusted information or simply the demands of every day life, inhibit

action. However doing nothing about your environmental impact is not the solution. This document provides some simple actions for all those involved in the visual arts, and maps a carbon reduction journey from now to 2025.

By working together to improve efficiencies, explore joint-working and to influence public awareness, the visual arts sector has the opportunity to make a difference far beyond the sum of its parts - taking the small steps outlined in this booklet really can make a huge difference.

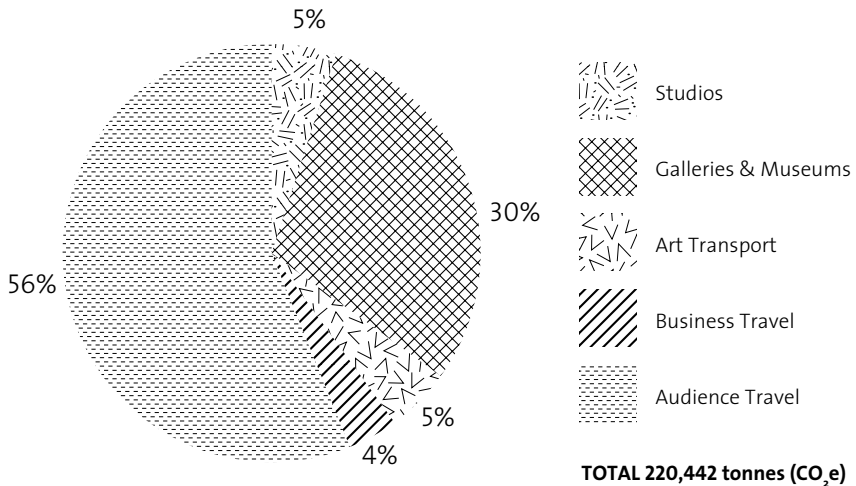
The following sections set out the scale and main causes of carbon emissions from the sector. This is an important first step in identifying the main areas where savings can be made.

For an explanation of terminology and jargon used in this report, please see the glossary in the supporting document.

Carbon Footprint of London's Visual Arts Sector

The summary below shows the estimated 2009 emissions of the visual arts sector in London – circa 220,442 tonnes (CO₂e).

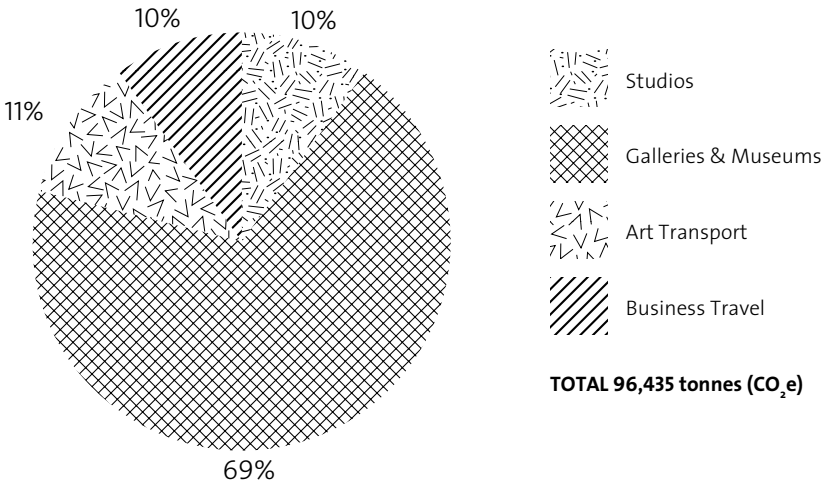
London visual arts emissions



The energy, water and waste from four art fairs and all office based employees (not in galleries, museums or studios) is less than 0.5% of the total.

If audience travel is excluded, because it is not under the direct control of the sector, the total is 96,435 tonnes (CO₂e) and the breakdown is as follows:

London visual arts emissions excluding audience travel



Emissions resulting from energy and water use, and waste from art fairs and office- based employees remains less than 1% of the total.

What was included in the totals?

We have included the built environment, events and operations associated with the visual arts within the London boroughs. Commercial and public galleries and museums were also included, as well as private and shared studios and the arts fairs that deal exclusively in visual art. Art handling companies provided data on behalf of some gallery contributors. The art fairs included were Frieze Art Fair, Zoo

Art Fair, The Affordable Art Fair and the London Art Fair.

The primary data collected was energy use (i.e. electricity, gas and diesel), water use, waste production, refrigerants, business travel and art transport. Audience travel was the secondary data collected. Table 1 below summarises what sources of emissions were considered for this project. Table 2 summarises the amount of data collected, and the proportion of the sector that data collection covered.

