ANNEX A

Carbon reduction strategy 2011 to 2020

Version 1.4
Approved by the Board of Governors of the Guildhall School on 14 February 2011

Version 2.0, updated January 2012
Approved by the Board of Governors of the Guildhall School on 20 February 2012

Version 2.1, updated January 2013
Approved by the Board of Governors of the Guildhall School on 4 February 2013

Version 2.2, updated January 2014
Approved by the Board of Governors of the Guildhall School on 24 February 2014

Contents

Executive summary

The Guildhall School of Music & Drama acknowledges that in the face of mounting global scientific consensus of mans' part in global climate change, there is a moral responsibility to act to reduce carbon.

The UK Climate Change Act of 2008 has created legally binding targets to reduce carbon emissions by 34% by 2020 and by 80% by 2050 against a 1990 baseline. The HE sector has resolved that it must be in the vanguard of efforts to achieve these targets and, after widespread consultation, HEFCE has facilitated the setting and adoption of sector-level carbon reduction targets for scope 1 and 2 emissions of 43% by 2020 and 83% by 2050, both against a 2005 baseline.

The Higher Education Funding Council for England has required that each HE institution puts in place a carbon reduction strategy, containing targets that are in the context of the overall sector targets but which are realistic for each institution. Institutions that did not have an approved Carbon Reduction Strategy in place by 31 March 2011 were at risk of 40% of their capital funding from HEFCE being withheld. HEFCE will also monitor on annual basis how well institutions are performing against their carbon reduction targets.

The financial incentives for the Guildhall School to reduce carbon emissions are immediate, since it is owned and governed by the City of London Corporation which falls into the scope of the Government's Carbon Reduction Commitment Energy Efficiency Scheme. This scheme requires organisations to buy allowances from Government each year to cover their carbon emissions in the previous year. With the addition of Milton Court to the estate in September 2013 the cost for the CRC is estimated to be in the region of £25,000 for the 12/13 year.. The price of allowances is likely to rise each year reinforcing the incentive to reduce consumption and hence the costs of both the allowances and the energy itself.

The Guildhall School has analysed its historical data and, in the first version of this strategy published in February 2011, agreed to set a carbon reduction target for scope 1 and 2 emissions arising from its existing estate of 30% by 2020. Having already achieved extremely good reductions in these emissions by 2010/11, the second version published in February 2012 increased the target for these emissions to 43% by 2020. Following a further reduction in 2011/12 that is consistent with that target, this latest version maintains the target at that level. This reduction is measured against a 2005 baseline, i.e. the School's scope 1 and 2 emissions in 2020 must be 43% lower than the equivalent emissions were in 2005.

Following the collection and analysis of the necessary data, the third revision of the strategy also included a carbon reduction target of 8% for scope 3 emissions arising from transport and of 30% arising from water and waste. Again, this latest version maintains the targets at that level, but a review of the targets will be undertaken in future years once a larger dataset has been built up. These reductions are measured against a 2010 baseline, this being the first year in which the data have been compiled. However, in the case of transport emissions, this will be changed to 2012, due to a significant change in the methodology for calculating air transport emissions. The plan will be further revised in the future to include a target for emissions arising from procurement, once a sector-wide approach has been agreed.

Implementation plans have been created to achieve these targets, which include behavioural change as well as technical interventions. It is anticipated that the majority of the funding for technical interventions will come from the School's strategic capital programme – the 'capital cap'.

Introduction and background

The Guildhall School

1. The Guildhall School of Music & Drama is one of Europe's leading conservatoires, offering musicians, actors, stage managers and theatre technicians an inspiring environment in which to develop as artists and professionals. The School first opened its doors on 27 September 1880 to 62 part-time students in a disused warehouse in the City of London. Today it is situated in the heart of one of Britain's most important arts venues at the Barbican, with a growing international reputation for its teaching and research.

2. The modern Guildhall School is distinctive in being the only major European conservatoire which is both a music school and a drama school, and one which is pre-eminent in technical theatre, professional development and music therapy. A thriving Junior Guildhall, the recent addition of the Centre for Young Musicians and a range of annual summer schools further complement the outstanding opportunities available.

3. Situated in the heart of the City, the School moved to its present premises in the Barbican in 1977 solidifying a unique link with both Europe's largest arts and conference centre, including the Barbican Hall and the Pit Theatre, and the world-class London Symphony Orchestra. This connection is now formally recognised with the establishment of a partnership between the School, the Barbican Centre and the LSO to create the world's leading centre for performance, training and education in the performing and visual arts.

4. The School currently numbers approximately 900 students on its roll call, of which approximately 570 are undergraduate and 330 postgraduate . In any given year, more than a third of the students are from outside the UK typically representing over 40 nationalities.

The Guildhall School's Estate

5. The Guildhall School of Music & Drama currently comprises approximately 30,300 m^2 gross internal area over four neighbouring buildings which are continually updated and enhanced.

   i) The main building is in Silk Street and attached to the Barbican Centre. It was purpose-built by the City of London and was officially opened by the Lord Mayor of London on 25 October 1977.

   ii) Sundial Court, the School's hall of residence, is located in Chiswell Street, just around the corner from the main Silk Street building. Sundial Court has 177 bedrooms in thirty-nine flats, each with either three, four, five or six bedrooms.

   iii) John Hosier Annexe, named after the Principal of the School from 1978 to 1988, has 46 teaching/practice rooms and is located at the west end of the Barbican Estate.

   iv) A small space in the neighbouring John Trundle Court building was acquired in 2007 and contains one large teaching space as well as office accommodation.

6. The Guildhall School recently embarked on a major building project to expand its

facilities. Milton Court, based across the road from the current Silk Street building, opened in September 2013, providing the School with state-of-the-art performance and teaching spaces in approximately 11,385 m^2, including:

- a 608-seat Concert Hall
- a 227-seat Theatre
- a Studio Theatre
- three major rehearsal rooms
- TV studio suite

as well as teaching, meeting and administrative spaces, complementing and extending those currently in use in the Silk Street building. Designed to top quality professional standards, the new building will mean that the School's facilities will at long last match the outstanding quality of its training and the success of its graduates.

7. The School's buildings are very intensively used. Each term is 12 weeks in duration, but in practice there is considerable academic activity in the week before and the week after each term, meaning that the buildings are being used for teaching purposes for 42 weeks per year.

8. In order to provide sufficient space for individual student practice, the main Silk Street building is open during term time from 7am – 10pm Monday to Friday, 8am – 9pm on Saturday and 9am – 9pm on Sunday.

9. During the summer vacation the Silk Street building and Sundial Court are used extensively for summer schools, some of which are organised by the School and some by external companies that hire the facilities.

10. With the exception of the new Milton Court building all of the School's existing estate is grade 2 listed.

The City of London Corporation

11. The Guildhall School is owned and governed by the City of London Corporation as part of its contribution towards the cultural life of London and the nation. The City is one of the most significant sponsors of the arts in the UK. It provides the Barbican Centre, Europe's largest multi arts and conference venue, and directly funds the London Symphony Orchestra's residency. It is also a major funder of the enormously popular Museum of London and supports a year-round programme of major arts festivals and events in the City and neighbouring areas.

12. The City is also the port health authority for the whole of the Thames estuary, owns and runs four famous markets: Smithfield, Billingsgate, Spitalfields and Leadenhall, manages a portfolio of property throughout London and maintains and safeguards over 10,000 acres of open space in and around it, including Hampstead Heath, Epping Forest, Burnham Beeches and a string of parks and commons in Kent and Surrey. It also runs the five bridges that cross the Thames into the City, including Tower Bridge, a major tourist attraction and an international symbol for London as a whole.

13. As part of the City of London Corporation, the Guildhall School is not a legal entity in its own right. As such, the School is subject to all the policies and rules of the City and in many cases has helped to develop them. This includes policies

relating to sustainability and carbon reduction, an area in which the City has been active since 1975.

HE sector context

14. In addition to the funding that the Guildhall School receives from the City, it receives funding as part of the HE sector from the Higher Education Funding Council for England (HEFCE). Feedback to HEFCE shows that there is widespread agreement in the sector that sustainable development is important. The sector has agreed that tackling climate change is a challenging agenda and we need to move quickly to do it.

15. It is also a growing political priority both nationally and internationally. The United Nations' Intergovernmental Panel on Climate Change has concluded that warming of the climate system is unequivocal and that human activities make a substantial contribution[1]. Lord Stern's review of climate change[2] in 2006 concluded that the benefits of strong and early action will far outweigh the economic costs of not acting. In June 2008 Lord Stern said that the costs of stopping greenhouse gases rising to dangerous levels had already doubled since 2006 to 2 per cent of GDP. HE makes an important contribution to the UK's sustainable development strategy, updated in 2005, not least because of the sheer size of the estates that it controls.

Context and drivers

Climate Change Act 2008

16. The Climate Change Act 2008[3] aims to improve carbon management and help the transition towards a low-carbon economy in the UK. It sets the world's first legally binding targets for greenhouse gas emissions of at least 80 per cent by 2050 and at least 34 per cent by 2020[4], against a 1990 baseline. Major parts of the public sector such as the NHS[5] and schools[6] have developed carbon reduction strategies. In summer 2009 the Government published the UK Low Carbon Transition Plan[7], which sets out how the UK will meet the 34 percent cut in emissions on 1990 levels by 2020. Nationally, emissions have already been reduced by 21 per cent.

---

[1] 'Climate change 2007: the physical science basis', available at www.ipcc.ch under Publications and Data/Reports.

[2] 'Stern Review on the Economics of Climate Change', available at www.hm-treasury.gov.uk under Independent reviews.

[3] Further information is available at www.decc.gov.uk under Legislation/Climate Change Act 2008.

[4] The 2009 Budget set the first carbon budgets, as required by the Climate Change Act. This increased the level of the 2020 target from 26 per cent to 34 per cent. A further increase to 42% has been recommended by the Committee on Climate Change.

[5] 'Saving Carbon, Improving Health: NHS Carbon Reduction Strategy for England' may be read at www.sdu.nhs.uk under Carbon reduction strategy.

[6] 'Carbon Emissions from Schools: Where they arise and how to reduce them' may be read at www.sd-commission.org.uk under Our work/Education, Young People and skills/Schools.

