



University College
of Osteopathy

Carbon Management Plan

Core Documentation Cover Page

Carbon Management Plan

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Equality Impact

Positive equality impact (i.e. the policy/procedure/guideline significantly reduces inequalities)	
Neutral equality impact (i.e. no significant effect)	X
Negative equality impact (i.e. increasing inequalities)	

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CARBON MANAGEMENT PLAN

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1. FOREWORD FROM CHAIRMAN OF THE BOARD

- 1.1 Tackling climate change is becoming an increasingly important global priority with reducing carbon emissions as the leading driver. The UK government has identified the Higher Education sector as key to reducing carbon emissions across the UK in line with its Climate Change Act targets. This Carbon Management Plan shows the University College of Osteopathy's commitment to doing its part in helping to meet these ambitious targets.
- 1.2 The Carbon Management Plan sets out the priorities and targets the University College of Osteopathy (UCO) has set in its pledge to reduce carbon emissions and it has the backing of the Board of Directors who supports the UCO's commitment to this necessary cause.

2. FOREWORD BY THE VICE-CHANCELLOR

- 2.1 At the UCO we are aware of the impact our activities have on the environment and are committed to reducing this wherever possible. As a higher education institution we are setting an example to future generations and it is imperative that we use this as an opportunity to increase awareness and educate our students in the role their actions have in reducing carbon emissions.
- 2.2 This Carbon Management Plan sets out the targets we have set ourselves in our goal to reduce our carbon consumption. These targets cover Scope 1, 2 and 3 emissions and involve making improvements in a wide range of the UCO's activities. Achieving an overall reduction will be challenging but we aim to foster a culture of behavioural change and encourage all members of the UCO community to work together to achieve the targets set out in this plan.
- 2.3 This plan has been approved by the Senior Management Team and has the support of the Board of Directors. Operational implementation has been delegated to our Head of Estates with support and action required by all stakeholders.

3. EXECUTIVE SUMMARY

- 3.1 The UCO is aware of the impact its activities have on the environment and are taking action to reduce its carbon footprint wherever possible.
- 3.2 As a Higher Education Institution the UCO has a responsibility to manage its impact on the environment, but also to educate its students on good practice and the importance of their actions regarding their own carbon footprint.
- 3.3 This Carbon Management Plan sets out the current position of the UCO and the strategies in place to monitor and reduce the carbon dioxide it produces.
- 3.4 The UCO has set targets including a reduction in Scope 1 and 2 emissions of 30% on the 2010/11 baseline by the year 2017/18.
- 3.5 Actions will be implemented to improve monitoring processes and manage Scope 3 emissions more efficiently.
- 3.6 The UCO will report annually and publically on the progress made towards implementing this Carbon Management Plan.

4. INTRODUCTION

- 4.1 The UCO was founded as the British School of Osteopathy in 1917 and is the UK's largest and oldest osteopathic educational institution.
- 4.2 The UCO has two buildings; a 1960s, 5-storey building on Borough High Street and a clinic on nearby Southwark Bridge Road which was purchased and fitted out from shell and core in 2007. The clinic is the largest in Europe and sees over 40,000 patients each year.
- 4.3 Both sites have gas fed hot water systems although the method of heating is significantly different between the two. At Borough High Street all heating comes from gas fed boilers which service a perimeter heating system throughout the building. The system is part of the original installation and provides very little control. At Southwark Bridge Road, the corridors are heated by a gas fed heating system, but the treatment rooms and offices have an electricity fed VRV system.
- 4.4 All of the UCO's electricity comes from the Grid and therefore only a small percentage of it comes from renewable sources. In 2015, 22.3% of the final energy consumption from the Grid was produced from renewable resources¹. Whilst this is set to increase, it is essential that the UCO monitors and reduces its reliance on fossil fuels and puts measures in place to reduce carbon emissions.
- 4.5 Carbon emissions can be broken down into three categories; Scope 1 covers direct emissions from the energy used by the organisation, Scope 2 includes indirect emissions from the production of electricity and Scope 3 includes emissions which come indirectly from other activities such as water, travel, waste and procurement.
- 4.6 Scope 1 and 2 emissions are easier to calculate than Scope 3 emissions as consumption is directly measured using meters. Scope 3 are complex to measure but can provide some of the more efficient methods of reducing carbon emissions.
- 4.7 This Carbon Management Plan looks at the UCO's current position with regards carbon emissions, the position in the baseline year of 2010/11 and the plans in place to reduce emissions in the future. It sits beneath the wider Environmental Sustainability Policy² which sets out the UCO's priorities regarding environmental sustainability.

