Higher Education Carbon Management Programme

Bournemouth University

Carbon Management Strategy & Implementation Plan

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Contents

Foreword from the Carbon Trust

Cutting carbon emissions as part of the fight against climate change should be a key priority for Higher Education Institutions - it's all about getting your own house in order and leading by example. The UK government has identified the university sector as key to delivering carbon reduction across the UK inline with its Kyoto commitments and the Higher Education Carbon Management programme is designed in response to this. It assists universities in saving money on energy and putting it to good use in other areas, whilst making a positive contribution to the environment by lowering their carbon emissions.

Bournemouth University was selected in 2008, amidst strong competition, to take part in this ambitious programme. Bournemouth University partnered with the Carbon Trust in order to realise substantial carbon and cost savings. This Carbon Management Plan commits the University to a target of reducing CO_2 by 30% by 2015/6 in absolute terms from a baseline year of 2005/6.

If the University takes no action (business as usual or BAU) it will see an increase in emissions and so the reduction target relative to BAU is 43% and this underpins potential financial savings over BAU to the organisation of around £0.5 million per year by that date.

There are those that can and those that do. Universities can contribute significantly to reducing CO_2 emissions. The Carbon Trust is very proud to support Bournemouth University in their ongoing implementation of carbon management.

Richard Rugg
Head of Public Sector, Carbon Trust

Vice-Chancellor's Foreword

Climate change is one of the greatest challenges facing society today. The United Nations' Intergovernmental Panel on Climate Change has concluded that warming of the climate system is unequivocal and that human activities are making a substantial contribution to this change[1].

Reducing our contribution to climate change in line with ambitious sector-level targets, Funding Council requirements and demands from other stakeholders, will be a huge challenge for the Higher Education sector in this decade and beyond.

By participating in the Higher Education Carbon Management Programme, we have put in place the building blocks that will enable us to make significant progress towards reducing the environmental impact of our operations through better energy efficiency and broader environmental management.

This Carbon Management Plan outlines our commitment to reducing our carbon footprint by 30% by 2015/16 (with respect to a 2005/06 baseline). The Plan also describes our aspiration to go further and make a significant contribution to national targets for carbon reduction. We should not underestimate the size of this challenge. It will certainly require the support and commitment of staff, students and other stakeholders.

The publication of this Plan marks the beginning of a process of embedding carbon management across the University. It recognises that we in the Higher Education sector are uniquely placed to lead carbon reduction both through the management of our Universities and through our education, research and our wider role within society.

Professor John Vinney
Vice-Chancellor

[1] 'Climate change 2007: the physical science basis', available at www.ipcc.ch

Management Summary

Bournemouth University recognises that climate change is one of the greatest challenges facing society today. The vast majority of scientists and informed observers accept that evidence shows the Earth is warming and that human activity is making a significant contribution to this.

The Climate Change Act 2008 made the UK the first country in the world to have in place a long-term framework to cut carbon emissions. Central to this was a legally-binding national target to cut greenhouse gas emissions by at least 34 per cent by 2020, and by at least 80 per cent by 2050 (against a 1990 baseline).

The Government has made clear that higher education must play its part in meeting national carbon reduction targets. The grant letters from the Secretary of State for Innovation, Universities and Skills to the Higher Education Funding Council for England (HEFCE) of 18 January 2008 and 21 January 2009 stated that all institutions must have plans in place to reduce carbon emissions and that performance against these plans will be a factor in future capital allocations. In response, HEFCE outlined ambitious sector-level targets, which are in line with national targets.

By working with the Carbon Trust and participating in Phase 5 of the Higher Education Carbon Management Programme (HE CMP), the University is taking the opportunity to make significant strides towards reducing the impact that its activities have on the local and global environment, and is contributing to local, sector and national commitments to reduce emissions of greenhouse gases.

The University's Low Carbon Vision:

Bournemouth University recognises that its activities have an impact upon the environment at local, regional, national and global levels and acknowledges its responsibility for environmental protection. The University is committed to act in a responsible manner in relation to carbon emissions and will continuously review and seek to reduce its carbon footprint across all of its operations to meet challenging national targets.

The HECM Programme is based around a proven five-step process leading to emissions reductions that will maximise benefits to the University and its stakeholders. The first four steps in the process have been undertaken systematically by the University over a ten month period from April 2009 to February 2010, culminating in the production of this Carbon Management Plan (CMP) which sets out an organisation-wide strategy for managing carbon emissions during the next five years, including an ambitious carbon reduction target and specific actions through which this target can be met.