Table 1: Emissions considered within the visual arts sector footprint

Sector	Galleries	Museums	Studios	Art fairs	Offices
Energy	✓	✓	✓	✓	✓
Water	✓	✓	✓	✓	✓
Waste	✓	✓	✓	✓	✓
Refrigerants	✓	✓	✓	✓	✓
Art transport	✓	✓			
Business travel	✓	✓	✓	✓	✓
Audience travel	✓	✓		✓	

To avoid double counting and maintain the London boundary, art transport data was collected from galleries and museums or direct from their logistics contractors, for the outward journey only.

Table 2: Raw data collected as contributions to the Green Visual Arts Guide

	Number of samples	Percentage of sector covered
Galleries	18	4%
Museums	2	
Studios	1113	23%
Art Fairs	2	50%
Total:	1135	

What was left out and why?

We focused solely on visual arts and excluded the decorative arts (such as furniture), antiques and craft. Museums and galleries that deal predominantly with these entities are therefore excluded. For a full list of the activities excluded please refer to the back of the guide.

Further information

General advice for retail, offices, education and the residential sectors is available from the Greater London Authority (GLA), London Development Agency

(LDA), Carbon Trust, Energy Saving Trust and relevant sector bodies.

Links to further information and supporting documents are given at the back of this guide.

The main sources of further help and advice are:

Greater London Authority – **www.london.gov.uk/greening-londons-culture-industries**

London Development Agency – **www.lda.gov.uk**

Transport for London – **www.tfl.gov.uk**

Julie’s Bicycle – **www.juliesbicycle.com**

Energy Saving Trust – **www.energysavingtrust.org.uk**

Carbon Trust – **www.carbontrust.co.uk**

Achieving the 60% target

Adopting the measures within this guide will see the visual arts sector play an important role in contributing to London’s 60% CO₂ reduction target. The

following two diagrams summarise the main actions you can take and the scale of the potential reductions you can achieve.

Potential emissions reductions from visual arts footprint, in line with the Mayor’s target (from the 2009 baseline)

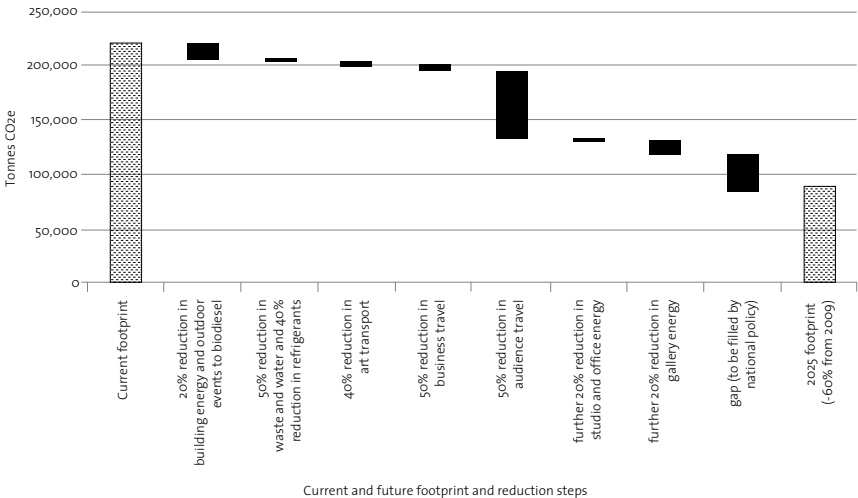


Table 3: Roadmap to 60% reduction

Source of emissions	Scope of emissions	Total emissions tonnes CO ₂ e		Description of reduction
		2009 – actual	2025 – target	
Galleries & museums – public and commercial	Electricity and gas usage, water consumption, waste production & disposal, refrigerants used	66202	39634	20% reduction in energy through efficiency measures, 40% reduction in refrigerants through new kit and relaxation of cooling requirements, 50% reduction in water and waste through efficiencies, further 20% reduction in energy through investment in renewables including investment in decentralised energy for the largest museums & galleries
Studios	Electricity and gas usage, water consumption, waste production & disposal, refrigerants used	9781	5833	20% reduction in energy through efficiency measures, 40% reduction in refrigerants through new kit and relaxation of cooling requirements, 50% reduction in water and waste through efficiencies, further 20% reduction in energy through investment in renewables
Offices	Electricity and gas usage, water consumption, waste production & disposal, refrigerants used	435	246	20% reduction in energy through efficiencies, 50% reduction in water and waste through efficiencies, further 20% reduction in energy through investment in renewables
Art transport	Transport of art domestically and globally (via air, rail, road & sea)	10184	6110	40% reduction in art transport through phase-out of couriers, full loads & efficient logistics

Art fairs	Electricity and gas usage, generators used, water consumption, waste production & disposal, refrigerants used	193	4	100% reduction in diesel through switch to Waste Vegetable Oil (WVO) biodiesel, 20% reduction in grid energy through efficiencies, 50% reduction in water and waste through efficiencies
Business travel	Domestic and international travel of employees & artists (via air, rail, road & sea)	9640	4820	50% reduction through reduced travel & switch to public transport
Audience travel	Domestic and international travel of audience (via air, rail, road & sea)	124007	62003	50% through switch to public transport, walking & cycling
Total		220442	118562	46% reduction of 2009 total emissions

The remaining 14% reduction to reach the Mayor's 60% reduction target is assumed to come from London policy – for example in encouraging smaller organisations to join decentralised energy networks – and national policy measures, such as those recommended by

the Committee on Climate Change and UK Government measures to decarbonise the National Grid.