5. CARBON MANAGEMENT STRATEGY

- 5.1 Carbon management is becoming an increasingly important priority, particularly amongst Higher Education Institutions. Not only are there financial benefits to managing carbon emissions, but actively reducing carbon emissions can have a positive impact on the UCO's reputation and go some way towards managing its responsibility of environmental sustainability.
- 5.2 This Carbon Management Plan should be read in conjunction with the Estate Strategy 2015 - 2017 and the Strategic Plan 2015-2017.

¹ Energy Trends March 2016, Department of Energy & Climate Change

² The UCO Environmental Sustainability Policy

- 5.3 One of the supporting aims of the UCO's Strategic Plan is to 'align estates and facilities with stakeholder priorities'³ and an objective of the Estate Strategy is to 'improve environmental sustainability'⁴. In order to meet these strategic aims it is essential that the UCO puts measures in place to reduce its carbon footprint.
- 5.4 The Estate Strategy, which is aligned with the Strategic Plan considers the UCO's options with the current buildings.
- 5.5 The teaching building is a 1960s block which is coming to the end of its life. Significant investment is required within the next 5 to 10 years in order to bring the building up to a standard which would enable the UCO to remain in its current location.
- 5.6 The key objective of the strategy is to relocate within a 5-10 year period. Since the strategy was developed in 2015 a few potential opportunities have arisen and there is the possibility that the relocation could happen within the next 2-3 years.
- 5.7 As a result of the uncertainty and potentially short term nature of the UCO's current circumstances the objectives and targets are set to reflect this.

6. OBJECTIVES

6.1 The objectives of this Carbon Management Plan are:

- To measure Scope 1 and 2 carbon emissions from both buildings and implement changes to reduce consumption wherever possible.
- To start monitoring Scope 3 emissions and implement processes to reduce them.
- To ensure efficiency is considered when procuring any additional assets or contracts and purchasing consumables.
- To procure Display Energy Certificates for both buildings and ensure they are displayed in a prominent position.
- To ensure carbon management is taken into account when reviewing potential relocation sites.

A) SCOPE 1 AND 2 CARBON EMISSIONS

- 6.2 Carbon emissions come from the use of gas and electricity across both sites. Actions need to be put in place to reduce the reliance on these energy sources and improve the efficiency with which they are used.
- 6.3 Most methods of reducing Scope 1 and 2 emissions have medium-long payback periods and therefore are impractical for the UCO in the current circumstances.
- 6.4 The UCO aims to implement small projects and changes to general housekeeping to reduce Scope 1 and 2 emissions.

³ The Strategic Plan 2015-2017

⁴ The Estate Strategy 2015-2017

B) SCOPE 3 EMISSIONS

- 6.5 The UCO is aiming to reduce its Scope 3 emissions by making changes to the recycling contract and introducing additional recycling streams and improving the reporting processes.
- 6.6 The current recycling contract covers the collection of cardboard, mixed paper, cans, plastic, glass and secure shredding at the teaching building. Future contracts will look at the possibility of introducing additional recycling streams such as food waste.
- 6.7 A Waste Management Policy will be developed to ensure the UCO manages its waste in a responsible way and reduces wastage wherever possible.
- 6.8 The UCO has a Travel Plan in place to monitor and reduce the reliance on cars as a method of travelling to our clinic. This will be adapted to include travel to the teaching centre.
- 6.9 Water consumption is currently monitored at the teaching centre, but only approximately. Processes for monitoring consumption at the clinical site will be investigated and more accurate monitoring will be carried out at the teaching centre. Any potential opportunities for reducing consumption will be considered.

C) PROCUREMENT

- 6.10 Procurement covers a range of activities including purchasing assets, small items and consumables and tendering contracts.
- 6.11 Measuring carbon emissions from procurement is difficult and therefore at present there is no data on this.
- 6.12 In order to minimise the Scope 3 emissions caused by procurement activities, a Procurement Policy will be developed to consider how suppliers are selected and review options for reducing the frequency and distance of deliveries.

7. DISPLAY ENERGY CERTIFICATES

- 7.1 It is a requirement that all public buildings with a useful floor space of greater than 250m² produce an annual Energy Certificate which is displayed in a prominent position in the building it relates to.
- 7.2 The energy certificates are a requirement for both of the UCO's buildings.
- 7.3 The certificates provide a snapshot of how the buildings are performing on an annual basis. This data can be used to benchmark against similar institutions.