Carbon Reduction Target:

Bournemouth University will reduce the carbon footprint of those activities identified in the scope of the Carbon Management Plan by 30% (in absolute terms) by the end of the 2015/16 academic year, compared to the baseline year of 2005/6. This represents a reduction of 43% from the projected emissions should the organisation take no action i.e. the business as usual scenario.

The fifth step of the Programme will see the University implementing the CMP over the coming months and years. Governance of the programme, as well as the strategic ownership of the carbon reduction target, rests with Environmental Strategy Group, chaired by the Deputy Vice-Chancellor.

The development of further carbon reduction targets will be linked to the University's strategic planning process in future.

Carbon Baseline:

The University's CO_2 emissions baseline for 2005/6 totals 8,275 tonnes of CO_2e.

This baseline has been calculated using data from the 2005/6 academic year (1st August 2005 to 31st July 2006), including emission sources from gas, electricity and water (utilities), the University's fleet transport, Unilinx buses on designated routes, and waste sent to landfill.

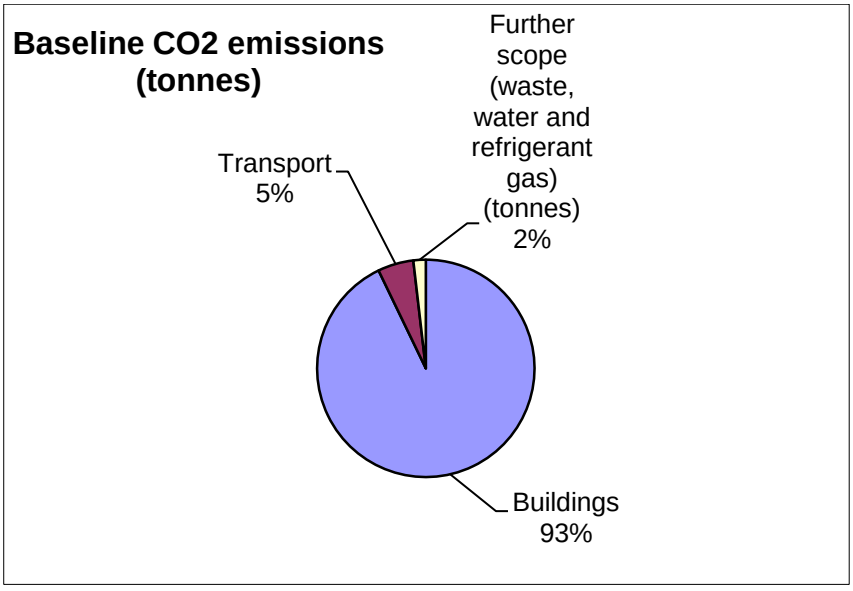


Figure 1: Breakdown of baseline by emissions type

Based on the University's emissions baseline, two different consumption scenarios have been projected: **The Business As Usual (BAU) scenario** predicts the effect on cost and carbon emissions of taking no action to limit the organisations increasing consumption of energy, while **the Reduced Emissions Scenario (RES)** predicts the effect on cost and carbon emissions of reducing the emissions baseline by the targeted 30% from 2005/6 to 2015/16.

The Value at Stake (VaS) is the difference in emissions or costs between the BAU and the RES; that is, the hypothetical potential value that could be obtained by implementing carbon reduction measures in order to reduce baseline emissions by 30% by 2015/16.

Value at Stake:

The total estimated Value at Stake from 2005/6 to 2015/16 in costs is £2.3 million and in carbon emissions is 4,271 tCO_2e

To meet the University's carbon reduction target, a series of specific carbon saving actions have been identified, including:

- Campus-wide Building Management System (BMS) upgrade
- Lighting and lighting control replacement projects
- Replacement of comfort cooling
- Building insulation/draught proofing improvements
- A series of water reduction measures
- Roll out of comprehensive mixed recycling to all offices
- Smarter driving training for fleet vehicle drivers

If the carbon saving projects detailed in the CMP are undertaken according to the timings set out and give the predicted emissions reductions, then 70% of the reduction target will be met (equivalent to 1737.6 tonnes of CO_2). The remaining savings will be achieved through medium to long-term projects to be identified in the Estates Strategy 2010 – 2019 and throughout the course of the programme.

