

University of the Arts London

Carbon Management Plan

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Foreword

University of the Arts London Vice-Chancellor Nigel Carrington has signed the People & Planet Green Education Pledge. People & Planet invited Vice-Chancellors and other associated education organisations leaders to sign up to the declaration to commit to working towards a greener higher education sector.



The pledge acknowledges that: “Education is critical to achieving the transition to a low carbon economy and society. Teaching and learning are crucial to inspire and educate the next generation of decision makers, business leaders and citizens, and equip them with the skills and knowledge to deal with the challenges of climate change. Research and innovation helps us to understand the many facets of climate change and will be central to developing ideas and technologies to mitigate and adapt to climate change.”

The Carbon Management Plan supports this pledge and captures the University’s commitment to becoming a more sustainable institution. This plan is a live document and will update as our business activities change and will reflect accurately the carbon emissions we are responsible for.

Please view my presentation about what sustainability means to UAL in the context of sustainable development for the sector via-

<http://view6.workcast.net/?pak=5206429876747473&cpak=4032530792499480>

Management Summary

The University of the Arts London (the University) has its origins in five previously independent art, design, fashion and media colleges, which were brought together to form the London Institute in 1986. The Wimbledon College of Art joined in 2006. The colleges were originally established from the 19th century to the early 20th century. In 2003, the London Institute received Privy Council approval for university status and was renamed the University of the Arts London in 2004.

Six distinctive and distinguished Colleges make up the University:

- Camberwell College of Arts
- Central Saint Martins College of Arts and Design
- Chelsea College of Art and Design
- London College of Communication
- London College of Fashion
- Wimbledon College of Art

Located within London, the Colleges are at the heart of their communities. Their close-knit and welcoming environments are a launch pad for your studies, which will also be supported by all the resources of the larger University and the wider London arts community.

In 2012/13 18,678 students, from 114 countries made us Europe's largest specialist arts and design University. Our 1,111 academics, research and technical staff are supported by 2,074 associate lecturers. Together they deliver a diverse range of courses at all levels from foundation and undergraduate to postgraduate and research. We are proud to have teaching staff who are themselves active professional artists, practitioners, designers, critics and theorists engaged in cutting-edge research. Sharing this diversity, knowledge and expertise with our students, we provide a unique learning experience to the creative leaders of tomorrow.

The University is committed to reducing its carbon emissions. A joint consultation between HEFCE, Universities UK and GuildHE on developing a carbon reduction target and strategy for higher education in England has been published with key emphasis placed on the higher education sector. The sector should:

- Commit to reducing scope 1 and 2 emissions by 80 per cent by 2050 and by at least 34 per cent by 2020, against a 1990 baseline¹. This translates into 43% from 2005 to 2020 needed to compensate for increases emissions in the Higher Education sector since 1990.
- Commit to reducing scope 3 emissions in-line with Scope 1 & 2 emissions

Institutions are required to have carbon management plans and performance against these plans will be a factor in capital allocations from 2011. HEFCE requires the plan to be signed off by the governing body (the Executive Board, in the case of the University).

Scope 1, 2 & 3 emissions

The University's carbon baseline for 2011/12 has been re-calculated to be 12,423 tonnes of carbon dioxide emissions, covering Scope 1 & 2 emissions. Scope 3 emissions were recorded for the first time in 2012/2013. The total emissions were estimated to be 793,296 tonnes of carbon dioxide. Assuming the University had previously emitted Scope 3 emissions in-line with the 2012/13 forecast, the **total carbon baseline for the University in 2011/2012 was 805,719 tonnes of carbon.**

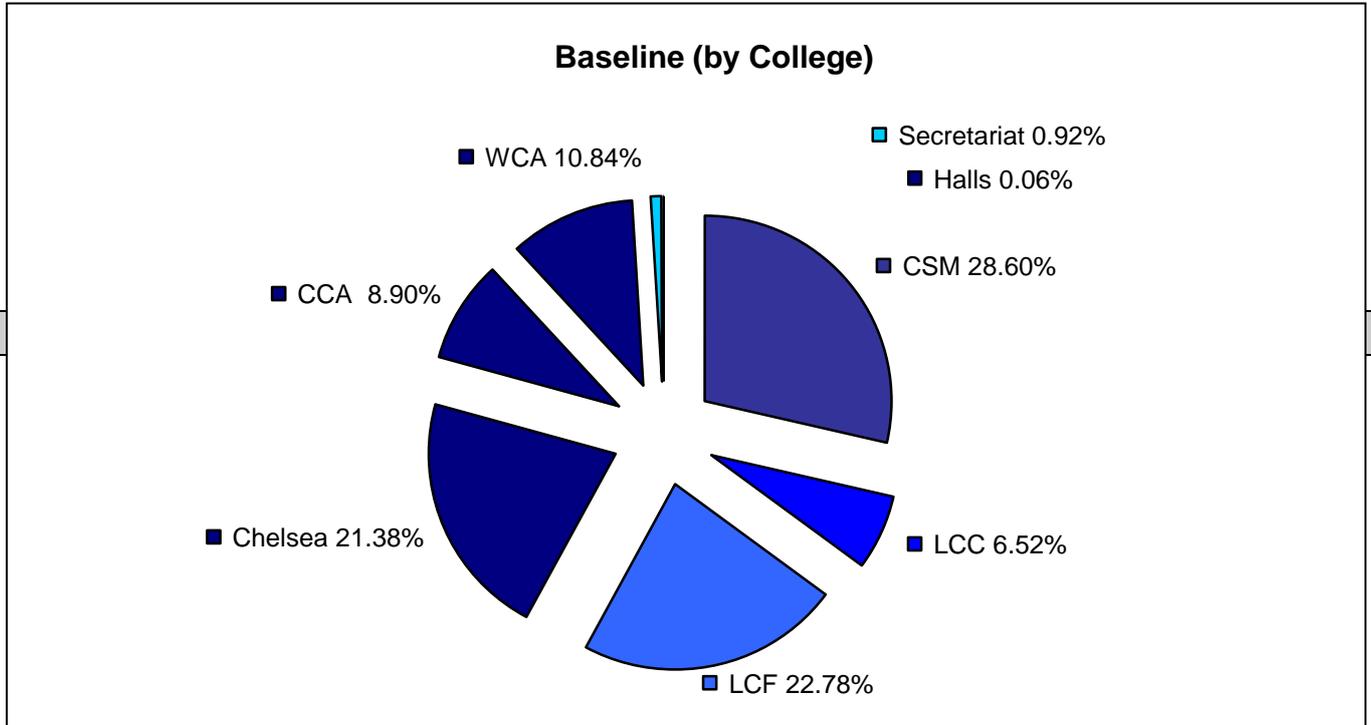
Total emissions are likely to increase in the future without the Carbon Management Plan (CMP). The calculation of total emissions for the CMP will differ from other published baselines to satisfy our Carbon Reduction Commitment and Estate Management Records obligations. The CMP includes consumption from all our supply points between August and July each year.

This CMP contains policies and actions to reduce the University's Scope 1 & 2 carbon emissions by 22% or **2,733 tonnes**, by 2015/16. A reduction in Scope 3 emissions of 174,525 tonnes by 2015/2016 has also been forecast. Apart from being compatible with HEFCE targets set out above, a 22% reduction in emissions has been determined by projects that are achievable and cost effective. Implementation of this CMP will cost the University **£379,859** over the next 3 years (including operational costs). The total financial saving the CMP is anticipated to deliver is **£1,256,623** by 2015/6. The University of the Arts London 2010/11 baseline was audited however the 2005/6 baseline (the first year all HEIs were asked to submit carbon footprints) cannot be verified. Indeed, the University didn't submit a baseline in 2005 (https://www.hefce.ac.uk/media/hefce/content/pubs/2010/rd1410/rd14_10.pdf page B-5).

With regard to Scope 1 & 2 emissions, the 2011/2012 - 2015/16 reduction target of 5.5% per year is above the average sector target (as set out by the Green League). Beyond 2015/2016 the

¹ Scope 1 emissions are all direct Green House Gas (GHG) emissions. Scope 2 emissions are all indirect GHG emissions from consumption of purchased electricity, heat or steam. Scope 3 emissions are other indirect emissions, such as the extraction and production of purchased materials and fuels, transport-related activities in vehicles not owned or controlled by the reporting entity, electricity-related activities not covered in Scope 2, outsourced activities, waste disposal, etc

annual reduction we need to at least match previous targets. This is considered realistic given the possible rationalisation of buildings occupied by the University in the medium term.