8. CARBON MANAGEMENT AND RELOCATION

- 8.1 The medium term strategy and the plans for relocation provide the UCO with scope to procure a more energy efficient building and install energy saving technologies as part of the fit out
- 8.2 Opportunity will also be available to ensure modern meters are installed in multiple locations to increase the scope for monitoring consumption.

9. BASELINE

- 9.1 In order to measure any future reductions in carbon consumption, a baseline figure has been calculated to provide a comparison.
- 9.2 The year 2010/2011 is taken for the baseline figure as this is the earliest year that complete data is held for both sites and therefore provides the best comparison for future years.
- 9.3 The baseline figure covers scope 1 and 2 emissions. As the UCO does not own any vehicles, the data only includes the consumption of gas and electricity.
- 9.4 The data was taken from invoices received from the utilities companies.
- 9.5 The teaching building has had a half-hourly electricity meter installed since 2007 and therefore the readings taken on 1st August 2010 and the 31st July 2011 were both actual and the data for this year is accurate. The gas meter is manual but read regularly by the utilities company. The data taken from the gas invoices for the academic year 2010/11 is accurate as actual readings were taken at both the beginning and the end of the year.
- 9.6 At the clinical centre both the electricity and gas meters were manual at the 31st August 2010 and therefore the readings are not as accurate as those of the teaching building. Both readings are based on actual figures averaged over a three month period.
- 9.7 SMART meters have since been installed at the clinical site (18/10/11 for electricity and 31/03/11 for gas) and therefore future readings are more accurate. The teaching centre still has a manual gas meter with regular meter readings taken by the utilities company. In order to improve the accuracy of readings from manual meters, an action has been added to the Planned Preventative Maintenance Schedule to record this data at the beginning of each academic year.
- 9.8 The invoices provide consumption data for each energy source. The 2010/11 data is shown in Table 1.

Source	kWh	% of total
Electricity	521,949	42%
Gas	709,810	58%
Total	1,231,759	

TABLE 1 TOTAL CONSUMPTION FIGURES FOR 2010/11

- 9.9 In order to produce an accurate baseline figure which can be compared year on year the consumption data was converted into tonnes of CO₂. This was calculated using conversion figures provided by DEFRA⁵. The conversion figures for the academic year 2010/11 can be found in Table 2.

	Gas (kgCO ₂ /kWh)	Electricity (kgCO ₂ /kWh)
2010	0.18523	0.49390
2011	0.18360	0.49056

TABLE 2 CONVERSION FACTORS TAKEN FROM DEFRA

⁵ <http://www.ukconversionfactorscarbonsmart.co.uk/>

9.10 The baseline figures for the academic year 2010/11 can be found in Table 3.

Source	Tonnes CO ₂	% of total
Electricity	257	66%
Gas	131	34%
Total	388	

TABLE 3 BASELINE FIGURES FOR THE ACADEMIC YEAR 2010/11

9.11 As carbon emissions are affected by the level of activity and the number of staff and students using the facilities it is useful to compare the consumption figures to a variable which highlights these fluctuations. In this report consumption data is compared to the annual income. Whilst this does not give an absolute picture of the activities taking place at the UCO, it highlights any significant changes which could affect the consumption levels.

9.12 An example of where changes to the UCO's activities can affect carbon consumption is the introduction of an evening clinic for recent graduates. The evening clinic opened in 2014 running for an additional two hours after the clinic previously closed. This increase in activity led to an increase in carbon emissions as well as an increase in income, therefore highlighting the importance of comparing the annual emissions figures to a value unique to that year.

9.13 Table 4 shows the baseline consumption figures as a proportion of income.

tCO ₂	Income (£)	tCO ₂ /£100,000 income
388	£4,638,373	8.36

TABLE 4 2010/11 CARBON BASELINE FIGURES COMPARED TO INCOME

10. CURRENT POSITION

10.1 Since the 2010/11 baseline the UCO has undertaken several initiatives to reduce Scope 1 and 2 carbon emissions.

10.2 The emissions data for the year 2014/15 shows an absolute reduction in tonnes of CO₂ per £100,000 of income as shown in Table 5.

Year	tCO ₂	Income (£)	tCO ₂ /£100,000 income	% change of tCO ₂ /£100,000 on 2010/11
2010/11	388	£4,638,373	8.36	
2011/12	353	£4,557,069	7.74	- 7 %
2012/13	382	£4,443,155	8.59	+ 3 %
2013/14	350	£4,714,153	7.42	- 11%
2014/15	309	£4,935,000	6.26	- 25%

TABLE 5 TONNES OF CO₂ PER £100,000 INCOME

10.3 The data shows an absolute reduction of carbon emissions each year since the 2010/11 baseline except for 2012/13 where consumption increased by 3%. In August 2012 a new computer room was created which provided an additional 46 computers which could be a potential reason for the consumption rising in 2012/13.