CASE STUDY

Tate awarded Carbon Trust Standard and wins Green500 Platinum Award

Tate has embarked on a Carbon Management Programme to reduce emissions by 15% over three years. In 2009/10, Tate reduced emissions from its energy use in buildings by over 7.5%, saving £237,000. Green Champions and a Task Force drive an organisation-wide effort to identify and implement reduction measures.

Working with art transport providers, Tate completed a carbon footprint on all art movements (loans in and out) in one year, and retendered its contracts so that art transport companies will now help it reduce and calculate emissions on all consignments. Tate footprinted the lifecycle of a typical art crate and as a result has changed from using hardwood crates to using only sustainably sourced European softwood timber.

The gallery is leading research and action to establish a revised protocol for more sustainable gallery environmental conditions, and from January 2010 it relaxed the bandwidth for stable temperature and relative humidity controls in its collection displays at Tate Britain and Tate Modern. The innovative architecture and engineering of Tate Modern's new building will set a new benchmark for sustainable buildings.

Tate Britain now has zero waste to landfill through improved recycling and waste-to-energy provision. Waste contracts at all sites are regularly reviewed to achieve continual improvements. Multifunction printers are reducing paper, ink and energy use. And residents of Tate's beehives are busy producing honey for Tate's restaurants and shops!

Recommendations

This section gives information about what you can do, how your organisation will benefit and what others are doing in London.

Recommendations are divided into four sections:

1. Getting Started
2. Buildings – galleries and museums, studios, office space, and working from home
3. Exhibitions - art transport, display materials and art fairs
4. Travel - business travel and audience travel

You should read the section, or sections, most relevant to your organisation's activities.

When compiling these recommendations, we have considered commercial galleries, public museums and galleries, studios and art fairs. It is important to recognise that most galleries and studios are relatively small organisations.

Therefore the recommendations are focused upon organisations employing fewer than 10 people. Recommendations that apply only to larger organisations are highlighted in the text.

Where possible we have estimated the capital cost, revenue savings and effort required based on an organisation of up to 10 employees. This information is identified with the following symbols:

£ capital cost

↓ revenue saving and timescale

👤 staff effort required

Getting started

Whatever the type or size of your organisation, there are three crucial places to start.

Work out your footprint

There are various tools that can help you get started (www.juliesbicycle.com/ig-tools). Carrying out an audit will give you a picture of your environmental impact and identify the areas in which you can make the biggest difference – there are several organisations that can help you do this. For example the LDA and the GLA who have supported schemes like the Green500 (www.green500.co.uk) designed to help businesses within London reduce their environmental impact.

Next, create an environmental policy and plan to manage and reduce your impact.

Keep accurate records of your energy use (e.g. bills) to monitor improvements – you may need

to set up a new system or use existing records and accounts.


Often you'll be able to pay back any initial investment in new technology through financial savings from reduced energy, water, waste and travel bills. Relate capital expenditure to savings so you can track this 'pay back' over time.

Involve everyone

Make sure the whole organisation – directors and staff – is on board and allocate responsibilities.

Establish an environment team and a network of champions with regular reviews and action planning.

Provide staff training, update staff on progress and provide incentives for further progress – make sure everyone understands they have a role to play.



Communicate progress to suppliers, contractors, exhibitors and audiences.

Work together

It could be useful to forge partnerships with other organisations to address many of the recommendations set out

within the guide. Joint procurement of lighting and renewables, decentralised energy projects and lobbying are all areas that could be usefully shared by a broader group of organisations.

CASE STUDY

Camden Arts Centre – audit and progress

Since their first environmental audit in 2008-09, the Camden Arts Centre has achieved:

- 25% reduction in waste sent to landfill
- 10% reduction in fuel bills
- 100% of staff travelling to work by public transport, cycling or walking

This has led to recognition through a “Better Climate for Camden – Environmental Excellence in Camden Organisations” award from Camden Council.

Camden Arts Centre now plans to reduce their 2008 carbon footprint by 15% by 2011 and have a detailed action plan in place to achieve this.