[7] The plan is available at www.decc.gov.uk under Publications.

Carbon Reduction Commitment

17. The Carbon Reduction Commitment Energy Efficiency Scheme (CRC) is a mandatory carbon emissions reporting and pricing scheme to cover all organisations using more than 6,000 MWh per year of electricity (equivalent to an annual electricity bill of about £500,000). The CRC came into force in April 2010 and aims to significantly reduce UK carbon emissions not covered by other pieces of legislation. The primary focus is to reduce emissions in non-energy intensive sectors in the UK. This complements the role of Climate Change Agreements and the EU Emissions Trading Scheme, which are directed primarily at energy-intensive organisations. It is UK-wide, covering large businesses and public sector organisations, and around 80 universities and colleges are likely to be within its scope. The City of London Corporation is within its scope and the Guildhall School's carbon emissions will therefore be taken into account as part of the City's reporting.

18. Participants in the CRC need to measure and report their carbon emissions annually, following a specific set of measurement rules. The first annual report of emissions was in July 2011. Starting in 2012, participants will buy allowances from Government each year to cover their emissions in the previous year. This means that organisations that decrease their emissions can lower their costs under the CRC.

19. In October 2010, the Government announced two significant changes to the CRC as a part of the Comprehensive Spending Review:

    - The money raised from the sale of allowances will be retained by the Government rather than recycled back to CRC participants.
    - The first sale of allowances to cover emissions in fiscal year 2011/12 will be in 2012 rather than 2011.

20. The price of allowances has been set at a fixed price of £12 per tonne CO_2 through fiscal year 2012/13, with a floating market price after that. Assuming CO_2 emissions of 1,401 tonnes in 2011/12 (refer to table after paragraph 50) at a price of £12 per tonne, the CRC scheme has been y costing the School approximately £16,800 a year and will rise to approximately £25,000 a year with the addition of Milton Court to the estate (refer to paragraphs 58-62). The price of allowances is likely to rise each year reinforcing the incentive to the School to reduce consumption and hence the costs of both the allowances and the energy itself.

21. A publicly available CRC performance league table shows how each participant is performing compared to others in the scheme.

Display Energy Certificates

22. Universities and colleges need to comply with increasingly stringent Building Regulations, which are now requiring energy efficiency improvements to buildings that are being extended or having changes made to building services. Since 1 October 2008, all public buildings have also been required to have Display Energy Certificates showing their actual energy usage, as recorded by gas, electricity and other meters, so that the public can see the building's energy efficiency in use.

Cost savings

23. Potential cost savings are an important driver behind efficiency improvements, both directly from reduced resource usage and indirectly from reduced maintenance. However, ambiance and comfort is also a driving force: over or under heated rooms create discontent and inefficient working practices.

Moral responsibilities and reputation

24. In the face of mounting global scientific consensus of mans' part in global climate change, there is a moral responsibility to act to reduce carbon. As a sector, the HE community has committed to being at the vanguard of initiatives to act in a more sustainable way, and increasingly HE institutions are being judged on how well they are performing. Since 2007 a Green League Survey has been published in the national media, which ranks HE institutions across a range of sustainability and environmental measures. Consistently low performance in this league table could ultimately affect an institution's reputation. HEFCE is also starting to introduce funding incentives according to how well HE institutions are performing (see section below on HEFCE requirements).

Classification of emissions sources

25. The World Resources Institute (WRI) has developed a classification of emission sources around three 'scopes':

- **scope 1** refers to direct emissions that occur from sources that are owned or controlled by the organisation, for example emissions from combustion in owned or controlled boilers, furnaces, vehicles
- **scope 2** accounts for emissions from the generation of purchased electricity consumed by the organisation
- **scope 3** is all other indirect emissions that are a consequence of the activities of the company, but occur from sources not owned or controlled by the organisation – for example, commuting and procurement.

Scope	**Description**	**Examples**
Scope 1: Direct emissions	Direct emissions occur from sources that are owned or controlled by the HEI	Direct fuel and energy use Transport fuel used in institutions' own vehicle fleets
Scope 2: Electricity indirect emissions	Emissions from the generation of purchased electricity consumed by the HEI	Purchased electricity
Scope 3: Other indirect emissions	Scope 3 emissions are a consequence of the activities of the HEI, but occur from sources not owned or controlled by the HEI	Water Waste Land-based business travel Commuting (both staff and students) Air travel (international students; international student exchange; business
		Procurement

HEFCE requirements

26. HEFCE's Carbon Reduction Strategy for the HE sector comprises:

- A sector-level target for carbon reductions that is in line with UK targets. After widespread consultation, HEFCE has facilitated the setting and adoption of sector-level carbon reduction targets for scope 1 and 2 emissions of 43% by 2020 and 83% by 2050, both against a 2005 baseline.
- A requirement for institutions to set their own targets for 2020 for scope 1 and 2 emissions against a 2005 baseline. This year is being used as a baseline because it is used for reporting against UK targets, and research done for HEFCE demonstrated that robust data for scope 1 and 2 is available for that year at institutional level. This will provide consistency across the sector against which progress can be monitored and reported.
- A commitment from institutions to achieve actual improvements through actions that are appropriate for their institution, recognising the diversity of the sector.
- Support from HEFCE, UUK and GuildHE for institutions to achieve carbon reductions.
- Funding incentives – in particular HEFCE is linking capital funding to performance against carbon management plans.
- Plans for annual monitoring and reporting on progress against the sector-level target.
- A method of regularly evaluating the approach and taking action to learn from progress to date.

27. The HE sector targets are absolute targets, which mean actual carbon emission reductions against the levels in a fixed past year. The UK national targets under different policies and legislation are absolute and set against a 1990 baseline year. The rationale for this approach is based on the fact that the capacity of the Earth to manage carbon emissions is itself finite. Targets have so far been set for scope 1 and 2 emissions only, because this baseline has been calculated with a reasonable degree of confidence. There is a degree of uncertainty for scope 3 emissions for 1990. HEFCE is working with the sector to improve measurement of scope 3 emissions, including procurement, with the intention of setting sector-level targets for these emissions by December 2013. In order to achieve this, HEFCE has commissioned research on measuring scope 3 emissions in the HE sector in the areas of transport, water and waste and procurement. All three reports have been published and in January 2012 HEFCE released Guides to Good Practice in the areas of transport[8] and water and waste[9].

28. Recognising the significant diversity of the sector with its range of missions, priorities, histories, subject mix, infrastructure and research, institutions have been asked to set targets and develop plans that are appropriate to their individual circumstances but within the national target framework. HEFCE is collating these targets through the second phase of the Capital Investment Framework - CIF2 - and will determine whether collectively they are sufficient to meet the sector target. If necessary, HEFCE will consider what additional policy levers can be used to achieve further carbon reductions.

[8] http://www.hefce.ac.uk/pubs/hefce/2012/12_02/

[9] http://www.hefce.ac.uk/pubs/hefce/2012/12_01/

Linking capital funding to carbon performance

29. HEFCE's distribution of capital funding is based on the Capital Investment Framework, which relies on a mix of metrics, information submitted by institutions and HEFCE's knowledge of institutions in order to make a holistic and balanced assessment. The 84 institutions (including the Guildhall School) that satisfied the requirements of CIF1 are now benefiting from a streamlined process for capital funding. HEFCE remodelled the process for CIF2 as follows:

    - metrics expanded to include carbon emissions
    - strategic questions include a more specific and demanding requirement in relation to carbon
    - institutions required to report on progress in implementing their carbon plans, and on the results achieved.

30. Institutions that do not meet the requirements of CIF2 are at risk of 40% of their capital funding from HEFCE being withheld. This means that an approved Carbon Reduction Strategy needed to be in place by 31 March 2011.

31. HEFCE did not specify how carbon plans should be developed or what they should contain. However, there are a number of key elements that HEFCE requires to be present in an institution's carbon management plan, which are needed to satisfy the requirements of CIF2. These are:

    - A carbon management policy or strategy – this could be part of a wider environmental/sustainability policy.
    - A carbon baseline for 2005 that covers all scope 1 and 2 emissions. This year is being used as a baseline because it is used for reporting against UK targets, and research has demonstrated that robust data for scope 1 and 2 is available for that year at institutional level. This will provide consistency across the sector against which progress can be monitored and reported. Institutions are encouraged to measure a baseline for scope 3 emissions and in the longer term HEFCE expects these to be included.
    - Carbon reduction targets. These must:
        - cover scope 1 and 2 emissions, although institutions may choose to set additional targets for wider aspects
        - be set against a 2005 baseline. Institutions may choose to set their reductions in context by setting additional targets against an alternative baseline year
        - be set to 2020, because this is the timescale for interim government targets. This will provide consistency across the sector against which progress can be monitored and reported. Institutions may also set interim milestones
        - be publicly available.
    - An implementation plan to achieve absolute carbon emission reductions across scopes 1, 2 and 3 including timescales and resources. These may cover capital projects and actions to embed carbon management within the institution, for example, through corporate strategy, communication and training.
    - Clear responsibilities for carbon management.
    - A commitment to monitor progress towards targets regularly and to report publicly annually.
    - The carbon management plan and targets must be signed off by the governing body.

Approach to carbon reduction

32. The first version of this document, published in February 2011, created a plan for reducing the School's carbon emissions and set a target for scope 1 and 2 emissions by 2020. The plan is a working document and will be updated on a regular basis in the light of the School's progress towards achieving its target. Having achieved extremely good reductions in scope 1 and 2 emissions in 2010/11, the second version considerably increased the target for these emissions. It also included targets for scope 3 emissions in the areas of transport and water and waste, following the collection and analysis of the necessary data. This third revision maintains all targets at the level of the second revision. The plan will be further revised in the future to include a target for emissions arising from procurement, once a sector-wide approach has been agreed.

33. The strategy has been developed by members of the School's Sustainability Steering Group (SSG), in particular by staff in the engineering department, and in close consultation with colleagues in the Energy Management Team of the City of London Corporation. The SSG includes staff members representing a wide cross section of the School's activities, both academic and non-academic. It includes the President of the Student Union and other student representatives. Students were also consulted directly when a workshop was held, facilitated by a member of the City's sustainability team, which asked students to consider what a more carbon-free world might look like in 2050 and what measures needed to be put in place to get there.