10.4 Some of the positive changes which have been implemented since the 2010/11 baseline include:

- Hot water points were installed in the staff room and one of the student common rooms over the summer of 2012. This reduced the reliance on individual kettles and therefore reduced consumption.
- The new computer room created over the summer of 2012 was fitted out with virtual servers which have a lower electricity requirement than standard desktop computers.
- In November 2013 a new boiler was installed at the teaching building, providing a more efficient system for heating the building and allowing additional controls which were previously unavailable.
- The majority of light switches in the teaching building have signage reminding people to turn them off when not in use. The lights at the clinical site have motion sensors and therefore automatically turn off when the rooms are empty.
- In April 2016 the UCO started replacing spotlights with LED lights however there is still scope for improving this area.

10.5 As there is little data available other than monthly consumption figures, the uncertainty of the reasons behind the fluctuations has highlighted the importance of monitoring consumption on a regular basis and recording any changes in the building management and usage which may affect the data.

11. TARGETS

11.1 The following targets have been set taking the Estate Strategy and the future relocation plans for the UCO into account.

11.2 As the relocation could potentially take place within the next 2-3 years, any installations or changes need to have a payback period of no more than two years or be transferable to a new site.

A) SCOPE 1 AND 2 EMISSIONS

11.3 HEFCE have set a target for universities to achieve a 43% reduction in carbon emissions by 2020 based on a 2005 baseline figure⁶. As the 2005 data is no longer available, the UCO has set its baseline as 2010/11. Using this figure as the starting point, the 43% target equates to a reduction of 167 tCO₂ for scope 1 and 2.

11.4 Due to the uncertainty of where the UCO will be by 2020 it is not realistic to make predictions on this target. Therefore, the shorter term target of an absolute reduction in carbon emissions of 30% will be achieved by the end of the academic year 2017/18. Based on the current income this equates to a reduction of 116 tonnes of CO₂ from the baseline figure.

B) SCOPE 3 EMISSIONS

11.5 The UCO do not currently have data on the weight of waste and recycling produced and therefore it is difficult to set targets based on this metric.

⁶ Carbon reduction target and strategy for higher education in England. Updated September 2010

- 11.6 The waste management contract will be reviewed with the intention of increasing the recycling streams available and improving the data for monitoring purposes.
- 11.7 A Waste Management Policy will be implemented to ensure the UCO manages its waste as sustainably as possible.
- 11.8 The Travel Plan will be reviewed and updated to include the teaching building.
- 11.9 Processes will be put in place to monitor water consumption in order to assess current usage and consider options for reducing it.
- 11.10 Information will be sought from the Managing Agent in order to assess how much waste the clinic produces, its final destination and the volume of water consumed annually.

C) PROCUREMENT

- 11.11A Procurement Policy will be implemented to review the processes for selecting suppliers and encouraging the reuse of existing items prior to purchasing new.

D) CARBON MANAGEMENT AND RELOCATION

- 11.12 The potential relocation of the UCO provides opportunities for improved management and monitoring of carbon emissions.
- 11.13 When setting the specification for the fit out of the new building, sustainable technologies such as sensor lighting will be considered.
- 11.14 Monitoring of energy consumption is essential and therefore the location and quantity of meters will be reviewed as part of the fit out specification for a new building.
- 11.15 The BREEAM rating of any new building will be taken into consideration with the aim of procuring BREEAM rating Very Good as a minimum.

12. OPTIONS EVALUATION

A) SCOPE 1 AND 2 EMISSIONS

- 12.1 The key features of any changes implemented must take into account the potentially short term nature of the UCO's plans to remain in the current locations.
- 12.2 Many of the technologies which are available for helping organisations improve efficiency and move towards the use of renewable energies have a long payback period. Most of the options would not be practically relocated to a new building and therefore all the options evaluated in this process are relatively small scale.
- 12.3 As of 1st May 2016 the UCO has replaced 16 of the 98 spotlights with LED bulbs. There are still 82 remaining which have yet to be replaced. LED bulbs are lower voltage than the existing spotlights and therefore use significantly less energy. An investigation is required into whether it is possible to change any of the other types of lightbulb with a more energy efficient version.
- 12.4 A campaign to encourage building users to turn off lights and air conditioning when they leave rooms would be inexpensive to run but could greatly reduce the costs of lighting and heating empty rooms.