Buildings

Energy use in buildings accounts for nearly a third of the visual arts footprint. Steps that can be taken to reduce this are outlined below, ranging from simple efficiency measures to investment in renewable energy.

Recommendations are tailored to your specific building type – galleries and museums, studios, office space, and working from home. Funding sources for all organisations are outlined at the end of the section.

Galleries and museums

Current impact: 66202 tonnes. Possible reduction: over 38000 tonnes.
Who is this for? Commercial and public gallery managers and museum managers.

Please note, from the raw data collected for this guide it was not possible to distinguish between the proportions of energy used for lighting, heating, cooling, ventilation and equipment.

Area	Action
Reduce energy use	<p>Heating, cooling and ventilation</p> <p>Set thermostats to lower temperatures in workshops and storage areas £0 ↓within 6 months 🗑one-off</p> <p>Introduce zonal control and timers £100-500 ↓within 1 year 🗑one-off</p> <p>Relax temperature and humidity controls (see recent discussions about international guidelines in the supporting document Environmental Conditions for Galleries and Museums) £0 ↓within 6 months 🗑one-off</p> <p>Insulate building fabric and improve glazing £variable ↓within 1 year 🗑one-off</p> <p>Encourage visitors to leave wet garments in the cloakroom £0 ↓within 1 year 🗑light</p>

	<p>Lighting Switch to energy efficient bulbs and LED lighting £100-5000 ↓ within 1-2 years 🌱light (depending on scale and type of installation)</p> <p>Put lighting on sensors £100 ↓ within 6 months 🌱light</p> <p>Reduce exterior lighting and switch off during day £variable ↓ within 1 year 🌱one-off</p> <p>Equipment Turn it off whenever you can, and don't leave equipment on standby £0 ↓ within 1 year 🌱continuing</p> <p>Reduce all electrical requirements with voltage optimisation equipment (suitable for larger organisations)</p>
Explore alternative energy sources	<p>Consider building integrated renewables such as solar electricity – you might even be able to generate an income £variable ↓ within 3-15 year 🌱one-off</p> <p>Explore the potential for district heating and cooling and combined cooling heat and power – London's Heat Map is a good starting point (suitable for larger organisations or groups of organisations)</p> <p>Consider funds for dedicated off-site renewable installations (suitable for larger organisations or groups of organisations)</p> <p>The Mayor's RE:FIT programme can also assist public bodies in London to reduce their environmental impact</p>
Reduce waste, reuse and recycle	<p>Reduce waste in catering and retail facilities</p> <p>Reuse exhibition programmes and paper</p> <p>Recycle catering and retail waste</p> <p>Compost food waste</p> <p>Use mains drinking water and reusable glasses</p>
Reduce water use	<p>Install tap aerators</p> <p>Consider water re-use and collection measures including rain water harvesting</p> <p>In next retrofit update urinals, taps and toilets to minimise water use</p>
More Information	<ul style="list-style-type: none"> • RE:FIT www.lda.gov.uk/projects/refit • London's Heat Map www.londonheatmap.org.uk • Carbon Trust www.carbontrust.co.uk



CASE STUDY

National Portrait Gallery and National Gallery: Use of LEDs to light historic portraits

The National Portrait Gallery recognised the need to be more energy efficient when replacing obsolete lighting track and fittings in a number of their second floor galleries.

In 2009, the gallery took the innovative step of installing LED lighting in rooms 13 and 14. 100watt tungsten halogen light fittings were replaced with the same number of 14watt LED light fittings.

Electricity consumption for lighting has reduced by 68%, but total energy savings have proved greater still, due to the reduced need for cooling in these rooms (the National Portrait Gallery is required to maintain temperature at 21 degrees plus or minus one degree).

The installation in the smaller of the rooms alone is expected to save over 5,200kWh of energy – saving £370 and 3 tonnes CO₂e per year.

LED lighting emits no ultra violet, however its colour temperature is slightly bluer than the traditional tungsten halogen lighting, which has generated some interesting academic debate. The LED lighting has been in place for 9 months and not a single visitor comment has been received about it.

Colleagues at the National Gallery, impressed by the energy efficiency and quality of this lighting, have now also adopted LED lighting in four of their rooms.



CASE STUDIES

Gagosian, Britannia St is reusing an existing industrial building. Ample natural light means that use of artificial lighting can be reduced, which also reduces cooling requirements.

Sadie Coles HQ is reducing its environmental impact by avoiding excessive heating and cooling of the gallery space. This behaviour is translated to office operations, through recycling and a switch-off campaign.

Whitechapel Gallery expansion

Completed in April 2009, Whitechapel almost doubled in size and the existing facilities were refurbished. The architects had a clear brief to keep running costs as low as possible through passive cooling and daylighting. The project also reused and recycled many building materials.

Studios

Current impact: 9781 tonnes. Possible reduction: over 5800 tonnes.