The University has identified **40 measures** that will contribute to a reduction in carbon emissions and a series of enabling activities that will embed carbon management within the University. These include:

- A greater emphasis on energy monitoring, targeting and reporting. Dedicated resources to ensure gas, electricity and fuel oil are used efficiently has been identified as part of this plan and are estimated to contribute a reduction in excess of 250 tonnes of carbon.
- Replacing operational equipment within buildings that has reached the end of their useful life with updated, efficient systems. These are essential electrical and mechanical systems that provide heating and cooling to the University buildings.
- Installing energy conservation measures through a specialist energy contracting finance model, de-risking investment in such technologies.
- Incentivising the University staff and students to reduce energy consumption. Support, training workshops and imaginative communication techniques will be provided by the University to instigate behavioural change amongst all that use and work within the University.
- A recycling contract that diverts 100% of waste from landfill
- A Travel Plan focused on safer cycling and walking. Public transport remains the primary mode of transport, as is the case of non-campus based urban University

If we run our business as usual, what the University spends on energy might rise by as much as **£263,347 over the next three years**. As the market prices of energy increase and remain

volatile, the best way to reduce the risk of substantial cost increases is to implement energy efficiency measures.

Therefore, saving carbon not only contributes to our environmental sustainability agenda, but also makes good business sense. The energy conservation measures represent attractive payback periods of between 3 and 4 years. Other projects have a projected lifespan of 20+ years.

This plan estimates that **£379,859 of additional funding** is required to implement this plan in full.

In summary, the University has developed this Carbon Management Plan so as to:

- Reduce energy consumption and expenditure on energy bills;
- Allocate roles & responsibilities for implementing a series of energy efficiency projects;
- Establish an effective system of monitoring consumption and achieved savings (in-keeping with the Business Change Programme and other strategic themes of the University); and,
- Set an informed carbon reduction target and guide progress to meet the statutory requirements of the Carbon Reduction Commitment Energy Efficiency Scheme (CRC EES)².

Scope 3 emissions

A baseline of carbon emissions was produced in 2013, for the first time. The baseline of emissions is as follows

Scope 3 2012/13 CMP Baseline			
Type	Carbon (t)	22% Reduction (t)	44% Reduction (t)
Business Travel	325	72	143.00
Staff Commute	140,422	30,893	61,785.68
Student Commute	520,729	114,560	229,120.76
Procurement	82,514	18,153	36,306.16
Water	35	8	15.40
Waste Water	72	16	31.68
Waste	49,199	10,824	21,647.56
Total Scope 3	793,296	174,525	349,050

² The Carbon Reduction Commitment Energy Efficiency Scheme is a central government scheme designed to encourage large consumers of energy to reduce carbon emissions. Carbon allowances must be purchased to off-set total carbon emissions each year. The allowances are non-refundable and monies go directly back to the government.

The reduction target of 22% is applied to Scope 3 emissions also. The University has no intention to measure, report or actively reduce carbon emissions that arise from students travel between their home and the University at the start of each term i.e. international students.

1. Introduction

Sustainability issues, in particular climate change and the depletion of finite natural resources, have grown in importance over the last 20 years. University staff and students are aware of climate change issues whether it is through responding to statutory requirements in the workplace, studying the subject directly or simply as citizens of a global community. The previous government, keen to reduce national carbon emissions strengthened financial, legal and policy incentives. In addition HEFCE and GuildHE have made clear that Higher Education buildings must become sustainable. Rising costs for waste disposal, transport, raw materials, gas and electricity have also impacted on our institution. At the same time, corporate environmental reporting, benchmarking and league tables are also prominent in the HE sector as they have been in the private sector for many years.

The University is using processes developed by the Carbon Trust to re-draft its CMP and respond to the climate change agenda. The University will over the next ten months ensure it has;

- Mobilised a team of staff and students;
- Established where it uses energy;
- Calculated its carbon emissions;
- Identified opportunities for reducing its impact by designing a cost effective strategy;
- Developed these opportunities into a programme of energy efficiency projects which will be implemented by 2015/6.

The process is owned by the Sustainability & Environment Project Board who will monitor each of the five stages in turn (Figure 1.1).



Figure 1.1: The well recognised steps to developing a CMP

A total of four Sustainability & Environment Project Board meetings are held each year.

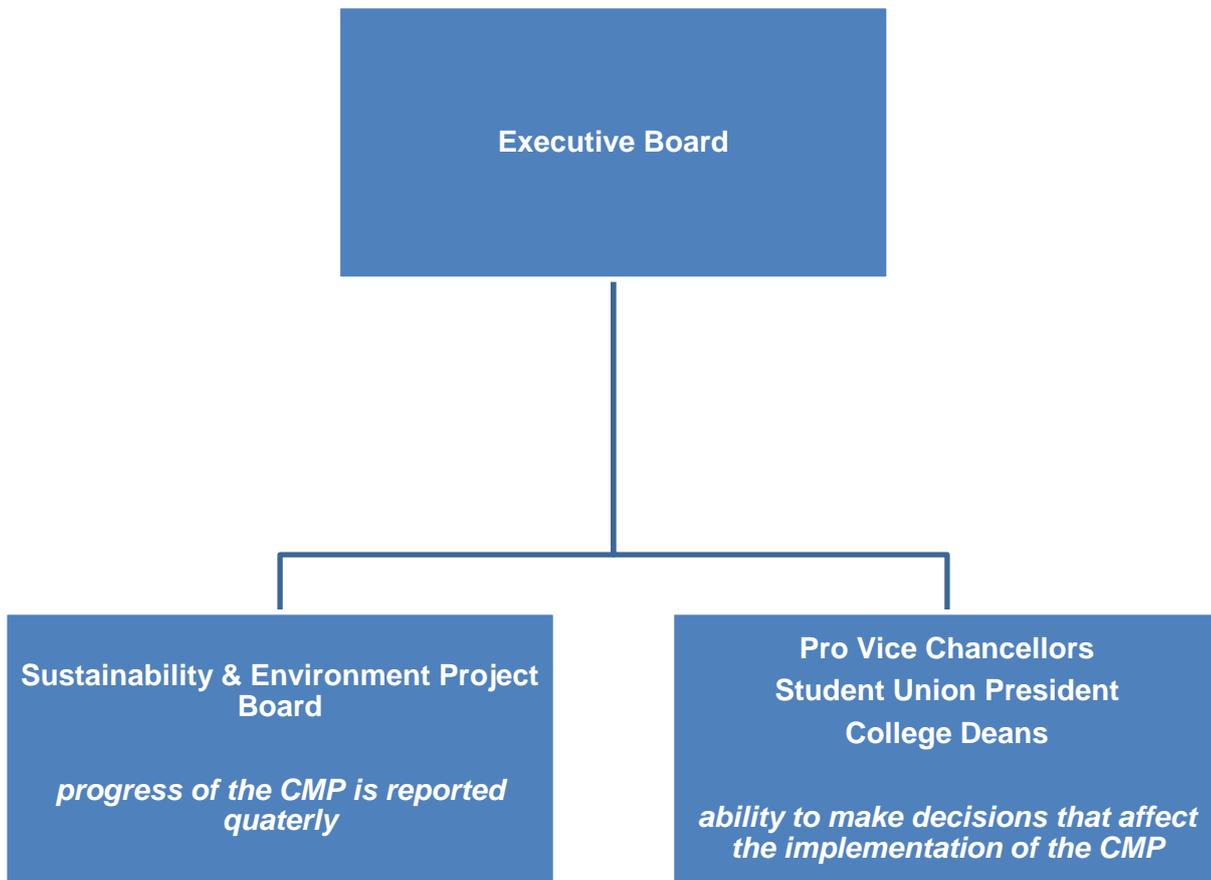


Figure 1.2: Ownership chart of the CMP

Moving successively through the five stage process will enable the University to target its main sources of carbon dioxide emissions through the most cost effective actions. The programme contains energy efficiency measures that address both electricity and gas consumption in the University’s portfolio buildings.