34. The City has been engaged with carbon reduction since 1975, and has developed a range of sustainability policies including a Carbon Descent Plan. The School's own Carbon Reduction Strategy mirrors those of the City and is complementary to them, whilst setting a target that is realistic for the Guildhall School.

35. The City's approach to carbon reduction is summarised by the 'Three 'E's':

- Energy procurement – buy energy as cheaply and efficiently as possible
- Energy efficiency – use energy as efficiently and wisely as possible
- Energy design – use technology to reduce the amount of energy required in the first place

Carbon accountability and hierarchy

36. The carbon hierarchy in the table below provides a systematic and structured approach to managing and reducing emissions in a socially responsible and cost-effective way. Actions at the top of the hierarchy are more transformative and lasting in terms of reducing emissions. A carbon hierarchy is being used by the Department for Children, Schools and Families' Zero Carbon Task Force to help move towards the Government's ambition of delivering zero-carbon school buildings from 2016.

The carbon hierarchy

REDUCE energy/fuel demand	*Avoid unnecessary use*	***MONITOR*** • *Learn from existing projects and practice* • *Apply control measures* • *Evaluate impacts*
	Passive features (for example insulation, daylight, solar gain/shading, thermal mass)	
	Encourage energy-conscious behaviours	
EFFICIENCY of equipment and energy/fuel sources	*Use energy-efficient equipment*	
	Provide simple and effective controls	
	Recover useful heat	
	Use clean fossil fuel technology	
DECARBONISE energy/fuel supplies	*On-site or near-site renewable energy sources, including community schemes*	
BEFRIEND	*Seek partnerships to increase capacity to do the above*	
NEUTRALISE energy/fuel supplies	*Consider responsible carbon offsetting schemes*	
	Procure green electricity supplies	

Source: Adapted from the DCSF Zero Carbon Task Force and Parkin 'The Positive Deviant: sustainability leadership in a perverse world', Earthscan, London.

Key areas where carbon reductions can occur

37. Carbon reductions can be achieved by actions in any or all of the following areas:

- Behavioural change and awareness raising - 'softer' methods can play a significant role in highlighting changing institutional priorities and in encouraging behavioural and cultural change. Studies suggest that as much as 30% carbon reduction could be achieved by behavioural change. Actions can include the insertion of environmental objectives into staff appraisals, job descriptions and the induction process, as well as educational initiatives such as workshops.
- Lights, computers and electrical appliances – ensuring that all equipment is switched off when not in use and not just left in standby mode.
- Building energy and space management - good space management not only reduces carbon emissions, it also frees up resources that can be used for teaching and research.
- Building fabric upgrade.
- Efficient energy supply (e.g. CHP).
- Renewable energy sources.

Waste

38. Management of waste reduces the environmental impacts associated with disposal, including the production of the greenhouse gas methane, and helps conserve finite resources.

Travel, including cycling

39. In 2006 emissions from transport (business travel, and staff and student commuting) accounted for 35 per cent of the HE sector's carbon baseline. Sustainable travel is about encouraging people to make informed choices about the way they travel and being aware of the consequences of these choices – on their health, their environment and their local community.

40. At the Guildhall School, the emissions data for daily commuting are significantly less than the sector average, as most staff and students already commute by public transport or bicycle. However, the high percentage of overseas students means that significant carbon emissions are generated by travel between the School and home at the beginning and end of term.

Procurement

41. Procurement decisions have a large effect on the rate of consumption and productivity of resources, and institutions are able to influence the social and environmental impact of companies in the supply chain.

Carbon offsetting

42. When done correctly, carbon offsetting compensates for unavoidable emissions by paying someone to make an equivalent CO_2 saving elsewhere in the world. More and more individuals and businesses are volunteering to offset their emissions. Offsetting is not a 'cure' for climate change; the most effective way to combat climate change is to reduce emissions. However, good-quality offsetting can balance the impact of our actions and help raise awareness of climate change issues. The cost of offsetting can also provide an incentive to make further emission reductions at home.

43. Carbon offsetting will not be accepted by HEFCE as a means of meeting an institution's carbon reduction target for scopes 1 and 2. However, carbon offsetting may form part of an institution's carbon management plan for mitigating the effects of essential activities that create emissions under scope 3. Before choosing to offset, it is important that steps are taken to measure and, where possible, avoid and reduce emissions. To be able to offset, HEIs can then calculate their unavoidable emissions to know how many tonnes of CO_2 they wish to offset. Once the number of tonnes to be offset is known, credits can be bought from emissions reduction projects for the equivalent amount.

44. The carbon market is complex and there are numerous types of credits available for offsetting. To help consumers identify which credits are good-quality credits, the UK Government has established a voluntary quality assurance scheme for carbon offsetting.

45. The Guildhall School has analysed the benefits of carbon offsetting together with the financial cost of doing so, and has concluded that there is still much to be achieved by investment in technical interventions that actually reduce emissions in the first place. The conclusion is that the School's financial resources are better spent, at least for the time being, on carbon reducing initiatives rather than on carbon offsetting, as carbon reducing initiatives will have a far greater effect. The situation will be further reviewed in future years.

Carbon emissions data – scopes 1 and 2

46. The data on the next page shows how the Guildhall School's total direct greenhouse gas emissions (scopes 1 and 2) have been calculated for academic years 2005/06 to 2012/13. The first year establishes the 2005 baseline, as required by HEFCE, against which the School's future greenhouse gas reduction targets will be based.

47. All buildings have data for the consumption of purchased electricity, measured in kWhs per month. In addition, the School's main building in Silk Street has data for the consumption of hot and chilled water from the Citigen CHP plant, and the residential accommodation at Sundial Court has data for the consumption of hot water from Citigen. Again, these data are shown in kWhs per month. The School also runs one diesel-fuel Transit van, which it uses largely for local and inter-site deliveries. Data for this vehicle has been included shown in miles travelled per month.

48. The Department of the Environment, Food and Rural Affairs (DEFRA) has developed conversion factors that can be used to calculate carbon emissions for a given fuel. All the above data have been converted into Tonnes CO_2e using the Guidelines to DEFRA / DECC's GHG conversion factors for company reporting[10]. The exact conversion factors used for each fuel in each year are shown in the data tables., and are updated each year as necessary.

49. In the case of hot and chilled water from Citigen's CHP plant, the School has been consistent with City of London Corporation policy and used the relevant conversion factors for natural gas. Whilst at first glance this appears to be an anomaly, it is because Citigen does not generate electricity for the national grid for 100% of the time. When it is not generating electricity, it satisfies the heating and chilling requirements of its customers by using stand-alone gas boilers and electric chillers.

50. Although the above methodology is an over-estimate of the City Corporation's and the School's carbon emissions, there is a compensating factor because it is the kWhs of metered hot (and chilled) water that is being measured as opposed to the more correct kWhs of natural gas used to generate it. Rather than attempt to calculate the equivalent kWhs of natural gas used, which would require complicated assessments of the efficiency of Citigen's gas boilers, the City Corporation prefers to calculate its carbon emissions based on the lower kWhs of hot (and chilled) water supplied, because this is more than compensated by the fact that gas conversion factors are being applied to all of the metered hot (and chilled) water, when in fact at least some of it is carbon free (being the by-product of electricity generation). As Citigen builds up its customer base, with longer CHP running justified, the carbon factor for heat and chilled water supplied will gradually improve.

[10] http://www.defra.gov.uk/publications/files/pb13773-ghg-conversion-factors-2012.pdf