Who is this for? Studio managers and artists.

Area	Action
Reduce energy use	<p>Heating, cooling and ventilation Set thermostats to lower temperatures in workshops and storage areas £0 ↓ within 6 months 🗑️ one-off</p> <p>Introduce zonal control and timers £100-500 ↓ within 1 year 🗑️ one-off</p> <p>Insulate building fabric and improve glazing £variable ↓ within 1 year 🗑️ one-off</p> <p>Lighting Switch to energy efficient bulbs and LED lighting £100 ↓ within 6 months 🗑️ light</p> <p>Put lighting on sensors £100 ↓ within 6 months 🗑️ light</p> <p>Equipment Turn it off whenever you can and don't leave equipment on standby £0 ↓ within 1 year 🗑️ continuing</p> <p>Reduce all electrical requirements with voltage optimisation equipment (only suitable for larger organisations)</p>
Explore alternative energy sources	<p>Consider building integrated renewables such as solar electricity – you might even be able to generate an income £variable ↓ within 3-15 year 🗑️ one-off</p> <p>Explore the potential for district heating and cooling and combined cooling heat and power – London's Heat Map is a good starting point (suitable for larger organisations or groups of organisations)</p>

	<p>Consider funds for dedicated off-site renewable installations (only suitable for larger organisations or groups of organisations)</p> <p>The Mayor's RE:FIT programme can also assist public bodies in London to reduce their environmental impact</p>
Reduce waste, reuse and recycle	<p>Share and reuse artist materials</p> <p>Recycle domestic-type waste</p> <p>Compost food waste</p> <p>Use mains drinking water and reusable glasses</p>
Reduce water use	<p>Install tap aerators</p> <p>Consider water re-use and collection measures including rain water harvesting</p> <p>In next retrofit update urinals, taps and toilets to minimise water use</p>
More Information	<p>RE:FIT www.lda.gov.uk/projects/refit</p> <p>London's Heat Map www.londonheatmap.org.uk</p> <p>Carbon Trust www.carbontrust.co.uk</p>

CASE STUDY

Space Studios – energy efficiency and solar power

Space Studios has installed sensors on lighting in communal areas and is investing in insulation and new glazing. Space also plans to install solar panels on the roof of three studio buildings, creating an income stream (see 'finance for making your building more energy efficient' at the end of this section) and keeping costs low for tenants.

Office space

Current impact: 435 tonnes. Possible reduction: over 240 tonnes.
Who is this for? Everyone!

This office footprint covers the visual arts sector employees working in office buildings that are separate from museum, gallery or studio functions. Offices within museums, galleries and studio spaces are included within that category.

Area	Action
Reduce energy use	<p>Heating, cooling and ventilation</p> <p>Avoid heating and cooling or open windows simultaneously £0 ↓ within 6 months 🔄 continuing</p> <p>Set thermostats to lower temperatures in workshops and storage areas £0 ↓ within 6 months 🔄 one-off</p> <p>Introduce zonal control and timers £100-500 ↓ within 1 year 🔄 one-off</p> <p>Relax temperature controls so that heating and cooling systems do not operate if temperatures are 18-24°C £0 ↓ within 6 months 🔄 one-off</p> <p>Reduce your hot water tank thermostat to 60°C £0 ↓ within 6 months 🔄 one-off</p> <p>Update heating and cooling systems £variable ↓ within 6 months 🔄 one-off</p> <p>Insulate building fabric and improve glazing £variable ↓ within 1 year 🔄 one-off</p> <p>Lighting</p> <p>Switch to energy efficient bulbs and LED lighting £100, ↓ within 6 months 🔄 light</p> <p>Put lighting on sensors £100 ↓ within 6 months 🔄 light</p>

	<p>Equipment Turn it off whenever you can £0 ↓ within 1 year 🔄 continuing</p> <p>Choose A - A++ rated domestic appliances £0 ↓ within 1 year 🔄 one-off</p> <p>Use laptops rather than desktops £0 ↓ within 1 year 🔄 light</p> <p>Reduce all electrical requirements with voltage optimisation equipment (suitable for larger organisations)</p>
Explore alternative energy sources	<p>Consider building integrated renewables such as solar electricity – you might even be able to generate an income £variable ↓ within 3-15 year 🔄 one-off</p> <p>Explore the potential for district heating and cooling and combined cooling heat and power – London's Heat Map is a good starting point (suitable for larger organisations or groups of organisations)</p> <p>Consider funds for dedicated off-site renewable installations (suitable for larger organisations or groups of organisations)</p> <p>The Mayor's RE:FIT programme can also assist public bodies in London to reduce their environmental impact.</p>
Reduce waste, reuse and recycle	<p>Reduce waste from catering</p> <p>Use mains drinking water and reusable glasses</p> <p>Recycle paper, card, glass, tins, plastic, batteries, toner cartridges, furniture etc. Operate a bin-free office with central recycling points</p> <p>Use recycled materials especially paper</p> <p>Compost food waste</p>
Reduce water use	<p>Install tap aerators</p> <p>Consider water re-use and collection measures including rain water harvesting</p> <p>In next retrofit update urinals, taps and toilets to minimise water use</p>
More Information	<ul style="list-style-type: none"> • RE:FIT www.lda.gov.uk/projects/refit/ • London's Heat Map www.londonheatmap.org.uk • Carbon Trust www.carbontrust.co.uk