Many of the mechanical and electrical opportunities to reduce carbon already captured will be implemented in the next four years. However, changes in how the University operates – changes that are essential to the overall success of the CMP will extend beyond the life of this document. **It is recommended a sub-group be organised to review the Carbon Management Plan once per year. The Carbon Trust states CMPs approve cross-reference policies, strategies and plans that are relevant to the organisation. Such plans include Strategic Business Plans, for example.**

2. Carbon Management Strategy

2.1 Context and drivers for Carbon Management

The Climate Change Act 2008 is the UK's first long term legally binding framework to tackle the dangers of climate change. This requires the UK to reduce CO₂ emissions by 80% by 2050. This Act has required the University to register for the Carbon Reduction Commitment Energy Efficiency Scheme (CRC EES). From April 2012 the University will have to buy an annual carbon allowance for every tonne of carbon it emits. The University estimates £150,000 will be required annually to purchase the necessary amount of carbon allowances. The University aspires to improve its reputational performance and will submit the required information for national drivers such as the People & Planet Green League.

International and national climate change policy is a substantial external driver that is encouraging Universities to address carbon management. Climate change and energy issues have continued to increase in political importance over recent years and climate change now benefits from almost constant mainstream media coverage. The Government's Climate Change Strategy and Energy White Paper contain sequential carbon emission reduction targets for 2010, 2020 and 2050 and a target to increase renewable energy to 10% of electricity generation by 2010 and 20% by 2020. Other national drivers which impact upon the higher education sector include the Landfill Directive. This requires the UK to implement strategies to increase recycling rates and in turn restrict waste being committed to landfill. The cost to dispose to landfill currently resides at £56 a tonne.

The Energy Performance Building Directive has spawned a number of legal requirements to improve the efficiency of buildings. This has required the University to produce Display Energy Certificates (DECs) for all its buildings with a floor area greater than a 1,000m². Each certificate must state how well a building performs in its energy consumption rating A to G. Similarly, the University will have to test and certify all air conditioning plant over 250kW from January 2009 and then from January 2011 all air cooling plant over 12kW. While this will add to annual compliance costs it will help maintain plant efficiencies and identify opportunities for improvement. In 2009 the University was required to provide DEC's for 22 buildings. Of these, four buildings received a 'C' rating; eight were rated as 'D' and four received a 'G' rating.

In addition the Mayor of London has stated that climate change is one of his key priorities and he launched the London Climate Change Strategy and Energy Strategy in early 2010. For example, a high proportion of the estate is located in central London where planning authorities require any new development or refurbishment to generate 10% of its energy needs on site from renewable resources.

2.2 Strategic Themes

The Higher Education sector as a whole will continue to experience a period of change and adjustment as institutions react to the new aspirations of the government. Even before the new challenges of shared services and greater collaboration were mooted, the University of the Arts London had already begun to review its functions in order to provide better performance and efficiency. On the 26th April 2012 the University Medium Term Plan was

presented to the UAL Court of Governors. This report follows the nine strategic priorities that form the MTS and is followed by a tabular summary of the Key Performance Indicators which together provide an overview of our strategic progress. The nine strategic priority areas are:

- Learning and Teaching
- Communities of Practice
- Student Experience
- Widening Participation
- Academic Portfolio
- Research
- Internationalisation
- Enterprise
- Sustainability

The report covered the first year of a five year plan. The extent of our operational progress against the nine strategic priorities has therefore depended to a very considerable extent on the extent to which we as an organisation already had in place the governance and management structures necessary to deliver them: accordingly progress against the last three Priorities (Internationalisation, Enterprise and Sustainability) should be more rapid in future years. This Carbon Management Plan is in direct response to the requirement to reduce carbon emissions more rapidly.

2.3 Targets and Objectives

**THE UNIVERSITY OF THE ARTS LONDON WILL REDUCE
CARBON EMISSIONS FROM ITS ACTIVITIES BY 22% FROM
THE 2011/12 BASELINE BY July 2016**

AND

43% BY MARCH 2020

The CMP is also expected to deliver:

1. Carbon savings of **2,733 tonnes** from Scope 1 and Scope 2 emissions by 2015/16;
2. Carbon savings of **174,525 tonnes** from Scope 3 emissions by 2015/16;
3. A shared work programme with energy efficiency activity undertaken by a large number of staff across the organisation;
4. A regular reporting procedure for energy consumption and carbon emissions;
5. An organisational focus on energy efficiency that will enable the organisation to continue reducing its carbon emissions into the future;
6. High levels of energy awareness amongst its staff;
7. An Energy Performance Contract to ensure that on-going investment is available for energy saving projects in University buildings.

The CMP requires a management framework that ensures the effective delivery of a number of energy saving projects. This will include:

1. Annual monitoring and annual reporting of the CMP to the Sustainability Committee;
2. Quarterly review of the implementation of energy efficiency projects;
3. Greater awareness of energy consuming behaviour by all divisions and service areas;
4. Consideration of energy performance within all procurement decisions;
5. Inclusion of energy efficiency responsibilities within facilities and buildings management;
6. Development of energy efficiency specifications for capital projects;
7. Addressing the Carbon Reduction Commitment Energy Efficiency Scheme.

3. Emissions Baseline and Projections

3.1 Scope

The scope of this CMP includes Scope 1 and 2 emissions, inline with HEFCE guidelines. This is specifically emissions from electricity, gas, heat from district heating, oil and water consumption. The University's carbon baseline for 2011/12 has been estimated to be **12,423 tonnes** (Scope 1 & 2) and **793,296 tonnes** of carbon for Scope 3 emissions per year. Total emissions are likely to increase in the future without the Carbon Management Plan (CMP). Scope 3 emissions were estimated in 2012/2013 for the first time.

Following an audit of information provided by the University's facilities management provider (2007-2011) it was not possible to obtain a robust baseline for emissions associated with waste disposal. In addition, staff commuting, business travel, water consumption and procurement emissions data was insufficient for the purposes of the CMP and has not been included. A new facilities management provider was appointed in November 2012 alongside a dedicated Contracts Manager a year before. It is hoped this is support to University's attempts to reduce its carbon footprint. A waste disposal service was not included within this contract but a new waste service was tendered in 2013 and waste disposal data is included in the CMP update in 2013/14. A staff travel survey will be released via the University intranet site in the summer of 2013 to capture commuting data for future years. Business travel will also be better recorded on our internal finance system to capture distance travelled as well as mode of transport. Procurement emission will be made available by the Finance Department following the successful implementation of the new finance system, Agresso.

3.2 Baseline

Establishing an accurate baseline is critical if the impact of identified improvements is to be fully quantified. A new Monitoring & Targeting (M&T) procedure will be installed, ahead of the CMP being adopted. In the first instance its purpose was to capture energy consumption data from utility suppliers. Figure 3.1 shows the share of carbon emissions by fuel type.

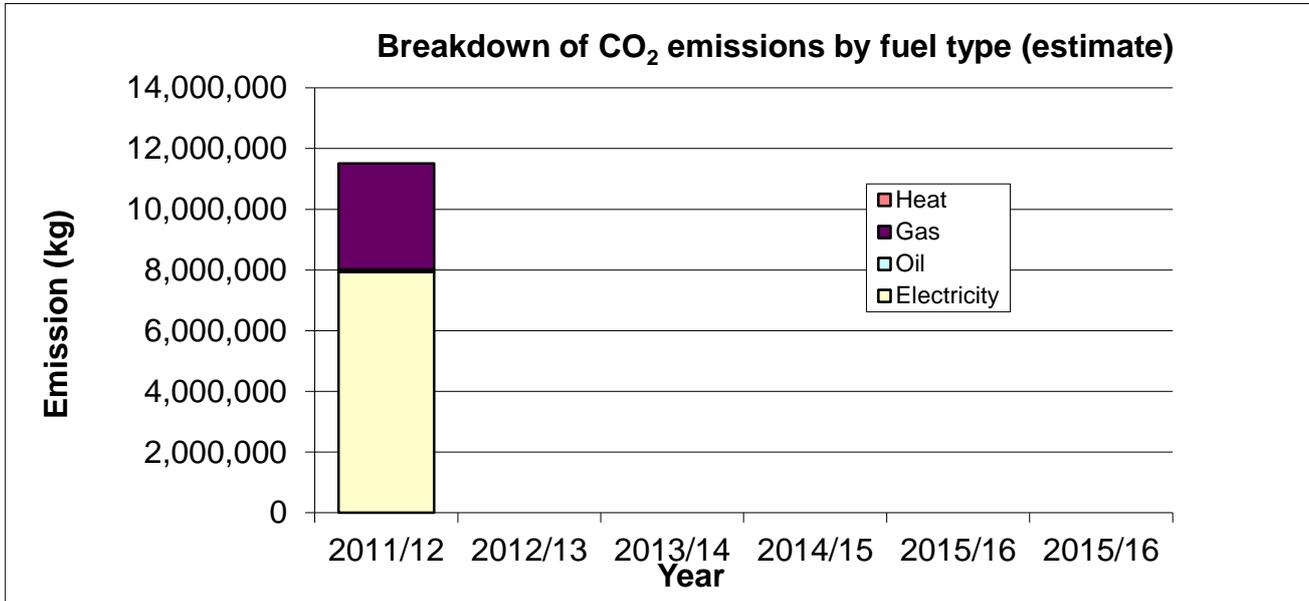


Chart 3.1: Breakdown of emissions by fuel type

This CMP contains policies and actions to reduce the University's energy consumption and carbon emissions by **22%** or **2,733 tonnes** (Scope 1 & 2) and 174,525 tonnes (Scope 3), by 2015/16 (against the 2011/12 baseline). This has been estimated to cost the organisation **£379,859** over the next three years. The total financial saving the CMP is anticipated to deliver is **£239,586** by 2015/16.