TOTAL GREENHOUSE GAS EMISSIONS – SCOPES 1 AND 2

NON-RESIDENTIAL

		ELECTRICITY (kWh)								
	Month	2005 - 06	2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11	2011-12	2012-13	2013-14
MAIN SCHOOL	Aug	105,136	87,000	44,080	78,168	145,997	92,257	98,279	102,648	101,024
	Sep	126,128	111,372	55,541	103,323	148,112	110,537	109,676	111,436	102,701
	Oct	139,845	123,659	128,912	134,587	151,835	128,852	125,142	129,893	123,532
	Nov	165,191	144,213	135,221	141,614	147,732	134,869	128,331	132,678	135,759
	Dec	169,401	112,285	119,561	128,156	127,798	123,216	121,530	108,606	111,764
	Jan	212,463	153,004	136,064	178,570	154,803	123,517	129,234	145,959	
	Feb	181,345	141,463	138,225	180,473	141,732	118,656	134,614	125,640	
	Mar	188,735	143,729	134,248	192,340	147,330	127,426	126,628	138,949	
	Apr	125,043	99,191	127,032	166,355	114,491	92,505	111,532	115,172	
	May	136,543	117,865	126,953	160,106	123,142	111,118	129,483	118,355	
	Jun	135,015	113,516	122,132	169,799	134,121	118,599	123,304	115,722	
	Jul	118,836	99,976	114,514	161,642	128,630	120,050	110,772	114,773	
	Total	1,803,681	1,447,273	1,382,483	1,795,132	1,665,723	1,401,600	1,448,525	1,459,831	574,780
JOHN HOSIER ANNEX	Aug			34,720	34,720	43,140	32,490	0	7,035	5,061
	Sep							0	10,079	7,050
	Oct	44,280	44,280					0	10,966	9,379
	Nov			35,100	34,720	24,970	84,620	72,900	14,218	9,262
	Dec							0	15,100	14,661
	Jan	37,720	37,720					0	19,156	
	Feb			13,350	35,100	24,970	40,320	0	18,054	
	Mar	24,190	24,190					78,570	14,804	
	Apr							9,620	13,017	
	May	56,430	56,430	34,720	33,640	33,460	40,760	12,170	13,461	
	Jun							9,800	9,558	
	Jul							7,530	4,276	
	Total	162,620	162,620	117,890	138,180	126,540	198,190	190,590	149,724	45,413
MILTON COURT HV SUPPLY	Aug		7,880							116,559
	Sep	32,028								126,268
	Oct	32,897	8,266							147,272
	Nov		47,780							140,334
	Dec	81,707								140,007
	Jan		45,108							
	Feb	86,451	53,664							
	Mar	43,911	16,328							
	Apr		23,501							
	May	52,652								
	Jun									
	Jul	19,616								
	Total	349,261	202,525							670,440
MILTON COURT [1] 2ND FLOOR FIRE STATION	Aug		2,688							
	Sep	6,544								
	Oct	5,730	2,930							
	Nov		15,029							
	Dec	19,554								
	Jan		9,539							
	Feb	28,259	14,618							
	Mar	12,899								
	Apr		11,564							
	May	15,221								
	Jun									
	Jul	8,186								
	Total	96,393	56,368							
JOHN TRUNDLE COURT [1]	Aug			3,968	3,968	3,968	2,395	91	1,088	1,522
	Sep			3,840	3,840	3,840	2,395		1,310	1,776
	Oct			3,968	3,968	3,968	2,395	2,862	3,064	3,954
	Nov			3,840	3,840	3,840	2,395	2,921	4,117	3,757
	Dec			3,968	3,968	3,968		4,280	6,821	1,742
	Jan			3,968	3,968	3,968	9,716	4,166	6,245	
	Feb			3,712	3,584	2,816		5,552	5,354	
	Mar			3,968	3,968	3,968	10,438	3,500	5,180	
	Apr		3,840	3,840	3,840	3,840	1,458	3,281	6,176	
	May		3,968	3,968	3,968	3,968	1,642	2,461	2,460	
	Jun		3,840	3,840	3,840	3,840	1,249	1,380	2,019	
	Jul		3,968	3,968	1,632	3,968	1,951	1,273	1,495	
	Total		15,616	46,848	44,384	45,952	36,034	31,767	45,329	12,751
TOTAL ELECTRICITY NON-RESIDENTIAL	Aug	105,136	97,567	82,768	116,856	193,105	127,142	98,370	110,771	224,166
	Sep	164,700	111,372	59,381	107,163	151,952	112,932	109,676	122,825	237,795
	Oct	222,752	179,134	132,880	138,555	155,803	131,247	128,004	143,923	284,137
	Nov	165,191	207,022	174,161	180,174	176,542	221,884	204,152	151,013	289,112
	Dec	270,662	112,285	123,529	132,124	131,766	123,216	125,810	130,527	268,174
	Jan	250,183	245,372	140,032	182,538	158,771	133,233	133,400	171,360	0
	Feb	296,055	209,745	155,287	219,157	169,518	158,976	140,166	149,048	0
	Mar	269,735	184,246	138,216	196,308	151,298	137,864	208,698	158,933	0
	Apr	125,043	138,096	130,872	170,195	118,331	93,963	124,433	134,365	0
	May	260,846	178,263	165,641	197,714	160,570	153,520	144,114	134,276	0
	Jun	135,015	117,356	125,972	173,639	137,961	119,848	134,484	127,299	0
	Jul	146,638	103,944	118,482	163,274	132,598	122,001	119,575	120,544	0
	Total	2,411,955	1,884,402	1,547,221	1,977,696	1,838,215	1,635,824	1,670,882	1,654,884	1,303,384
Conversion Factor		0.53023	0.53023	0.53382	0.53865	0.53594	0.52582	0.46002	0.44548	0.44548
TONNES CO_2e		1,278.891	999.167	825.937	1,065.286	985.173	860.149	768.639	737.218	580.632

		CHP (Citigen) (kWh)								
	Month	2005 - 06	2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11	2011 - 12	2012-13	2013-14
TOTAL CHP NON-RESIDENTIAL (MAIN SCHOOL)	Aug	45,180	33,640	21,270	24,830	41,660	27,770	15,640	24,540	7,024
	Sep	32,370	29,590	24,810	23,920	48,000	29,350	16,990	25,710	11,405
	Oct	50,120	39,340	45,900	50,920	77,870	25,170	25,740	55,318	18,206
	Nov	101,660	69,850	92,180	76,640	68,930	37,240	31,840	47,650	17,741
	Dec	118,570	83,800	132,920	141,710	90,590	70,440	35,750	163,850	21,290
	Jan	108,330	104,800	125,730	189,080	123,820	51,390	44,430	50,000	
	Feb	121,760	112,350	98,990	213,360	106,940	40,250	54,730	48,714	
	Mar	121,600	94,210	110,910	96,000	93,910	35,290	45,780	49,786	
	Apr	71,020	54,640	79,670	110,260	93,000	22,220	35,880	59,071	
	May	60,840	44,330	37,520	70,510	54,640	22,220	31,580	31,114	
	Jun	39,400	28,080	27,160	43,990	30,450	25,000	23,590	22,341	
	Jul	33,370	17,400	25,600	40,880	24,840	15,000	14,780	10,593	
	Total	904,220	712,030	822,660	1,082,100	854,650	401,340	376,730	588,687	75,666
Conversion Factor		0.185	0.185	0.18396	0.18523	0.18360	0.18521	0.21989	0.21644	0.21644
TONNES CO_2e		167.281	131.726	151.337	200.437	156.914	74.332	82.839	127.415	16.377

		FLEET VEHICLE (Miles travelled)							
FLEET VEHICLE	Aug				44	15	75	77	0
	Sep			363	310	134	535	190	0
	Oct			202	367	137	760	456	7
	Nov			873	199	322	389	659	153
	Dec			199	54	48	111	362	0
	Jan			201	23	613	94	344	212
	Feb			55	71	211	419	84	
	Mar			154	414	764	208	252	
	Apr			340	411	155	522	436	
	May			499	519	212	424	0	
	Jun		811	464	760	208	454	0	
	Jul		301	83	206	231	467	111	
	Total		1,112	3,433	3,378	3,050	4458	2971	372
Conversion Factor				0.48499	0.43619	0.43470	0.42877	0.15324	0.26882	0.26882
TONNES CO_2e			0.000	0.539	1.497	1.468	1.308	0.683	0.799	0.100

TOTAL TONNES CO_2e NON-RESIDENTIAL								
2005-06	2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11	2011 - 12	2012-13	2013-14
1,446.171	1,130.892	977.813	1,267.221	1,143.555	935.789	852.161	865.432	597.109

RESIDENTIAL

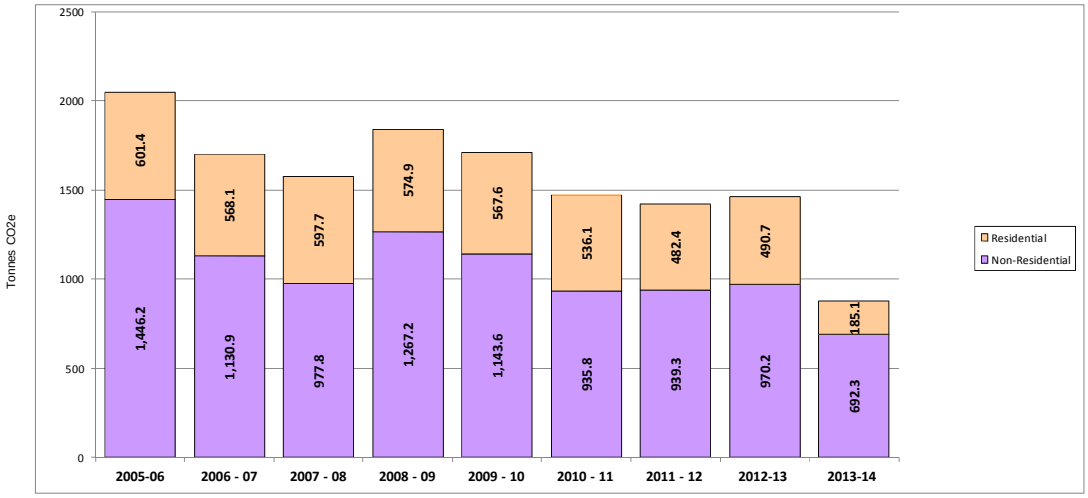
		ELECTRICITY (kWh)								
	Month	2005 - 06	2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11	2011 - 12	2012-13	2013-14
SUNDIAL COURT RESIDENTIAL	Aug	39,232	49,803	46,208	43,394	61,755	55,671	51,203	53,541	51,905
	Sep	52,873	54,389	44,583	47,767	51,177	50,891	47,907	49,333	45,449
	Oct	61,068	62,536	58,302	60,493	61,886	55,385	56,717	53,375	51,277
	Nov	61,509	61,113	63,076	60,525	62,639	55,861	54,045	49,040	52,544
	Dec	48,504	50,135	59,084	54,566	50,536	47,797	42,378	38,660	43,513
	Jan	61,105	57,035	60,463	64,252	60,376	53,408	49,830	48,765	
	Feb	60,289	54,746	60,971	61,098	55,563	47,204	49,858	45,943	
	Mar	64,508	59,113	61,603	66,315	62,202	55,495	49,865	50,356	
	Apr	53,745	46,911	55,945	55,457	48,171	46,279	41,286	41,511	
	May	62,251	57,279	61,064	65,530	58,956	54,617	49,630	46,741	
	Jun	59,889	53,018	57,549	61,516	53,532	52,381	48,635	46,134	
	Jul	57,611	52,021	53,935	62,196	54,927	53,706	52,294	51,472	
	Total	682,583	658,099	682,784	703,109	681,720	628,695	593,648	574,871	244,688
Conversion Factor		0.53023	0.53382	0.53865	0.53594	0.52582	0.52037	0.46002	0.44548	0.44548
TONNES CO_2e		361.926	351.306	367.782	376.824	358.462	327.154	273.090	256.094	109.004