Working from home

Many of those working in the visual arts sector have a home office and artists often have a home studio. For the purposes of this report, this has not been included in the calculation of the sector's footprint, as this should be considered within the residential sector.

Most of the studio and office tips will, however, be relevant to your home space, particularly


insulating, updating boilers, updating light bulbs and making the most of daylight.

The Feed-In Tariff supports installation of renewable energy into homes as well as organisations. London's RE:NEW programme (www.ida.gov.uk/projects/renew) also aims to support the retrofit of homes in areas across London with energy and water efficiency measures.

CASE STUDIES

Cornelia Parker has transformed the light coming into her home studio by keeping hard-to-reach windows clean and painting the sloping roof outside white, which increased the light levels by 100%. Cornelia has also invested in photo-voltaic panels on the roof of her home, and changed all her lighting to low energy. She changed her electricity provider to Good Energy, which is all from renewable sources.

Ackroyd & Harvey have improved their home and studio with insulation, a new boiler, wood-burning stove and solar hot water. Travel is the next challenge – they have already got rid of their car, use rail within Europe when possible and have concentrated on generating more work in the UK.



Finance for making your building more energy efficient

Most visual arts organisations work to tight margins and therefore capital is in short supply. There are however a number of incentives available to both public and commercial organisations of all sizes, to support investment in energy efficiency and renewable energy:

- The Carbon Trust provides 0% loans for a range of equipment including lighting refits and solar hot water.
- Enhanced Capital Allowances are also available to make investments more tax efficient.
- The Feed-In Tariff (FIT) for small scale renewable energy investments significantly improves the pay-back period, as the organisation is paid a premium for any electricity sold to the grid.

- Investment is so attractive that there are now companies with the sole purpose of fitting renewable energy for other organisations and splitting the financial benefits.

More information is available from The Carbon Trust, DECC and Ofgem.

www.carbontrust.co.uk

www.decc.gov.uk

www.ofgem.gov.uk



Exhibitions

Recommendations for reducing emissions associated with art transport and display are made below. These are followed by recommendations specifically for art fairs wishing to minimise their impact.

Transport and display

Current impact: 10,184 tonnes. Possible reduction: over 4000 tonnes.
Who is this for? Exhibition managers at every kind of gallery, museum and art fair, transport supply chain, artists and studio managers.

Area	Action
Reduce transport requirements	<p>Improve load utilisation and logistics - full loads, intelligent route planning and no empty journeys</p> <p>Avoid using couriers unless absolutely necessary</p> <p>Avoid air freight – switch to road where possible if fully loaded</p> <p>Investigate rail and sea</p> <p>Consider Transport for London’s (TfL’s) Freight Operator Recognition Scheme (FORS) – FORS provides a quality and performance benchmark for the freight industry helping companies to become safer, greener and more efficient</p> <p>Where possible collaborate with other galleries to share shipping</p>
Improve the display	<p>Exhibition walls</p> <p>Design exhibitions to minimise the use of temporary walls</p> <p>Design walls of standard dimensions that accord with the dimensions of timber and plasterboard</p>

	<p>Through careful construction and deconstruction, reuse both timber and plaster</p> <p>Sign up to the Mayor's Green Procurement Code – a support service for London organisations committed to reducing their environmental impact</p>
More Information	<ul style="list-style-type: none"> • Carbon Trust www.carbontrust.co.uk • TFL Business Engagement Team www.tfl.gov.uk • Mayor's Green Procurement Code www.greenprocurementcode.co.uk

CASE STUDIES

Stephen Friedman Gallery is reusing transport crates, or reusing the wood, wherever possible. They are also looking at how to rationalise the other shipping and packing materials.

Parasol Unit Gallery and Cell Project Space – reusing display walls

Parasol always uses the same method to build their temporary exhibition walls, so they can be easily dismantled and the timber reused.

Cell Project Space has found a method of fixing plasterboard sheeting onto timber stud wall frames, so that walls can be dismantled with minimum damage enabling 70% of the material to be reused. The gallery invests in purchasing high quality specification screws at 25% cost increase. The durability of the product enables them to be reused repeatedly.