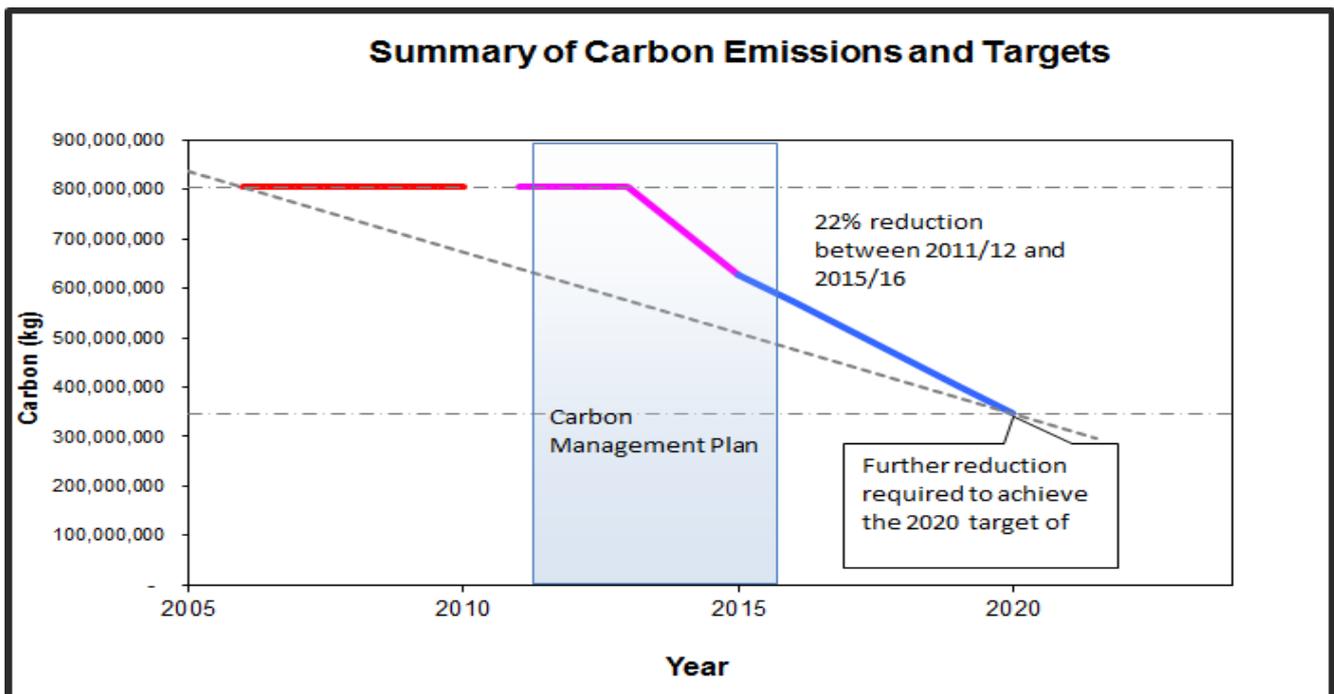


Chart 3.2: Carbon emissions trajectory and targets from 2005 to 2020

3.3 Projections and Value at Stake

The carbon 'Value at Stake' is defined as the difference between the Business-as-Usual (BaU) scenario and the Meeting the Target scenario. Chart 3.3 below outlines the carbon reduction benefits of the carbon management programme, with regard to Scope 1 & 2 emissions. The red line predicts the business-as-usual trend of carbon dioxide emissions for the University. This includes a predicted increase in electricity of 1% per year and accounts for the future expansion of University out-of-hours use for external commercial events. As can clearly be shown, this plan projects that carbon emissions will increase without any intervention to better manage emissions arising from buildings.

The blue line in Chart 3.3 projects the reduction in carbon emissions that can be achieved if the University meets the 22% target. This chart also illustrates that when comparing inaction with meeting the target, the University is likely to emit an additional 7,047 tonnes of carbon over the next three years.

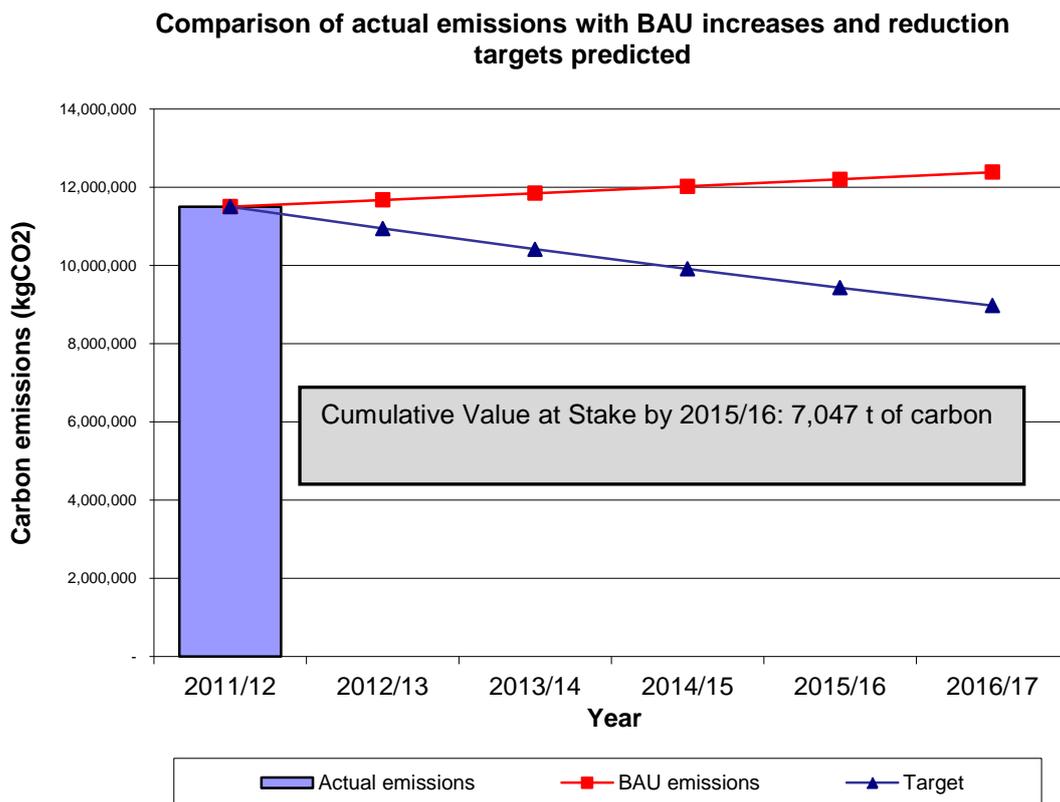


Chart 3.3: Carbon Value-at-Stake

The cumulative financial Value-at-Stake that the University would be confronted with under a 'business-as-usual' approach has also been considered (please refer to Chart 3.4). The buildings considered as part of this CMP cost in excess of £2M in terms of gas, electricity and fuel oil. This demonstrates that the financial Value-at-Stake associated with inactivity is £1,256,623 over the same three year period.