		CHP (Citigen) (kWh)								
SUNDIAL COURT RESIDENTIAL	Aug	45,550	33,770	52,670	37,640	14,450	54,530	14,770	4,460	30,452
	Sep	51,050	31,590	44,070	43,000	45,280	60,450	48,120	5,976	41,667
	Oct	82,920	79,490	87,200	75,500	67,920	86,790	63,700	55,318	71,841
	Nov	125,200	130,310	110,410	109,960	99,120	135,200	90,150	105,864	70,464
	Dec	133,800	153,480	183,010	168,740	135,000	181,980	122,470	136,208	97,742
	Jan	164,910	141,450	150,310	149,580	149,130	158,300	136,900	142,500	
	Feb	149,810	152,220	158,140	148,180	181,790	124,600	129,700	139,300	
	Mar	206,000	141,240	160,150	111,690	164,140	129,100	107,970	132,771	
	Apr	138,630	92,010	109,180	87,490	105,650	64,330	86,180	141,857	
	May	99,390	84,790	92,997	63,700	83,220	50,000	84,310	74,200	
	Jun	53,800	67,080	58,273	39,570	53,630	58,000	51,250	59,244	
	Jul	43,250	64,190	43,250	34,290	39,920	25,000	1,240	36,389	
	Total	1,294,310	1,171,620	1,249,660	1,069,340	1,139,250	1,128,280	936,760	1,034,087	312,166
Conversion Factor		0.185	0.185	0.18396	0.18523	0.18360	0.18521	0.21989	0.21644	0.21644
TONNES CO_2e		239.447	216.750	229.887	198.074	209.166	208.969	205.984	223.818	67.565

TOTAL TONNES CO_2e RESIDENTIAL								
2005-06	2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11	2011 - 12	2012-13	2013-14
601.374	568.056	597.669	574.898	567.628	536.123	479.074	479.911	176.569

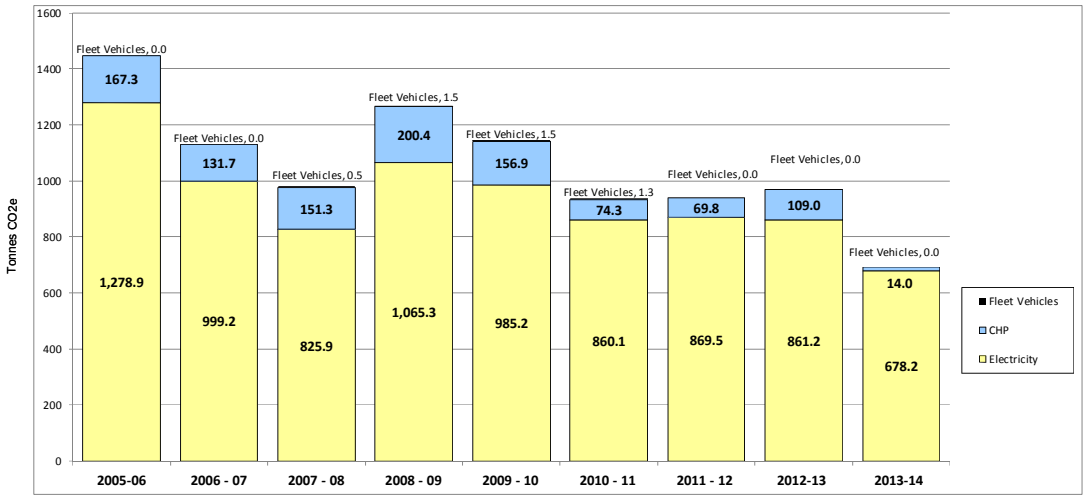
TOTAL TONNES CO_2e ALL SOURCES								
2005-06	2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11	2011 - 12	2012-13	2013-14
2,047.545	1,698.948	1,575.482	1,842.119	1,711.183	1,471.912	1,331.236	1,345.343	773.677

TOTAL GREENHOUSE GAS EMISSIONS - SCOPES 1 AND 2



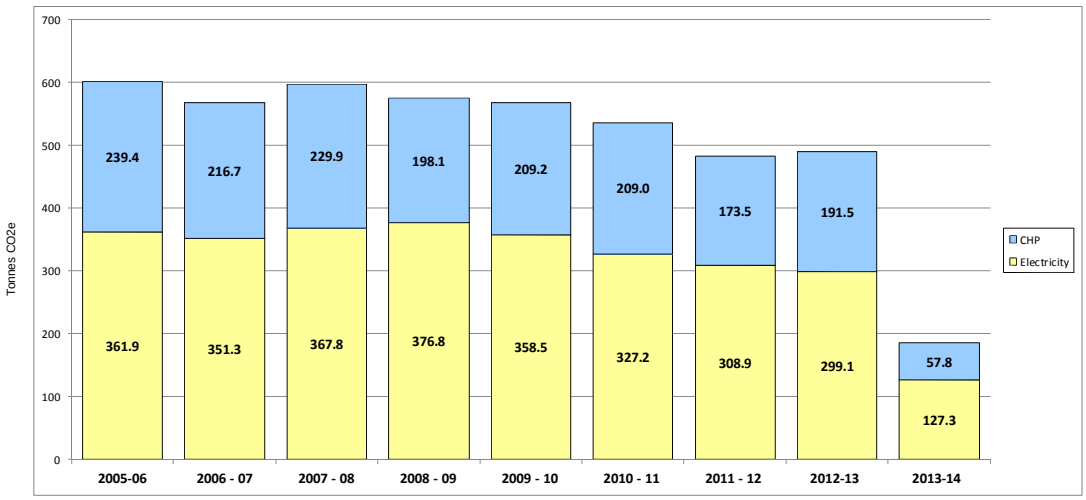
Academic Year

GREENHOUSE GAS EMISSIONS - SCOPES 1 AND 2
NON-RESIDENTIAL



Academic Year

GREENHOUSE GAS EMISSIONS - SCOPES 1 AND 2
RESIDENTIAL



Academic Year

Assessment against baseline and target – scopes 1 and 2

51. The data in the previous section show that the Guildhall School's total direct greenhouse gas emissions (scopes 1 and 2) in academic year 2005/06 amounted to **2,047.545 tonnes**. This establishes the 2005 baseline against which the School's future greenhouse gas reduction targets will be based, in line with the rest of the HE sector.

52. After significant reductions in the following two years, there was a substantial increase in 2008/09, largely due to the failure of the BEMS in the main Silk Street building. After this problem was solved, energy consumption immediately started to fall, leading to a reduction of carbon emissions in 2009/10 of 5.48% to 1,730.256 tonnes. This represents a reduction of 15.5% against the 2005 baseline.

53. In 2010/11, a further very considerable reduction was achieved of 15.67% to 1,459.042 tonnes, which represents a reduction of 28.74% against the 2005 baseline. This achievement is attributable in the most to further refinements to the settings of the BEMS in the Silk Street building as engineering staff become ever more experienced in using it, but also in part to the effects of behavioural change by staff and by students, which is beginning to make a noticeable difference to energy consumption.

54. As a consequence of the above results, the Guildhall School committed itself to increasing its target for the reduction of total scope 1 and 2 direct greenhouse gas emissions arising from its existing estate from 30% to **43%** by the academic year 2019/20 against its 2005 baseline. This is an absolute target, meaning that total direct greenhouse gas emissions arising from its existing estate (i.e. not including Milton Court) must not exceed **1,167.101 tonnes** in 2019/20.

55. The School also set interim milestones towards achieving its 2020 target as follows:

    - 31% reduction by 2011/12, equating to a maximum of 1,412.806 tonnes
    - 38% reduction by 2015/16, equating to a maximum of 1,269.478 tonnes
    - 43% reduction by 2019/20, equating to a maximum of 1,167.101 tonnes

56. The School achieved its first milestone target in the 2011/12 period with a reduction , of 3.95% to 1,401,352 tonnes, which represents a reduction of 31.56% against the 2005 baseline. In the the 2012/13 period this has reduced to 28% of baseline. This can be attributed to the colder winter conditions in this period. This observations is supported by a degree day comparison with the 2005 baseline year which shows a 31% increase in degree days for 2013. With further carbon reduction measures planned for the next rporting period we will continue to strive towards the overall target of 43% by 2019/20.

57. The School believes its 2020 reduction target to be appropriate and achievable but realistic, and takes into account the following factors:

    - The initiatives and controls already in place as a result of the School being part of the City of London Corporation
    - The reductions already achieved as a result of the new BEMS being operational

- The constraints arising from the School's buildings being grade 2 listed, and the specialist uses to which large parts of the School's estate are put as an international performing arts institution

Milton Court

58. The Guildhall School's long-awaited new facilities at Milton Court became operational in September 2013, adding some 11,385m^2 to the School's estate. The building has been designed to the highest possible environmental standards for its type, including the use of the Citigen CHP plant for all its heating and most of its cooling requirements. It has achieved a BREEAM[11] rating of very good. Nonetheless it is inevitable that the addition of a building of this size to the estate will lead to an overall increase in the School's energy consumption and therefore its carbon emissions.

59. The School's 2020 carbon reduction target of 43% therefore relates to the estate as it exists in 2013 and does not include Milton Court.

60. The designers of Milton Court have provisionally estimated that its annual energy consumption is likely to be in the region of 1,660,000 kWhs, which equates to total scope 1 and 2 direct greenhouse gas emissions of 632.554 tonnes. This is calculated as follows:

Milton Court	**Electricity**	**CHP (Citigen)**	**Total**
kWhs	970,000	690,000	1,660,000
Conversion factor	0.52037	0.18521	
Tonnes CO_2e	504.759	127.795	**632.554**

61. Since the commissioning of the building, its energy consumption has been monitored separately from the rest of the estate. The first four months monitored consumption are above the estimates, this being accounted for by commissioning difficulties with the M&E plant alongside a greater utilisation than originally predicted. If possibilities emerge for reducing its energy consumption by technical interventions, these will be pursued and appropriate reduction targets set accordingly. Overall space utilisation of the entire enlarged estate will also be monitored carefully, to ensure that the most effective and efficient use is made of all the School's assets.

62. The table below estimates what the Guildhall School's predicted annual carbon emissions for Milton Court.. Taking account of the above carbon reduction targets and milestones for its existing estate and assuming that the carbon model for Milton Court prove to be accurate, the table shows that the School's overall emissions will increase with the addition of Milton Court , but by 2015/16 will still be below the 2005 baseline. Once the increased size of the estate is taken into account, the carbon emissions per m^2 of estate reduce from 0.091 tonnes to 0.053 tonnes, a reduction of 41.54%.

	2005 - 06	**2010 - 11**	**2011 - 12**	**2015 - 16**	**2019 - 20**
Total tonnes CO_2e for existing estate	2,047.545	1,459.042	1,401.352	1,269.478	1,167.101

[11] BREEAM (Building Research Establishment Environmental Assessment Method) is the leading and most widely used environmental assessment method for non-domestic buildings. It sets the standard for best practice in sustainable design and has become the de facto measure used to describe a building's environmental performance.