Art Fairs

Current impact: 193 tonnes. Possible reduction: over 180 tonnes.
Who is this for? Art fair and other event managers, galleries, artists.

Area	Action
Reduce energy use	<p>Heating, cooling and ventilation Set thermostats to lower temperatures in storage areas £0 ↓ within 6 months 🗋️ one-off</p> <p>Introduce zonal control and timers £100-500 ↓ within 1 year 🗋️ one-off</p> <p>Relax temperature and humidity controls (see recent discussions about international guidelines in the supporting document Environmental Conditions for Galleries and Museums) £0 ↓ within 6 months 🗋️ one-off</p> <p>Insulate building fabric and improve glazing £variable ↓ within 1 year 🗋️ one-off</p> <p>Encourage visitors to leave wet garments in the cloakroom £0 ↓ within 1 year 🗋️ light</p> <p>Lighting Switch to energy efficient bulbs and LED lighting £100-5000, ↓ within 1-2 years 🗋️ light (depending on scale and type of installation)</p> <p>Put lighting on sensors £100 ↓ within 6 months 🗋️ light</p> <p>Reduce exterior lighting and switch off during day £variable ↓ within 1 year 🗋️ one-off</p> <p>Equipment Turn it off whenever you can £0 ↓ within 1 year 🗋️ continuing</p> <p>Sign up to the Mayor's Green Procurement Code – a support service for London organisations committed to reducing their environmental impact</p>

Explore alternative energy sources	<p>For outdoor events, switch from diesel to WVO biodiesel £variable ↓ none 🍃one-off</p> <p>Consider building integrated renewables such as solar electricity – you might even be able to generate an income £variable ↓ within 3-15 year 🍃one-off</p> <p>Consider funds for dedicated off-site renewable installations (suitable for larger organisations or groups of organisations)</p>
Reduce waste, reuse and recycle	<p>Work with suppliers and contractors to incorporate waste reduction and other green practices</p> <p>Reduce waste through catering, for example by coordinating food packaging</p> <p>Where possible use mains drinking water and reusable glasses</p> <p>Reuse exhibition programmes and paper</p> <p>Recycle catering and retail waste</p> <p>Compost food waste</p>
Reduce water use	<p>Install tap aerators</p> <p>Consider water re-use and collection measures including rain water harvesting</p> <p>In next retrofit update urinals, taps and toilets to minimise water use</p>
More Information	<ul style="list-style-type: none"> • Carbon Trust www.carbontrust.co.uk • Mayor's Green Procurement Code www.greenprocurementcode.co.uk

CASE STUDY

Frieze Art Fair – switching to biodiesel

Frieze Art Fair was carbon audited in 2007 and 2009 to help it understand its largest environmental impacts. They realised that diesel generators were a big contributor to the Fair's carbon footprint. As a result Frieze have been taking innovative steps to reduce their use. In 2009 they piloted biodiesel generators and in 2010 the Fair will be powered exclusively by biodiesel made from waste vegetable oil, which will immediately reduce the Fair's carbon emissions by 60%.



Travel

Within the visual arts sector, business travel accounts for nearly 5% of the visual arts footprint (excluding staff commuting), and audience travel over half. Travel is, therefore, a key area of focus and recommendations for action are outlined below.

Organisations within London are fortunate to benefit from a strong public transport system. London is also well connected to other UK cities and the rest of Europe by rail, which can be used to reduce the impact of business and audience travel.

A Business Travel Strategy is a bespoke approach that manages an organisation’s travel demands and impacts. Transport for London has published a number of best practice guides giving examples of a wide range of measures your business could adopt to reduce travel, and minimise the impact of travel of your staff and visitors.

The relevant measures for your organisation will depend on the extent and type of travel associated with your organisation, so please take the following recommendations as a starting point.

Business travel

Current impact: 9640 tonnes. Possible reduction: over 4800 tonnes
Who is this for? Everyone

Area	Action
Reduce travel	Use telephone, web and video conferencing Combine trips where possible Consider mobile working arrangements, such as allowing staff to work while on the move and from home, or to work flexible hours

Reduce impact of travel	<p>Switch to rail from air or car</p> <p>Switch to economy from business or first class</p> <p>Switch to public transport from cars</p> <p>Car share and use smaller, more fuel efficient cars and consider leasing electric vehicles – perhaps you could set up a car club</p> <p>Provide season ticket loans to encourage staff to use public transport for meetings</p> <p>Encourage staff to walk – the Mayor’s ‘Make Walking Count’ initiative is improving the urban realm and signage across London, and making route planning facilities for pedestrians available</p> <p>Make it easy for staff to cycle – provide secure cycle storage and shower facilities, and investigate the possibility of running a ‘cycle to work’ scheme (more info in glossary)</p> <p>Hold a competition to see who can clock up the most bike-miles</p> <p>Encourage staff to take advantage of London’s cycle infrastructure, including the Barclay’s cycle scheme by taking out a shared membership of the cycle hire scheme, providing maps of the cycle super highways, and taking TfL’s cycle challenge</p>
More Information	<ul style="list-style-type: none"> • TFL Business Engagement Team www.tfl.gov.uk

Audience travel

Current impact: 124,000 tonnes

Possible reductions:


approximately 62,000 tonnes.