Comparison of emissions with BAU increases and reduction targets - financial

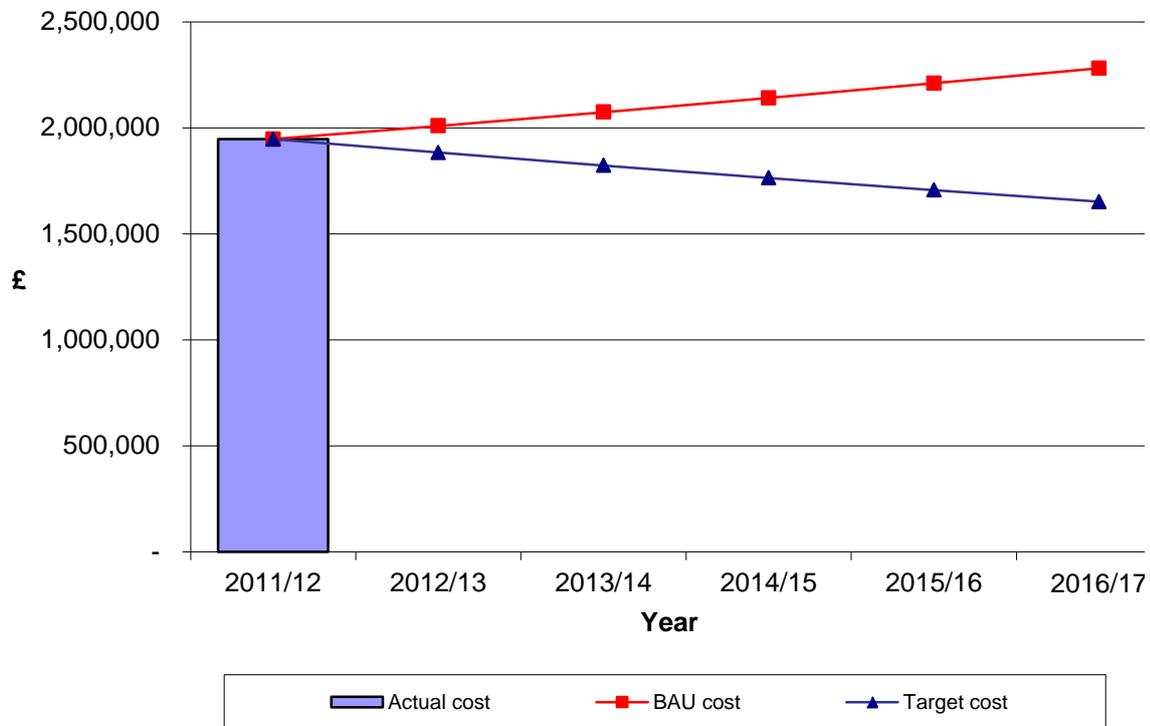


Chart 3.4: The Financial Value-at-Stake

The University of the Arts London CMP focuses on securing these energy, financial and carbon savings.

4. Carbon Management Projects

4.1 Existing Projects

This section outlines what the University's previous attempts to reduce carbon emissions were and their influence upon the identification of projects. Large organisations have long been aware of the need to reduce carbon emissions although it is common that explicit internal drivers to promote carbon reduction may not have been present. In the case of the University, the role of promoting greater environmental awareness was split amongst the Colleges as part of the Sustainability Committee. In August 2012 an Environmental & Energy Manager (now Head of Sustainability) was appointed to coordinate projects such as the Sustainability Committee and the preparation of Environmental Management System. An example list of the projects that will achieve a 22% reduction target is shown in Appendix B and includes details of payback, capex per tonne of saved, lifetime CO₂ saving and cost effectiveness. Details of project owners, implementation timelines and associated risks will be developed.

The Estates Department will ensure that a dedicated budget for energy efficiency projects will be in place for 2013/2014. Annually, works classified as 'Pre Planned Maintenance' were funded in the order of £1.6M and covered a variety of projects including reactive repairs, servicing of mechanical and electrical systems and replacing equipment that had reached the end of its useful life. In deciding how best to allocate this funding, energy efficiency was not an assessment criterion. However, £3,000 was ring-fenced in 2011/2012 and was used specifically for energy efficiency projects including a Monitoring & Targeting energy database and the installation of Automatic Meter Reading (AMR) equipment. These projects allowed the University to move away from billing estimates to the validation of true costs and consumption. This work was essential to produce a robust carbon baseline. In addition, both these projects allowed the organisation to meet its statutory obligations under the CRC EES scheme. It should be acknowledged that the refurbishment works and the disposal of assets, notably Central Saint Martins College sites at Southampton Row and Cochrane Theatre, did include works that should reduce carbon emissions. Such works include secondary glazing and motion detectors for lighting.

4.2 Planned / funded projects

Funding should be ring-fenced for specific energy conservation measures. The retro-fit energy efficiency market is expected to contribute over 50% of savings if the UK is to achieve its national targets. Energy Performance Contracting would allow the University to finance energy efficiency works by the revenue saved from lower energy bills. Such schemes are likely to be the model by which energy conservation measures are delivered over the timeframe of this CMP.

Automatic Meter Reading equipment was installed in 2011 and the Monitoring and Targeting database (known as a Carbon Dashboard) is due to be completed in early 2013. An Energy Manager was appointed in August 2012 to drive the CMP process and improve environmental performance overall.

Regarding Scope 3 emissions, the following short term actions have been agreed, with funding identified from existing budgets

Type	Notes	Actions
Business Travel (staff and students)	In comparison, UAL doesn't emit a vast quantity of carbon from business travel.	Flights within the UK are prohibited
Staff Commute	As per the UAL Travel Plan. No car parking is available at any University site.	Promote safer cycling Ensure refurbishment projects include 'transport' within scope of the SKA assessment Only build/buy/lease Halls of Residence that allow public transport option All foundation courses are located in one building per day
Student Commute	As per the UAL Travel Plan. No car parking is available at any University site.	Promote safer cycling Ensure refurbishment projects include 'transport' within scope of the SKA assessment Only build/buy/lease Halls of Residence that allow public transport option All foundation courses are located in one building per day A flexible working policy
Procurement	The CIPS Sustainability Index will allow UAL to prioritise those suppliers with which UAL spends the most and who are the least sustainable. In addition, total expenditure is managed via the Sustainable Procurement Action Plan which is directly quoted from the LiFE EMS. The University has reached Level 2. To ensure large scale	Progress is tracked and reported quarterly via the Sustainability & Environment Project Board.

	<p>expenditure is reduced or as sustainable as possible, the Sustainability Projects Checklist is used as a matter of course. This checklist is designed to be used at the 'discovery' phase in a projects lifecycle. The implications for a particular project upon the UAL Environmental Management System should be explored at the inception of a project and reported to Project Board that is will monitor its implementation.</p>	
<p>Water (supply & treatment)</p>		<p>Water engagement with water use is promoted via www.ualcarbondashboard.com.</p> <p>When taps and bathroom furniture is replaced is it done so according to the SKA criteria</p>
<p>Waste</p>	<p>A new waste and recycling contract was tendered in 2013 with the expressed aim to achieve a recycling target of 80%. A zero-waste-to-landfill requirement was included to the contract.</p> <p>Construction waste will be managed by a site wide waste management plan, as per the 'UAL Design Brief for Sustainability'.</p>	<p>New internal recycling and general waste bins to be distributed, branded with the meetthetide.com logo</p> <p>Compactors to be located at the two largest University sites</p> <p>Food waste bins to be located at every kitchen. Food waste sent to Grundons anaerobic digester.</p> <p>Hazardous waste boxes to distributed to every building</p>

4.3 Near term projects

This CMP includes standard Pre Planned Maintenance works that were identified in 2012. This includes refurbishment of ventilation systems, boiler upgrades and lighting improvements. 5% of the total savings are expected to come from effective monitoring and targeting of gas, electricity and fuel oil use. This requires no capital funding at all and is performed by the Environmental & Energy Manager.

Monitoring, targeting and reporting of energy consumption will deliver significant carbon savings, if done properly. Obtaining actual meter reads rather than estimates ensures energy consumption data is robust and has the added advantage of allowing more competitive tariff prices to be procured. Validating energy consumption against historical trends coupled with specialist data analysis (e.g. regression analysis) allows an Environmental & Energy Manager to intercept spikes in usage early. This removes waste which otherwise would be undetected. Systems will in future only allow payment of energy bills that have been validated by the Environmental & Energy Manager. This removes inaccurate billing/consumption data distorting the true picture and allows the Energy Manager to monitor the performance of energy conservation measures. Providing frequent reports to key stakeholders is also important.

Monitoring and targeting is largely a revenue expense and therefore an extremely cost-effective tool to capture carbon savings. This role is responsibility of the Energy Manager but it is key that information is shared across the organisation. Building Managers, FM providers and catering providers will use and react to the energy consumption they are provided with.

A behavioural change programme, meetthetide.com will deliver over 217 tonnes of carbon savings each year.