Total tonnes CO_2e for Milton Court				632.554	632.554
Total tonnes CO_2e for enlarged estate	**2,047.545**	**1,459.042**	**1,401.352**	**1,902.032**	**1,799.655**
Approx. total area of estate (m^2)	22,614	22,614	22,614	33,999	33,999
Tonnes CO_2e per m^2 of estate	**0.091**	**0.065**	**0.062**	**0.056**	**0.053**

Carbon emissions data – scope 3

63. Scope 3 indirect carbon emissions arise principally from transport, from water and waste and from procurement. These carbon emissions are indirect, i.e. they are a consequence of the organisation's activities but the source of the emissions is not under the organisation's direct control. As a result, scope 3 emissions are much harder to calculate and the institution can only affect them by behavioural change.

64. HEFCE is not expected to set a sector-wide target until December 2013. Nonetheless, all HEIs have been encouraged to attempt a calculation of their emissions from these activities and the Guildhall School has done so for transport and for water and waste. These data are given on the next pages.

65. Student travel surveys were carried out in October 2010 and 2012, which gathered data on the modes of transport used by students when commuting to and from the School on a daily basis, and when travelling to and from their home address at the beginning and end of each term. Relevant multiplication factors were then applied to calculate an estimated total for those two years.

66. A staff travel survey was first carried out in May 2011, which gathered data on the modes of transport used by staff when commuting to and from the School on a daily basis. Relevant multiplication factors were then applied to calculate an estimated total for that year. Staff and student business travel for 2010/11, e.g. to conferences, courses, concerts etc., was calculated by examining the travel expense claims made through the School's finance system. A follow up survey was carried out in May 2013

67. The Guildhall School's water supply to the main Silk Street building is shared with the adjacent Barbican Centre. Water consumption for this building has been calculated at 40% of the total combined consumption, which is metered. Water consumption for Sundial Court for 2010/11 onwards has been taken directly from meter readings. Water consumption for 2010/11 onwards for John Hosier Annex and for the offices at John Trundle Court has been estimated from the utility bills. Waste water volumes in all buildings have been calculated at 49% of the water supply volumes, this being the fraction applied by the utility company to the School's bills. All volumes are measured in cubic metres.

68. Waste volumes for 2010/11 onwards have been calculated in tonnes recycled and tonnes not recycled for mixed municipal waste. Until 2010/11, the City of London sent its non-recyclable waste to landfill. From 2011/12 onwards, this waste is sent to an energy recovery plant in South East London.

69. The Department of the Environment, Food and Rural Affairs (DEFRA) has developed conversion factors that can be used to calculate scope 3 carbon emissions for various modes of transport and for water and waste. All the data have been converted into Tonnes CO_2e using the Guidelines to DEFRA / DECC's

GHG conversion factors for company reporting[12]. The exact conversion factors used are shown in the data tables.

70. A calculation for procurement will be attempted, and included in a further revision to this strategy, once a sector-wide approach has been agreed.

[12] http://www.defra.gov.uk/publications/files/pb13773-ghg-conversion-factors-2012.pdf

TOTAL GREENHOUSE GAS EMISSIONS - SCOPE 3

TRAVEL

STAFF COMMUTER TRAVEL SURVEY MAY 2013

		TOTAL DISTANCES TRAVELLED (KILOMETRES)										
		Bicycle	London Bus	National Coach	Car	Motorbike	Train (u/ground)	Train (DLR)	Train (o/ground)	Walk	Plane	Total
Full time staff	2011	14,529	37,256	0	35,124	28,908	182,329	20,675	1,399,384	5,123	0	1,723,328
	2013	47,150	46,103	0	32,195	17,929	185,726	0	1,402,503	2,258	0	1,733,864
Part-time/fractional staff	2011	6,815	5,096	0	22,248	1,875	26,792	1,341	426,597	1,164	0	491,928
	2013	2,809	3,144	0	1,676	991	16,740	0	244,036	136	0	269,532
Hourly- paid staff	2011	12,439	1,043	0	0	0	20,730	4,167	261,030	615	0	300,024
	2013	58,453	3,268	52,140	44,527	2,996	120,446	0	576,245	154	3,258	861,487
Total	2011	33,783	43,395	0	57,372	30,783	229,850	26,183	2,087,011	6,902	0	2,515,279
	2013	108,412	52,515	52,140	78,398	21,916	322,912	0	2,222,784	2,548	3,258	2,864,883

Conversion Factor		0.00000	0.08314	0.02932	0.19023	0.11891	0.06361	0.06006	0.04904	0.00000	0.183404
TONNES CO_2e	2011	0.000	3.608	0.000	10.914	3.660	14.621	1.573	102.347	0.000	0.000
	2013	0.000	4.366	1.529	14.914	2.606	20.540	0.000	109.005	0.000	0.598

TOTAL TONNES CO_2e ALL MODES OF TRANSPORT (STAFF COMMUTER TRAVEL)	
2010-11	136.723
2012-13	153.558

STAFF AND STUDENT BUSINESS TRAVEL 2012 - 13

	TOTAL DISTANCES TRAVELLED (KILOMETRES)										
	Ferry	National Coach	Car	Taxi	Train (u/ground)	Train (o/ground)	Train (internat'l)	Plane (domestic)	Plane (shorthaul)	Plane (longhaul)	Total
2011	519	157	3,900	654	104	34,960	7,113	1,835	62,090	563,878	675,210
2013	0	1,653	2,526	2,832	4,476	49,300	13,818	0	643,079	313,854	1,031,539

Conversion Factor		0.11608	0.02932	0.19023	0.144343	0.06361	0.04904	0.01235	0.326615	0.183404	0.165362
TONNES CO_2e	2011	0.060	0.005	0.742	0.094	0.007	1.714	0.088	0.599	11.388	93.244
	2013	0.000	0.048	0.480	0.409	0.285	2.418	0.171	0.000	117.943	51.900

TOTAL TONNES CO_2e ALL MODES OF TRANSPORT (STAFF AND STUDENT BUSINESS TRAVEL)	
2010-11	107.941
2012-13	173.654

TOTAL TONNES CO_2e FROM ALL FORMS OF TRANSPORT	
2010-11	244.664
2012-13	327.212

Notes

Not adjusted for the whole hourly-paid staff community to avoid distortion of figures

2011/2012 Data has been recalculated using 2013 conversion rates

WATER AND WASTE WATER

NON-RESIDENTIAL

	WATER & WASTE WATER (m^3)						
		Water			Waste water		
	Month	2010 - 11	2011 - 12	2012-13	2010 - 11	2011 - 12	2012-13
MAIN SCHOOL	Aug	192	182	167	94	89	82
	Sep	186	176	162	91	86	79
	Oct	192	182	167	94	89	82
	Nov	186	176	162	91	86	79
	Dec	192	182	167	94	89	82
	Jan	192	182	167	94	89	82
	Feb	176	167	153	86	82	75
	Mar	192	182	167	94	89	82
	Apr	186	176	162	91	86	79
	May	192	182	167	94	89	82
	Jun	186	176	162	91	86	79
	Jul	192	182	167	94	89	82
	Total	2,264	2,144	1,972	1,109	1,051	967
JOHN HOSIER ANNEX	Aug	22	21	19	11	10	9
	Sep	21	20	18	10	10	9
	Oct	22	21	19	11	10	9
	Nov	21	20	18	10	10	9
	Dec	22	21	19	11	10	9
	Jan	22	21	19	11	10	9
	Feb	20	19	18	10	9	9
	Mar	22	21	19	11	10	9
	Apr	21	20	18	10	10	9
	May	22	21	19	11	10	9
	Jun	21	20	18	10	10	9
	Jul	22	21	19	11	10	9
	Total	258	244	226	126	120	111

	WATER & WASTE WATER (m^3)						
		Water			Waste water		
	Month	2010 - 11	2011 - 12	2012-13	2010 - 11	2011 - 12	2012-13
JOHN TRUNDLE COURT	Aug	4	4	3	2	2	2
	Sep	4	3	3	2	2	2
	Oct	4	4	3	2	2	2
	Nov	4	3	3	2	2	2
	Dec	4	4	3	2	2	2
	Jan	4	4	3	2	2	2
	Feb	3	3	3	2	2	1
	Mar	4	4	3	2	2	2
	Apr	4	3	3	2	2	2
	May	4	4	3	2	2	2
	Jun	4	3	3	2	2	2
	Jul	4	4	3	2	2	2
	Total	44	41	38	21	20	19
TOTAL NON-RESIDENTIAL	Aug	218	206	190	107	101	93
	Sep	211	199	184	103	98	90
	Oct	218	206	190	107	101	93
	Nov	211	199	184	103	98	90
	Dec	218	206	190	107	101	93
	Jan	218	206	190	107	101	93
	Feb	199	189	174	98	93	85
	Mar	218	206	190	107	101	93
	Apr	211	199	184	103	98	90
	May	218	206	190	107	101	93
	Jun	211	199	184	103	98	90
	Jul	218	206	190	107	101	93
	Total	2,566	2,430	2,237	1,257	1,191	1,096

TOTAL TONNES CO_2e NON-RESIDENTIAL						
	Water			Waste water		
	2010 - 11	2011 - 12	2012-13	2010 - 11	2011 - 12	2012-13
Conversion Factor [a]	0.3441	0.3441	0.3441	0.7085	0.7085	0.7085
TONNES CO_2e	**0.883**	**0.836**	**0.770**	**0.891**	**0.844**	**0.777**

WATER AND WASTE WATER

RESIDENTIAL

		WATER & WASTE WATER (m^3)					
		Water			Waste water		
	Month	2010 - 11	2011 - 12	2012-13	2010 - 11	2011 - 12	2012-13
SUNDIAL COURT	Aug	868	733	754	425	359	369
	Sep	840	675	561	412	331	275
	Oct	868	905	968	425	443	474
	Nov	660	859	1271	323	421	623
	Dec	682	607	377	334	297	185
	Jan	682	633	590	334	310	289
	Feb	784	787	980	384	386	480
	Mar	984	1022	836	482	501	410
	Apr	651	632	567	319	310	278
	May	904	748	789	443	367	387
	Jun	1084	970	757	531	475	371
	Jul	890	801	651	436	392	319
	Total	9,897	9,372	8,511	4,850	4,592	4,459

TOTAL TONNES CO_2e RESIDENTIAL						
	Water			Waste water		
	2010 - 11	2011 - 12	2012-13	2010 - 11	2011 - 12	2012-13
Conversion Factor [a)]	0.3441	0.3441	0.3441	0.7085	0.7085	0.7085
TONNES CO_2e	**3.406**	**3.225**	**2.929**	**3.436**	**3.254**	**3.160**

TOTAL TONNES CO_2e WATER & WASTE WATER					
Water			Waste water		
2010 - 11	2011 - 12	2012-13	2010 - 11	2011 - 12	2012-13
4.288	**4.061**	**3.698**	**4.327**	**4.097**	**3.936**

TOTAL TONNES CO_2e WATER & WASTE WATER BY ACADEMIC YEAR			
	2010 - 11	2011-12	2012-13
Water	**4.288**	**4.061**	**3.698**
Waste Water	**4.327**	**4.097**	**3.936**
TOTAL	**8.615**	**8.158**	**7.634**

NOTES:

i) 2010 - 11 data has been recalculated using 2012 conversion factors. 2013 conversion factors were the same as those for 2012.