B) SCOPE 3 EMISSIONS

- 12.5 There are several ways the UCO could reduce the Scope 3 emissions it produces.
- 12.6 The starting point for this would be to implement processes for monitoring Scope 3 emissions. Once this has been established the current processes can be reviewed and the potential for improvement explored.
- 12.7 Water consumption will be recorded and usage monitored. Once this has been implemented it will enable improvements to be measured.
- 12.8 The water bills and meters at the clinical centre fall under the remit of the Managing Agent and therefore no data is currently held on the consumption for this site. Copies of the most recent water bills will be obtained from the Managing Agent in order to review water consumption for this site. The water tank at this site feeds the clinic as well as four other commercial units and therefore at the moment the consumption will be an estimate based on the floor area of the Clinic as a proportion of all the commercial units. An investigation will be undertaken to explore the possibility of retrofitting a data logger to the water entering the UCO's premises to more accurately measure consumption.
- 12.9 The waste management contract will be retendered and a new or revised contract will be in place for 1st August 2016.
- 12.10 The Travel Plan will be reviewed and the scope increased to cover the Borough High Street site as well as the Southwark Bridge Road site.

13. MONITORING AND REPORTING

- 13.1 Monitoring is an essential part of carbon management. It allows annual data to be compared and trends or differences analysed. Measures implemented to reduce carbon consumption can be assessed by comparing data before and after the changes to review the progress.
- 13.2 Monitoring progress also enables reporting and improves the value of the reports available. Reporting on the progress of the Carbon Management Plan and any projects implemented will highlight to stakeholders that improvements are being made and encourage further involvement.
- 13.3 From 2016/17 an update will be included in the UCO's Annual Report. This document is published on the UCO's website thus making the data publically available. Public reporting of the UCO's progress in carbon reduction is a requirement of the HEFCE guidance on carbon reduction. It provides additional incentive for the UCO to include environmental sustainability in its priorities.

14. IMPLEMENTATION PLAN

Project	Benefit	Action required	Resource requirement	Completion date
Replace all spotlights with LED equivalents	More energy efficient than current lightbulbs therefore will reduce consumption. LED bulbs also have a longer lifetime and therefore require less staff time to replace	Bulbs need purchasing and installing	£492 (82 bulbs at £6 each)	31/10/16
Investigate the possibility of changing any additional variety of lightbulb to energy efficient alternatives	Reducing the energy requirements of lighting would have a significant impact on reducing carbon consumption	Review current lighting and investigate alternatives	Staff time	31/12/16
Campaign to encourage people to turn off lights, ac etc	Will help reduce wasted electricity consumption	Posters and emails communicating the importance of switching equipment off when not in use	No resource, staff time.	31/12/16
Improve recycling contract	Improved reporting, additional waste streams recycled	The current contract to be tendered and a new contract to be put in place	Staff time.	01/08/16
Collect information from SBR re waste collections	Will allow monitoring and reporting of waste produced at the clinical site.	Information required from Managing Agent	No resource, staff time.	31/03/16
Procurement Policy	Will ensure sustainable practices are followed when procuring new items and contracts. Will aim to increase reuse of existing items and set guidelines for selecting suppliers	Policy needs to be researched and written	No resource, staff time.	31/07/17
Waste Management Policy	Will review the way the UCO disposes of waste and ensure all collections are environmentally sustainable	Policy needs to be researched and written	No resource, staff time.	31/07/17
Implement enhanced monitoring processes for Scope 1 and 2 emissions	Will allow changes implemented to be quantified in terms of carbon reduction. Will enable better reporting to encourage further stakeholder involvement	Review of current monitoring processed and improvements implemented	No resource, staff time.	01/08/16
Review Travel Plan to include	Encourage staff, students and	Existing Travel Plan needs reviewing	No resource, staff time.	31/07/17

Borough High Street	visitors to use sustainable methods of travelling to the UCO	and updating		
Monitoring water consumption at BHS	Ability to benchmark the existing water consumption and monitor any reduction following implementation of processes or equipment	A method of recording consumption must be implemented and the process of checking the meter added to the annual PPM schedule	No resource, staff time.	01/08/16
Investigate methods of monitoring water consumption at Southwark Bridge Road	No data is currently available to monitor water consumption at the clinical cite.	Discussions to be held with the Managing Agent about the current consumption. Explore methods of logging water consumption within the UCO's premises	Staff time	31/03/17