Other projects that will make a significant impact include the effective use and further installation of presence detectors for lighting offices and corridors. 296 tonnes of carbon can be saved by the better application of existing lighting systems and further expansion in certain areas. Better use of the existing Building Energy Management Systems is also necessary. At present such systems do not reflect use or occupancy patterns of buildings. Adjustments require very little capital expenditure but the impact is huge. Electricity is the most carbon-intensive fuel and efforts have been made to reduce how much is consumed. For example, Voltage Power Optimisation installed within certain buildings will lower the incoming voltage into the University buildings without disrupting or harming existing electrical systems. This CMP predicts that 115 tonnes of carbon can be saved by using this technology.

There is a further 880 tonnes of carbon that have been forecast to arise over the timeframe of this CMP. This is the difference between the target and the projected increase in emissions. However, this variance is extremely difficult to predict and dependent on external factors. Although this approach is permissible by the Carbon Trust the amount of variance will be closely monitored in the annual review. In 2013, £1.3M was provided to fund energy conservation measures via an Energy Performance Contract.

4.4 Medium to long term projects

Universities such as Roehampton have been able to limit any increases in carbon emissions associated with their buildings and expansion plans by space rationalisation. The University has a space management policy and it is proposed that this is pursued with more vigour and that hot-desking be considered. A detailed study is being prepared by the University Facilities & Estates Division but would need to be accompanied by a significant culture change. The carbon benefit has not been included in this plan and any savings would be in addition to the 20% target.

A staff transport survey will be launched in the summer of 2013 in an attempt to create a baseline of staff transport habits. Staff business travel is recorded via the University's finance system however the accurate capture of exact locations and method of transport will be included from 2013 onwards.

With regard to waste and recycling, the accurate capture of waste disposal has been available since 2013 onwards. However, some projects have already been commissioned to encourage staff to reduce waste, as well as energy.

5 Carbon Management Financing

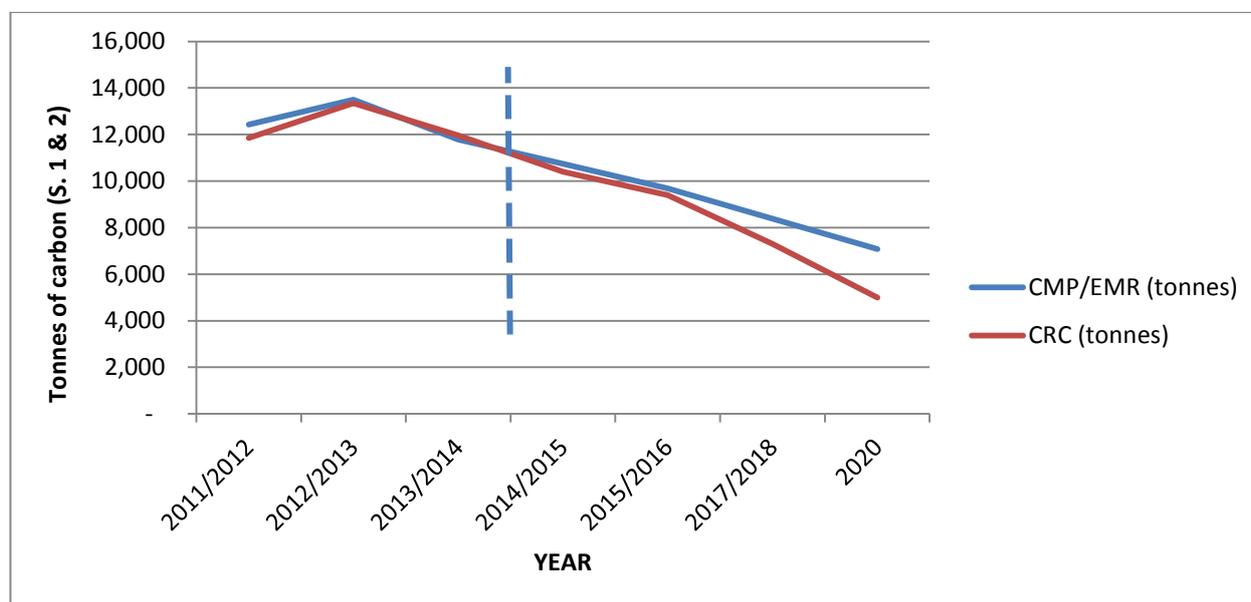
5.1 Assumptions and the future funding of Higher Education

This Carbon Management Plan has been drafted against a background uncertainty regarding the future funding of Higher Education. The total implementation costs are estimated to be **£379,859**

5.2 Benefits / savings – quantified and unquantified

Projects identified to reduce the carbon emissions from 1 Granary Square do not require significant funding but deliver significant cost savings. This is for two reasons. Firstly, 1 Granary Square was recently subject to a refurbishment programme including a new lighting control system. In addition a new Building Energy Management System was also included which controls the heating strategy for the building, ahead of the anticipated connection to the decentralised energy included as part of the wider redevelopment of the Kings Cross area. Both these projects are already funded but their full potential in terms of energy savings have not been realised. This represents a significant opportunity in terms of carbon emissions as 1 Granary Square unusually uses electricity (the most carbon intensive fuel) for both lighting and heating. They are also fairly straightforward to action.

5.3 What has the CMP achieved?



After the CMP was first launched the University witnessed a spike in absolute carbon emissions from utility consumption. Firstly, the heating season witnessed temperatures that were below average for much longer. This resulted in above average gas consumption across the estate. This was compounded further by the fact the University's administrative hub, High Holborn, is electrical heated. Also, there significant increases in

consumption at Central Saint Martin's College where the Building Management System were not commissioned properly resulting in the Heating Ventilation and Cooling equipment running 24 hours per day. Central Saint Martin's consumes nearly half of all the electricity across the University. These issues have been corrected and reduction has been reduced by the following activities

- Better monitoring and targeting of utility consumption and cost
- The introduction of a Heating & Cooling Policy
- New burners installed at Millbank and the London College of Communications, the two largest consumers of gas
- New LED lighting installed at Millbank

These works were funded by the Energy Performance Contract and contributed an annual carbon reduction of 235 tonnes.

6 Actions to Embed Carbon Management into the University

6.1 Policy – embedding CO₂ savings across your organisation

As part of the revision of the CMP process in late 2012, the University considered how it previously performed against six environmental key performance indicators. The results are shown in Appendix A. What was clear is that the University had the ability and scope to increase its performance and therefore its environmental credentials. As part of the annual review of the CMP, it is necessary to re-run this exercise. The Sustainability & Environment Project Board considers that within five years Level 4 in all areas should be achievable, championed by individuals of the Committee. A target has been set for 2015, also shown in Appendix A. The business case for improving overall performance will rest on the financial position of the University.

6.2 Responsibility – making it clear that saving CO₂ is everyone's job

The Sustainability & Environment Project Board continues to meet once every three months to consider progress of the CMP, alongside the implementation of the Environmental Management System. The Board monitor progress and report to the Executive Board each November. The Board ensures that progress is communicated effectively via the Board's Communication Plan (available in the 'About Us' section of the University website). The Board membership is as follows;

Chair – Chris Wainwright (Head of College, Camberwell, Chelsea & Wimbledon College)

Project Manager, Estates & Operations

Steve Howe (Director of Estates)

Project Manager, Learning, Teaching & Research

Dilys Williams (Research Director, Centre for Sustainable Fashion, London College of Fashion)

Project Managers, Business Engagement & Procurement

Nick Gorse (Dean of Camberwell College) & David Cross (Reader, London College of Communications)

Project Manager, Leadership

Shared by all Project Managers

The Board is supported by Martin James (Director of Finance), Stephen Reid (Director for Strategic Development), Priti Patel (Associate Director, Marketing and Ian Lane (Head of Sustainability)

6.3 Data Management – measuring the difference, measuring the benefit

The collection and analysis of the relevant energy, waste, water procurement and transport data will be coordinated by the Head of Sustainability, supported by the Energy & Environment Data Officer. Most of the recycling, waste, food waste data will rely on the University's out-sourced waste contractor, catering and Facilities Management (FM) provider. Core to the management of the FM contract is the monitoring of Key Performance Indicators (KPI's) which include the monitoring of energy and waste/recycling data.

6.4 Communication and Training – ensuring everyone is ready, willing and able

All energy consumption and carbon emissions resulting from the University's estate are driven by the needs and actions of its people. Too often, however, such needs and actions remain completely unchallenged. As a result, there exists a huge potential for energy saving, if one can find techniques to engage and motivate large numbers of consumers on campus to challenge their habits and attitudes. Large-scale behaviour change does however require a very different skill-set to those traditionally found in facilities management circles. If one is to engage hundreds or thousands of people to make a real difference, it takes a concerted and imaginative scheme to succeed.