Who is this for? Galleries, museums and art fairs.

Audience travel is responsible for 56% of greenhouse gas emissions associated with the visual arts sector. Audience travel is not under your direct control, and will be heavily influenced by

external circumstances such as international exchange rates. Seeking to influence audience travel choices, however, remains worthwhile as it will result in the largest possible emissions savings for London.

The audience travel figure takes account of the fact that visual arts audiences coming to London will usually have a number of reasons for travelling. We assumed that UK visitors will



have two reasons for visiting while those from outside the UK have five reasons to visit. The emissions figure has been apportioned accordingly.

Some immediate actions are:

Informing your audience about your commitment to, and progress on, improving your environmental impacts.

Educating your audience about their own impacts, and why it matters.

Survey your audience to find out why they travel in the way they do, and what might make them travel differently.

Through your marketing, website and ticket purchase process, encourage public transport use – both to reach London and within London.

Encourage walking and cycling – including the use of the cycle hire scheme.

Consider whether you could offer incentives to those using more sustainable transport options.

Work together with London's Boroughs, travel operators, Transport for London and Visit London to promote sustainable transport options.



Going Beyond Carbon

It is important to remember that being 'green' is about more than just reducing carbon emissions. There are many more actions you can take to reduce your environmental impact, and encourage your audience to do

so too. Whilst outside the scope of this guide, some of the references in this guide and in the supporting documents cover a broader range of issues and can help you become a more sustainable arts organisation.

CASE STUDY

Central Saint Martins – exploring sustainability through art

Andrew Watson, course director of Postgraduate Photography at Central Saint Martins, is currently undertaking a research project looking at the impact of wind turbines on landscape. He is measuring the carbon embodied in this project, through equipment, travel, and printing. He is requesting manufacturers' environmental impact documents before purchasing equipment, working with digital instead of silver based colour photography, using rail and low emissions cars and printing with refillable inkjet cartridges onto cotton rag based paper, made from by-products of textile production processes.

Where to get further advice and support

As part of the guide, a series of supporting documents have been created. These can be found online at **www.london.gov.uk/greening-londons-culture-industries** and **www.juliesbicycle.com**.

Furthermore, the following websites can provide important information and practical support for your organisations.

- TFL Business Engagement Team **www.tfl.gov.uk**
- Mayor's Green Procurement Code **www.greenprocurementcode.co.uk**
- Business Link **www.businesslink.gov.uk/bdotg/action/home**
- RE:FIT **www.lda.gov.uk/projects/refit**
- RE:NEW **www.lda.gov.uk/projects/renew**
- London's Heat Map **www.londonheatmap.org.uk**

- Carbon Trust **www.carbontrust.co.uk**
- Energy Saving Trust – **www.energysavingtrust.org.uk**
- London's Climate Change Mitigation and Energy Strategy **www.london.gov.uk/priorities/environment/climate-change/climate-change-mitigation-strategy**

The following initiatives provide tailored support to the visual arts sector:

- Visual Arts and Galleries Association **www.vaga.co.uk**
- Museums Association – **www.museumsassociation.org**
- Greener Museums – **www.greenermuseums.org**
- Survival Strategies – Renaissance North West – **www.renaissancenw.org.uk**



References

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Arts Council England (2008). The Creative and Cultural Industries Economic & Demographic Footprint: London Impact and Footprint and Visual Arts Impact and Footprint. Creative and Cultural Skills, London.

Greater London Authority (2010). Climate Change Mitigation and Energy Strategy (draft for consultation). Greater London Authority, London.

Greater London Authority (2009). Green Music Guide, Green Theatre Guide, Green Screen Guide. Greater London Authority, London.

Further references are available in The Green Visual Arts Guide: Methodology supporting document.



What was left out – the specifics

- Artists and others working from home, as their emissions are best considered within the residential sector.
- Auction houses, as the visual arts comprise only a portion of their sales.
- Production of artist materials and display materials, as this is an under-researched area which requires complex life cycle analysis.
- Arts schools and colleges, as their emissions are best considered within the higher/ further education sector.
- Consultants and trade associations, as their emissions are best considered within the general office sector.
- Art material shops – as their emissions are best considered within the retail sector.
- Art transport from galleries to private buyers – as data is unavailable on private purchases.



Notes

A large rectangular area with a light gray background, filled with a pattern of fine, parallel diagonal lines, intended for taking notes.

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