SOURCES:

a) 2012 Guidelines to DEFRA / DECC's GHG conversion factors for company reporting - life-cycle conversion factors for water

WASTE

NON-RESIDENTIAL

	WASTE RECYCLED (TONNES)				
	2008 - 09	2009 - 10	2010 - 11	2011 - 12	2012-13
	135.20	140.40	120.24	110.49	134.88
Conversion Factor	257[a)]	257[a)]	21[b)]	21[b)]	21
TONNES CO_2e	34.746	36.083	2.525	2.320	2.830

	WASTE SENT TO (TONNES):					
	LANDFILL				ENERGY RECOVERY	
	2008 - 09	2009 - 10	2010 - 11	2012-13	2011 - 12	2012-13
	175.76	228.56	146.41	0	127.23	133.20
Conversion Factor	290[a)]	290[a)]	290[b)]	290	21[b)]	21
TONNES CO_2e	50.970	66.282	42.459	0	2.672	2.797

TOTAL TONNES CO_2e NON-RESIDENTIAL				
2008 - 09	2009 - 10	2010 - 11	2011 - 12	2012-13
85.717	**102.365**	**44.984**	**4.992**	**5.627**

RESIDENTIAL

	WASTE RECYCLED (TONNES)				
	2008 - 09	2009 - 10	2010 - 11	2011 - 12	2012-13
	202.80	70.20	106.92	135.84	68.62
Conversion Factor	257[a)]	257[a)]	21[b)]	21[b)]	21
TONNES CO_2e	52.120	18.041	2.245	2.853	1.441

	WASTE SENT TO (TONNES):					
	LANDFILL				ENERGY RECOVERY	
	2008 - 09	2009 - 10	2010 - 11	2012-13	2011 - 12	2012-13
	175.76	228.56	231.66	0	141.07	116.55
Conversion Factor	290[a)]	290[a)]	290[b)]	290	21[b)]	21
TONNES CO_2e	50.970	66.282	67.181	0	2.962	2.448

TOTAL TONNES CO_2e RESIDENTIAL				
2008 - 09	2009 - 10	2010 - 11	2011 - 12	2012-13
103.090	**84.324**	**69.427**	**5.815**	**3.889**

	TOTAL TONNES CO_2e ALL WASTE				
	2008 - 09	2009 - 10	2010 - 11	2011 - 12	2012-13
Recycled	**86.866**	**54.124**	**4.770**	**5.173**	**4.271**
Landfill / Energy recovery	**101.941**	**132.565**	**109.640**	**5.634**	**5.245**
TOTAL	**188.807**	**186.689**	**114.411**	**10.807**	**9.516**

Tonnes recycled as a percentage of total waste	**49.02%**	**31.54%**	**37.53%**	**47.87%**	**44.88%**

TOTAL TONNES CO2e FROM WATER, WASTE WATER AND WASTE			
	2010 - 11	2011-12	2012-13
Water and Waste Water	**8.615**	**8.158**	**7.634**
Waste	**114.411**	**10.807**	**9.516**
TOTAL	**123.026**	**18.965**	**17.150**

NOTES:

i) 2010 - 11 data has been recalculated using 2012 conversion factors

ii) In 2011 - 12, the City of London started to send all its non-recyclable waste to an energy recovery plant in South East London

SOURCES:

a) 2011 Guidelines to DEFRA / DECC's GHG conversion factors for company reporting - life-cycle conversion factors for waste disposal (mixed municipal waste)

b) 2012 Guidelines to DEFRA / DECC's GHG conversion factors for company reporting - life-cycle conversion factors for waste disposal (mixed municipal waste)

Assessment against baseline and targets – scope 3

Transport

71. The data in the previous section show that the Guildhall School's total indirect greenhouse gas emissions (scope 3) in academic year 2010 arising from student transport activity amounted to 983.654 tonnes. This reduced dramatically in 2012 to 692.568 tonnes, largely due to a new and more accurate methodology being adopted for the calculation of air transport. When adding staff commuter travel and staff and student business travel from the 2011 survey, a grand total of **958.918 tonnes** is reached for total emissions arising from travel.

72. Due to the School's location at the heart of the City of London, the data show that the vast majority of travel to and from the School, both by staff and students, is by public transport, cycling or walking. Less than 1% of travel is by car or taxi, and the School has no car-parking facilities of its own.

73. The data also show that 57% of the above greenhouse gas emissions are generated as a result of students travelling to and from their home addresses at the beginning and end of term. Given that more than a third of the School's students are currently from outside the UK, representing over 40 nationalities, this is not a surprising statistic.

74. Consequently it is not considered feasible to expect a large reduction in greenhouse gas emissions from travel to be achievable.

75. The School nonetheless set a modest target for the reduction of total scope 3 indirect greenhouse gas emissions arising from transport of **8%** by the academic year 2019/20 against the 2010 baseline. Given the change in methodology for the calculation of air transport, it is now more realistic to set this target against the lower 2012 baseline of 958.918 tonnes. This is an absolute target, meaning that total indirect greenhouse gas emissions arising from transport must not exceed **882.205 tonnes** in 2019/20. This target will be reviewed after a larger dataset has been achieved over a longer period of years.

76. The School will seek to achieve this reduction by continuing to expand the availability of cycle bays to encourage staff and students to cycle to the School. It will also continue to ensure that the School's facilities are available for use by students throughout the year, for the benefit of students wishing to remain in London during the vacations. Currently the School is closed only on Christmas Day, Boxing Day and during the Easter weekend.

77. It should be noted that the data shown above for staff and student business travel include the emissions associated with a limited number of staff flying to New York and elsewhere in order to conduct auditions for students applying for places at the Guildhall School. If these trips did not take place, a considerably larger number of students would need to fly in the opposite direction to be auditioned in London.

Water and waste

78. The data in the previous section show that the Guildhall School's total indirect greenhouse gas emissions (scope 3) in academic year 2010/11 arising from

water, waste water and waste amounted to 139.567 tonnes. This reduced dramatically in 2011/12 to just 21.063 tonnes, as a direct result of the City of London now sending its non-recyclable waste for incineration at an energy recovery plant in South-East London.

79. The Guildhall School has taken significant steps to reduce its water consumption by installing percussion taps in the majority of its estate and water saving shower devices in student accommodation. The School has just one hall of residence providing accommodation for 177 students.

80. Consequently it is not considered feasible to expect a large reduction in greenhouse gas emissions from water consumption to be achievable. The School will however be investing in additional water meters in order to measure its consumption more accurately.

81. On the other hand, greenhouse gas emissions arising from the disposal of waste have already reduced dramatically.

82. In 2010/11 the School set a target for the reduction of total scope 3 indirect greenhouse gas emissions arising from water, waste water and waste of **30%** by the academic year 2019/20 against the above 2010 baseline. This is an absolute target, meaning that total indirect greenhouse gas emissions arising from water, waste water and waste must not exceed 97.697 tonnes in 2019/20. Given that this target has already been exceeded, it is highly likely that the School should revise it. However there is still only a small amount of data available, and so this target will be reviewed after a larger dataset has been achieved over a longer period of years.

Implementation plan – scopes 1 and 2

83. In order to achieve its 2020 carbon reduction target for scope 1 and 2 emissions, the School has identified a number of initiatives and interventions that will reduce its energy consumption. Many of these are behavioural adjustments that attract little or no cost, a lot of which are already being implemented. Others are engineering or technical interventions that reduce the amount of energy needed to operate the School's buildings. Whilst these initiatives have a capital cost attached to them, they will of course generate future savings in energy costs and will provide a good return on investment particularly as energy costs inevitably rise. Apart from the possibility of introducing additional secondary glazing which needs detailed evaluation, the most expensive project is to install a voltage optimisation unit in the Silk Street building, but this is also expected to produce the greatest energy savings estimated at 8%. It is anticipated that the majority of the funding for the engineering and technical interventions will be found from the School's annual ring fenced strategic capital programme;- the 'capital cap'.

84. The following tables list the initiatives and projects that will be or are already being implemented, or are the subject of detailed evaluation to establish their viability.