Additional ideas to engage staff also include:

- Sustainability Co-ordinators based at each of the four Colleges. The role will be to coordinate efforts towards reducing energy consumption; increased recycling rates, improved awareness raising and standing in the People & Planet Green League;
- Access to the Carbon Dashboard via the website www.ualcarbondaashbaord.com. The Carbon Dashboard captures utility consumption and recycling data and presents the information in a user-friendly format. Each College will be encouraged to review consumption for their specific building(s) and used to challenge the Estates department, building users and relevant stakeholders when spikes in consumption occur. The information is also shared on College reception screens.
- Follow the best practise models for coordinated communications as outlined in the People & Planet Green League;
- Produce an up-to-date Communications Plan
- Each College to be responsible for their individual Environmental Management System that contributes to a University-owned EMS. The University should have implemented the LiFE Environmental Management System to a 'silver' standard by the end of 2014. This should be devolved to each College thereafter to allow them to interpret what sustainability means to them, whilst adhering to minimum standard of performance across the organisation;
- The Head of Sustainability meet separately with the Colleges to support and assist efforts to reduce carbon consumption. The Student Union should also be addressed and engaged on a regular basis.

6.5 Procurement – engaging suppliers

The area where the University can lead by example in procurement terms is how it procures energy and efficiency equipment. At this time, value for money is driving most procurement decisions. However providing lifecycle analysis to accompany procurement decisions is an example of how added value can be extracted from any procurement process. Capturing revenue savings generated from installing energy efficient equipment or diverting waste from landfill, for example, allows informed investment decisions to be reached. This should be underpinned by effective Sustainable Procurement Strategy and Environmental Management System.

With regard specifically to energy, the University procures its energy supplies from a Public Sector Buying Organisation (PBO) called the Energy Consortium. Traditionally the University has procured fixed-term contracts for one or two years. The University is committed to exploring the use of flexible contracting as a mechanism for capturing savings that may occur in the wholesale energy market. The governance structure of such contracts can be arranged so that pre-agreed ‘lock-in’ rules are observed allowing the organisation to forecast revenue budgets and ensure enough funding is available.

The University is also implementing the Chartered Institute of Procurement Specialists Sustainability Index (<https://cips-sustainabilityindex.com/>). By the end of September 2014 the University will have appraised suppliers with whom the University spends £86M with each year. How each supplier scores in terms of economic, social and environmental sustainability will influence the minimum ‘mark out of hundred’ the University insists on in all future tenders or procurement frameworks.

6.6 Monitoring & Targeting – keeping track of progress

The Monitoring & Targeting procedures outlined earlier in this report will be the central source of consumption information. This will be complimented by the University’s finance system, Agresso. The monitoring, targeting and reporting of utility expenditure was audited by an independent third-party in June 2014. The management procedures in place were adjusted to be ‘substantial’ and no risks identified in how the service overall is being managed. These actions, combined with the UAL Carbon Dashboard has identified a £113k unclaimed rebate for gas costs from the disposal of 4 Red Lion Square, a £31k saving by applying the correct VAT values to UAL utility bills and £106k saving from reduced electricity consumption from buildings across the estate, including a reduction in Kings Cross costs for heat totalling £32k. Further savings of VAT are expected to be achieved through identifying previously incorrect VAT rates. In addition, the flexible energy contract continues to allow the University to take advantage of reductions in the wholesale energy market as and when they occur, rather than being tied-in to long-term fixed prices.

7 Programme Management of the CM Programme

7.1 The Programme Board –strategic ownership and oversight

The CMP is overseen by the Sustainability & Environment Project Board (structure explained in Section 6). There is senior level representation from across the administrative and academic communities within the University. The Sustainability Committee reports through the University's Senior Management Teams and PACE Programme to the governing body - the Executive Board.

The Sustainability Committee's responsibility is to ensure not only that there is top-level organisational support for the CMP, but that the aspirations of the carbon management team are realistic - i.e. that they are ambitious but not unrealistically so. In essence the Programme Board will be responsible for:

1. Championing and providing leadership on carbon management;
2. Setting and reviewing strategic direction and targets;
3. Setting the scope of the carbon management programme;
4. Approving carbon reduction projects;
5. Recommending budgetary spend required to achieve future savings projected in the Plan;
6. Defining the terms of reference;
7. Monitoring progress in implementing the Plan;
8. Resolving any issues escalated to them by the Team;
9. Publicise the University's performance against the targets;
10. Report progress to the PACE programme.

The Head of Sustainability has day to day contact with members of the Sustainability Committee and acts as the conduit between the Committee and the wider University.

7.2 Delivering projects

The Sustainability & Environment Project Board is led by Chris Wainwright. The Director of Estates, Steve Howe, is responsible for Capital Projects including the electrical and mechanical system located within all buildings across the University portfolio of assets. There are representatives of the Colleges, academic and student-facing communities in attendance.

The Board will continue to meet every three months. Its primary role thus far has been to develop the Carbon Management Plan, with input into the project list. In addition to the formal meetings there is regular liaison between the Board and the wider University – an invaluable means of ensuring the smooth passage of the plans from inception to approval.

7.3 Continuity planning for key roles

The Board will continue to meet and the CMP has been updated to reflect new structure and our response to Scope 3 emissions, as the Vice-Chancellor notes in his foreword, carbon reduction needs to become part of the culture, and the best way to achieve this is through a network of carbon ‘champions’ across the organisation. This process will be led through the Board. The University’s Strategic Development Deputy Vice-Chancellor sits on the Executive Board and will ensure that carbon management remains a live issue at that level. The University’s Strategic Development Deputy Vice-Chancellor will also be able to influence budget allocation decisions in future years. Table 7.2 outlines what will happen in the event key personnel leave the organisation or are reassigned. This will be reviewed annually along side progress against the agreed targets.

Role	Name	Successor
Chair	Head of College Office, CCW	University’s Strategic Development Deputy Vice-Chancellor
Project co-Sponsor	Head of College Office, CCW	Elected member of Sustainability Committee
Committee Support	Head of Sustainability	Director of Estates
Finance Sponsor	Director of Finance	Deputy Director of Finance

Table 7.2 Succession planning

7.4 Ongoing stakeholder management

In addition to the day to day work of the Sustainability & Environment Project Board in their own areas, the internet, the intranet, UAL Environmental blog, the UAL Carbon Dashboard and all-staff briefings will continue to be used to keep everyone informed of progress towards the reduction target, and to publicise individual success stories led by the Colleges. In addition, sustainability within the University has a brand called meetthetide.com. This engagement tool is tailored to our students and staff, all of which come from the creative arts. meetthetide.com is a monthly design competition which students are encouraged to submit ideas via a web-portal. The works is appraised by an industry judging panel. However, meetthetide.com is far more than a neat competition. The logo (shown as the covering image on the CMP) is the brand for sustainability – its shown on reception screens, recycling bins and email banners.

Individual or Group	Influence	Impact	Their interest or issues	Means of Communication
Stephen Reid	H	H	Cost / budgets	Normal financial reporting procedures Executive Board Sustainability Committee meetthetide.com
Steve Howe	H	H	Cost / budgets Ensuring buildings are run effectively and efficiently Carbon Reduction Commitment HEFCE returns	Intranet Senior Management Team Business Change Programme Sustainability Committee CMT Representation at external events meetthetide.com
Nick Gorse	H	H	Cost / budgets University reputation Ensuring buildings are run effectively and efficiently Carbon Reduction Commitment Achieving the aims of the Business Change Programme	Intranet Senior Management Team Sustainability Committee Green League Green Week(s) College Sustainability Group College show/events meetthetide.com
Dilys Williams	H	H	Cost / budgets University reputation Ensuring buildings are run effectively and efficiently Carbon Reduction Commitment Achieving the aims of the Business Change Programme	Internet Senior Management Team Sustainability Committee Green League College Sustainability Group College show/events meetthetide.com
Antony Johnston	H	H	Curriculum Excellent reputation of the University is maintained	Sustainability Committee Green League Environmental Management System meetthetide.com
SU President	H	H	Excellent reputation of the University is maintained	Sustainability Committee Green League Green Week Environmental Management System meetthetide.com

Influence: the level of influence on the successful outcome of the Programme - High (H), Medium (M) or Low (L)

Impact: the level of impact that the Project will have on the person or group - High (H), Medium (M) or Low (L)

Table 7.3 Communications and key individuals

7.5 Annual progress to the Executive Board

Progress, supported by statistics, will be reported to the Executive Board once a year. Documenting the cost and all benefits from the Programme will include details such as;

- Financial savings;

- CO₂ savings against the agreed target;
- Intangible benefits, including as influencing the student body and staff.