Behavioural and awareness-raising solutions

Initiative	Detail	Action by	Timescale/ progress
Switch off electrical equipment	Staff and students are encouraged to turn off all electrical equipment, monitors, lights, printers, copier machines when at meetings, lunch and at the end of the day. Room-by-room data have been collected since September 2009 identifying how many appliances are left switched on at night, and an analysis of these data are published on the School's intranet to remind staff how well they are doing. An energy saving competition has also taken place.	SSG and Facilities department	Ongoing
Screen saver and/or desktop message to turn off monitors	This is a simple and effective reminder that switching off an unattended monitor saves more energy than leaving it on stand-by.	IT department	Ongoing
Encourage staff and students to turn the heating down or off if not needed, rather than opening windows	This is a particular problem in Sundial Court bedrooms, where windows are often used as the temperature control mechanism, rather than the thermostatically-controlled radiator valves. Awareness raising comprises notices in the Sundial Court handbook, as well as reminders at residential meetings.	Student Affairs and Facilities departments	Ongoing
Departmental environmental	This initiative involves the creation of a simple internal accreditation	SSG	Spring term 2014

Initiative	Detail	Action by	Timescale/ progress
accreditation	scheme, whereby the School's departments work towards a set of environmental and sustainability standards, thus creating a competitive approach to achieving a more sustainable institution.		
Sundial residents' meetings	These regular meetings are used to promote sustainability and environmental awareness and to encourage students to engage with the issues and contribute ideas.	Student Affairs and Facilities departments	Ongoing
Environmental video made by students	This would be a very effective way of engaging students and channelling the enthusiasm of some to raise awareness of the issues in others.	SSG and Student Affairs department	Spring term 2014
Use of foyer screens to show sustainability messages	The School has a number of large display screens in its main foyer, showing a variety of information such as forthcoming events and room bookings and usage for the day. The screens are programmed to show sustainability messages, either at times when their primary use is not necessary or interspersed with their primary use.	SSG and IT department	Ongoing
Environmental Awareness Days	The School organises regular events in the main foyer, usually on a termly basis, at which environmental films are shown, and energy-saving ideas and statistics are promoted, often in conjunction with external initiatives.	SSG	Ongoing
Incorporating sustainability issues into the recruitment and appraisal process	A commitment to working towards a more sustainable and environmentally friendly institution should be part of the job description of every staff member. Awareness of the initiatives in which the School is engaged should form part of the induction process. For certain management roles, particularly in Engineering and in Technical Theatre, specific environmental objectives are already being included in the appraisal process.	HR department	Implemented for Engineering, and Facilities staff in July 2013

Engineering and technical interventions

Initiative	Detail	Est. Cost £	Timescale/ progress
Installation of 'power perfector' unit	This is a voltage reduction and stabilisation unit that sits in-between the main incoming electrical supply	60,000	Summer term 2014

Initiative	Detail	Est. Cost £	Timescale/ progress
	and the distribution board. It monitors the incoming supply voltage and reduces it to the EU standard of 220V, making a saving of 8%. This system has already been installed in Sundial Court, and installation in the Silk Street building is now planned.		
Installation of new Building Energy Management System (BEMS)	The BEMS is a computer-controlled system that manages the building heating, cooling, hot water and ventilation systems. New systems were installed in 2009 both in the Silk Street building and in Sundial Court, which allows us to monitor/manage all of the systems and optimise them for best energy usage.		Already complete. Further refinement of the settings is ongoing
Reduce run hours on heating circuits and ventilation systems	The run hours of the heating and ventilation systems in the Silk Street building and in Sundial Court have been reviewed in consultation with student union representatives, facilities and other relevant staff, enabling the School to use the BEMS to operate the heating circuits and ventilation systems more precisely to the times that suit operational requirements.		Ongoing
Introduction of low energy and LED lamps	A number of different trial lamps have been introduced, including replacing the old style lamps with the LED equivalent where possible. The resultant data have now been reviewed and a large scale replacement programme is to be implemented, with an expected energy saving of 8%. The development of low energy and LED lighting for theatre productions is being investigated for possible introduction in the future as the technology improves.	15,000	Commenced in Summer term 2013 and continuing
Installation of Chlorine Dioxide unit to reduce calorifier temperatures	The primary function of a Chlorine Dioxide unit is to control legionella bacteria. It constantly doses the water with chlorine dioxide, which is an oxidizing biocide that reacts with a wide range of organic substances and is effective against legionella bacteria. As a result of using this unit, the temperature of the hot water systems is able to be safely reduced thus saving energy in heating the water.		Completed autumn term 2010

Initiative	Detail	Est. Cost £	Timescale/ progress
Installation of variable speed drive pumps	The installation of these units reduces the pressure on the pumps and valves as the water flows around the systems. By using the BEMS to control them, the electricity used to drive the pumps is reduced.	9,000	Completed in Summer term 2013
Review of STARK meter overnight loads to reduce energy usage	STARK is the electricity monitoring system used by the distribution company, which produces half-hourly data. A review of these data enables the School to identify what is being left on overnight, and to reduce the static load units that are permanently switched on and make them switchable so they can be turned off when not required.		Ongoing
Removal of constant load transformers in engineering areas	A review of these units in the plant rooms and service risers revealed that they are not all required. Some units have been removed and the others have been put on isolation switches to allow them to be turned off.	1,000	Summer term 2013
Review and testing of movement sensors on lighting and air-conditioning	Installation of movement sensors enables local lighting and air-conditioning to be turned on only when the room is in use. This will need extensive testing due to the specialist uses to which many areas of the School are put. They will then be installed in all areas where it is practical.	4,000	Summer term 2013
Review HVAC system for use of “free cooling” to reduce chiller run times	The BEMS allows the School to review inside and outside temperatures, to enable the run times of the chiller and CHP cooling systems to be balanced by using cool air from outside.		Ongoing
Auto-shut down of IT equipment	Ensuring that staff and students switch off IT and other appliances that are their sole responsibility is a behavioural challenge, but equipment that is monitored centrally from the IT network can be automatically shut down when the School closes each night. This ensures that no energy is wasted by appliances being left on unnecessarily.		Ongoing
Investigate increased use of secondary	This is problematic due to the estate’s grade 2 listing, but may be possible in some areas. Project requires detailed	800,000	Being evaluated

Initiative	Detail	Est. Cost £	Timescale/ progress
glazing	evaluation.		

Space management

85. One of the most effective ways of reducing energy usage and therefore scope 1 and 2 carbon emissions is to ensure the most efficient use of space. With the School's new facilities opening at Milton Court in 2013, a perfect opportunity has presented itself to re-examine usage in all the School's buildings to ensure maximum space utilisation in the enlarged estate.

86. External consultants were appointed to carry out a study into how the School's spaces should be reconfigured once the Acting department and large parts of the Technical Theatre department have relocated to Milton Court. The final report was received in February 2011, and this was followed by a thorough evaluation by the School's senior management team. Funds already allocated in the current capital programme will be utilised to execute some of the resultant refurbishment works, with provision to be made in the next programme (from 2014/15 to 2018/19) for the more ambitious schemes.

Implementation plan – scope 3

87. Although the Guildhall School does not anticipate being able to achieve substantial reductions in its scope 3 emissions because of its size and location, various initiatives have nonetheless been put in place, or are being evaluated, to reduce them as much as possible, as shown in the following table. Despite baseline data for emissions arising from procurement not yet being available, possible initiatives to reduce such emissions are already included in this plan.

Initiative	**Detail**	**Action by**	**Timescale/ progress**
Rainwater diverting	Diverted (grey) water can be re-used for plant watering and WCs	Engineering department	Being evaluated
Roll out of percussion taps	Percussion taps switch off automatically, thus saving water	Engineering department	Largely complete
Installation of water saving shower units	Sundial Court Student accommodation	Engineering department	complete
Install additional water meters	Whilst water consumption in Sundial Court is accurately measured, usage in the main Silk Street building is not. Water meters in this building will enable accurate data to be compiled.	Engineering department	Summer term 2014
Reduce use of plastic	Encourage offices to use mugs/glasses rather than disposable plastic cups	SSG	Ongoing
Encourage paper-free working	Work towards greater use of electronic communication	SSG	Ongoing
Reduce paper usage	Print double-sided (all printers default to double-sided), reduce margin sizes, reuse scrap for notepaper, recycle envelopes	SSG	Ongoing
Increase recycling	Increase number of recycling points and consider other materials that can be recycled	SSG and Facilities department	Ongoing
Reduce waste going to skips	Review ways of reducing the amount from theatre sets that are thrown away after each production	Technical Theatre	Ongoing
Encourage cycling	Promote cycle safety and training schemes and increase cycle bays to support staff and students who wish to cycle to the School. Promote the cycle loan scheme	SSG	Ongoing
Procurement policy	Continue to consider locality of suppliers and agencies according to City of London procurement guidelines	All departments – monitored by SSG	Ongoing
Procurement policy	Continue to buy Fairtrade tea/coffee/cups and other produce	Facilities department	Ongoing
Procurement policy	Consider the 'green credentials' of suppliers, e.g. accredited to ISO	All departments	Being evaluated

Initiative	Detail	Action by	Timescale/ progress
	14001, before awarding contracts and placing orders	– monitored by SSG	

Governance and progress monitoring

Governors

88. The Committee of University Chairs' 'Guide for Members of Higher Education Governing Bodies in the UK' states that: 'The governing body is responsible for oversight of the strategic management of the institution's land and buildings with the aim of providing an environment that will facilitate high-quality teaching and learning and research.' Carbon management is a key strategic issue, so it is a crucial area for governors who should be informed and involved in decision-making on the institution's approach to reducing its emissions. This is why HEFCE has asked for carbon reduction plans to be signed off by the governing body.

Officers

89. At officer level, the School's Senior Management Team has ultimate responsibility for taking ownership and for communication of this strategy, and for ensuring that its action plan is implemented and progress monitored accordingly. The Senior Management Team will ensure that a monitoring report is submitted to the Board of Governors annually.

90. At an operational level, the Operations Board will have a role as the committee into which the SSG reports, particularly in respect of monitoring. It will receive progress reports on monitoring by receipt of the minutes of SSG meetings.

91. Detailed monitoring of this strategy will be carried out by the SSG at each of its meetings, which are twice termly. It will also be responsible for revising the strategy in the light of progress. The members of the SSG as at January 2014 are:

    Michael Dick (The Director of Operations and Buildings)- Chairman
    Julia Lazarus (Student Affairs)
    Adrian Yardley (Library)
    Ayca Ibrahim (Music Office)
    Ben Sumner (Technical Theatre)
    Martin Auger / Tom Harrington (Estates Management)
    Jennifer Kay (Registry)
    Malcolm Johnson / Stephen Blackaby (Engineering)
    Richard Antonel (IT)
    Ieuan Davies (Student Union President)
    Student Representatives (up to four)

    Supplemented by colleagues from the City of London Corporation and other external experts as required.