The Senior Management Team holds quarterly meetings. This CMP will be presented to the Board in March 2013 with an accompanying presentation. It is expected that the Project Leader will provide the annual progress report in March 2014.

APPENDIX A – p41

Embedding Matrix

APPENDIX B – p42-44

Example of mechanical and electrical improvements proposed one building within the UAL portfolio.

Appendix A: Carbon Management Matrix – Embedding

	POLICY	RESPONSIBILITY	DATA MANAGEMENT	COMMUNICATION & TRAINING	FINANCE & INVESTMENT	PROCUREMENT	MONITORING & EVALUATION
5 BEST	SMART Targets signed off Action plan contains clear goals & regular progress reviews Strategy launched internally & to community	CM is full-time responsibility of a few people CM integrated in responsibilities of senior managers VC support Part of all job descriptions	Quarterly collation of CO2 emissions for all sources Data externally verified M&T in place for: • Buildings • Waste	All staff & students given formalised CM: • Induction • Training Plan • Communications CM matters regularly communicated to: • External community • Key partners	Granular & effective financing mechanisms for CM projects Finance representation on CM Team Robust task management mechanism Ring-fenced fund for carbon reduction initiatives	Senior purchasers consult & adhere to ICLEI's Procura+ manual & principles Sustainability comprehensively integrated in tendering criteria Whole life costing Area-wide procurement	Senior management review CM process Core team regularly reviews CM progress Published externally on website Visible board level review
4	SMART Targets developed but not implemented	CM is full-time responsibility of an individual CM integrated in to responsibilities of department managers, not all staff	Quarterly collation of CO2 emissions for: • Buildings • Transport • waste Data internally reviewed	All staff & students given CM: • Induction • Communications CM communicated to: • External community • Key partners	Regular financing for CM projects Some external financing Sufficient task management mechanism	Environmental demands incorporated in tendering Consistency with Procura+ Joint procuring between HEIs or with LAs.	Core team regularly reviews CM progress: • Actions Profile & Targets • Key opportunities quantification
3	Draft policy Climate Change reference	CM is part-time responsibility of a few people CM responsibility of department champions	Collation of CO2 emissions for limited scope i.e. buildings only	Environmental / energy group(s) give ad hoc: • Training • Communications	Ad hoc financing for CM projects Limited task management No allocated resource	Whole life costing Occasionally employed Some pooling of environmental expertise	CM team review aspects including: • Policies / Strategies • Targets • Action Plans
2	No policy Climate Change aspiration	CM is part-time responsibility of an individual No departmental champions	No CO2 emissions data compiled Energy data compiled on a regular basis	Regular poster/awareness campaigns Staff given ad hoc CM: • Communications	Ad hoc financing for CM related projects Limited task coordination resources	Green criteria occasionally considered Products considered in isolation	Ad hoc reviews of CM actions progress
1 Worst	No policy No Climate Change reference	No CM responsibility designation	Not compiled: CO2 emissions Estimated billing	No communication or training	No internal financing or funding for CM related projects	No Green consideration No life cycle costing	No CM monitoring



Review the status of the University in June 2013



Target attainment for 2016

APPENDIX B - Projects and associated return on investment calculations

Selected Opp Ref	Area	Technology category	Technology	% applicable	% opportunity	Opportunity summary	Status	Emissions source 1	Amount saved emissions source 1 (kWh)	Emissions source 2
Totals row										
1	LIME GROVE	Air conditioning	Free cooling	50%	50%	Free cooling could apply to 25% of our LIME GROVE	Estimated Cost	Natural gas	-	Electricity (grid)
2	LIME GROVE	BMS fine tuning	BMS fine tuning	50%	50%	BMS fine tuning could apply to 25% of our LIME GROVE	Estimated Cost	Natural gas	9,498	Electricity (grid)
3	LIME GROVE	Building fabric	Draught proofing	100%	50%	apply to 50% of our LIME GROVE	Estimated Cost	Natural gas	64,583	Electricity (grid)
4	LIME GROVE	Building fabric	Loft insulation	100%	50%	Loft insulation could apply to 50% of our LIME GROVE	Estimated Cost	Natural gas	32,292	Electricity (grid)
5	LIME GROVE	Building fabric	Secondary glazing	100%	50%	apply to 50% of our LIME GROVE	Estimated Cost	Natural gas	64,583	Electricity (grid)
6	LIME GROVE	Heating - controls	Heating control systems	100%	50%	Heating control systems could apply to 50% of our LIME GROVE	Estimated Cost	Natural gas	96,875	Electricity (grid)
7	LIME GROVE	Heating - controls	Optimum start controls	100%	50%	could apply to 50% of our LIME GROVE	Estimated Cost	Natural gas	64,583	Electricity (grid)
8	LIME GROVE	Heating - controls	Sequencing	100%	50%	Sequencing could apply to 50% of our LIME GROVE	Estimated Cost	Natural gas	45,208	Electricity (grid)
9	LIME GROVE	Heating - controls	Zoning	100%	50%	Zoning could apply to 50% of our LIME GROVE	Estimated Cost	Natural gas	32,292	Electricity (grid)
10	LIME GROVE	Heating - pipework insulation	Pipework insulation	100%	50%	apply to 50% of our LIME GROVE	Estimated Cost	Natural gas	26,593	Electricity (grid)
12	LIME GROVE	Heating - replacement boilers	condensing boilers	100%	50%	boilers could apply to 50% of our LIME GROVE	Estimated Cost	Natural gas	151,960	Electricity (grid)
13	LIME GROVE	ICT	IT Management software	50%	50%	could apply to 25% of our LIME GROVE	Estimated Cost	Natural gas	-	Electricity (grid)
14	LIME GROVE	ICT	LCD flat screens	25%	50%	apply to 12.5% of our LIME GROVE	Estimated Cost	Natural gas	-	Electricity (grid)
15	LIME GROVE	ICT	Printer rationalisation	25%	50%	apply to 12.5% of our LIME GROVE	Estimated Cost	Natural gas	-	Electricity (grid)
16	LIME GROVE	ICT	Virtualisation/thin computers	100%	50%	could apply to 50% of our LIME GROVE	Estimated Cost	Natural gas	-	Electricity (grid)
17	LIME GROVE	Lighting - controls	Automatic lighting controls	100%	50%	could apply to 50% of our LIME GROVE	Estimated Cost	Natural gas	-	Electricity (grid)
18	LIME GROVE	Lighting - controls	Localised lighting	25%	25%	apply to 6.25% of our LIME GROVE	Estimated Cost	Natural gas	-	Electricity (grid)
19	LIME GROVE	Lighting - replacement fittings	Retrofit/replace lighting to T5	100%	50%	T5 could apply to 50% of our LIME GROVE	Estimated Cost	Natural gas	-	Electricity (grid)
20	LIME GROVE	Misc	Awareness raising campaign	100%	50%	campaign could apply to 50% of our LIME GROVE	Estimated Cost	Natural gas	37,990	Electricity (grid)
21	LIME GROVE	Misc	Equipment timer controls	50%	50%	could apply to 25% of our LIME GROVE	Estimated Cost	Natural gas	-	Electricity (grid)
22	LIME GROVE	Misc	Voltage optimisation	50%	50%	apply to 25% of our LIME GROVE	Estimated Cost	Natural gas	-	Electricity (grid)
23	LIME GROVE	Variable speed drives	Variable speed drives	50%	50%	apply to 25% of our LIME GROVE	Estimated Cost	0	-	0
24	LIME GROVE	Steam Plant	blowdown controls & boiler	50%	50%	controls & boiler RO plant could apply to 25% of our LIME GROVE	Estimated Cost	0	3,799	0
25	LIME GROVE	Steam Plant	Install boiler economizers	100%	50%	could apply to 50% of our LIME GROVE	Estimated Cost	Natural gas	45,208	Electricity (grid)
26	LIME GROVE	Misc	M&T	100%	50%	M&T could apply to 50% of our LIME GROVE	Estimated Cost	0	760	0
27	LIME GROVE	Misc	Heating & cooling policy	100%	50%	could apply to 50% of our LIME GROVE	Estimated Cost	0	760	0