Implementation Costs:

The overall cost of implementing the carbon reduction projects identified is approximately £1million, with potential financial savings over BAU to the organisation of around £0.5 million per year.

1. Introduction

1.1 Purpose & Background to the Carbon Management Programme

Bournemouth University is a large organisation with approximately 17,000 students from 120 countries and over 1500 staff. A complex and expanding estate is divided between two campuses in different local authority areas with 19 buildings covering some 32 hectares of land and offering significant challenges for the progression of our environmental objectives.

The Carbon Trust's Higher Education Carbon Management Programme (HE CMP) aims to provide technical and change management support to help Higher Education Institutions (HEIs) realise carbon emissions savings. The aim is to reduce emissions under the direct control of Universities - whether linked to energy use in buildings, campus facilities, waste management or vehicle fleets.

Bournemouth University's key objectives for participating in the Higher Education Carbon Management Programme are:

- To understand and fully quantify the carbon footprint of the University and determine a carbon emissions baseline (using data from the 2005/6 academic year)
- To produce a fully-costed Carbon Management Plan to reduce this carbon footprint by 30% (in absolute terms) by the end of the 2015/16 academic year
- To link future carbon reduction target setting into the University strategic planning process
- To raise awareness of climate change and carbon management practice across the University at all levels, and to encourage all staff and students to act on this issue
- To build on the previous work of the Environmental Strategy Group and Energy Efficiency Group (now the Carbon Management Group) and strengthen our position in benchmarking exercises such as The Green League and Universities that Count.
- Recognising that we advocate a global perspective and sustainability within the curriculum, to demonstrate to students and staff that the University takes its responsibility for sustainable development seriously.

The process used to develop the Carbon Management Plan is provided by the HE CMP and follows the Carbon Trust's five-step process:

Step 1: Mobilise the Organisation
Step 2: Set baseline, forecast and targets
Step 3: Identify and Quantify Options
Step 4: Finalise Strategy and Implementation Plan
Step 5: Implement Plan

The first four steps have been completed over a ten month period from April 2009 to February 2010, culminating in the University publishing this Carbon Management Plan setting out our strategy for managing carbon emissions over the period 2010 - 2016, with an ambitious reduction target and details of specific actions which will make a significant contribution to ensuring that target is met.

This programme builds on the already well-established work of the University's Environmental Strategy Group (ESG) to reduce the environmental impact of the University's operations and ensure continuous improvement in its approach to environmental management.

Key landmarks have included:

- Environmental Strategy Group established in 2003, with sub-groups on energy, transport & waste
- Environmental Policy first published in 2003 and reviewed annually
- Energy Communications Campaign – fronted by 'Green Frog' in place since 2003 (highly commended in the Green Gown Awards in 2005)
- University Travel Plan published in 2003
- Appointed an Environmental Officer in August 2005 and an Energy Officer in December 2006
- Awards for Best Public Sector Travel Plan in Dorset Travel Plan Awards 2005 and Winner of the Green Gown Transport Award in 2006
- Fairtrade University Status since June 2006
- Finalist in the Times Higher Education Awards (Contribution to Sustainable Development category) in 2006 and the Dorset Business Awards (Environmental Excellence category) in 2007
- Recycling rate of 41% of campus generated waste in 2007/8
- Major review of Travel Plan in 2007/8 - Single occupancy car use (i.e. staff driving to work alone on three days per week or more) down from 67% in 2003 to 44% in 2007
- The Students' Union at BU (SUBU) actively engages with the Sound Impact Awards; achieving Bronze in 2008/9 and aiming for Silver in 2009/10
- Ongoing implementation of a certified Environmental Management System (EMS) leading to EcoCampus Bronze and Silver Awards in 2009
- Successful Revolving Green Fund Institutional Small Projects Fund bid in 2009
- Participation in the HE Carbon Management Programme in 2009/10

1.2 Project Timeline

Bournemouth University has followed the project timeline, identified in Appendix A, which was developed by the Carbon Trust.

The actions identified in this Carbon Management Plan will be carried out between 2010 and the end of the 2015/16 academic year (the target period).

2. Carbon Management Strategy

2.1 Context & Drivers

There are a number of key drivers that have contributed to Bournemouth University's participation in the HE CMP. These include internal policy, regulatory, legislative, financial and reputational drivers.

Bournemouth University's Strategic Plan 2008-2012 stated that the University would aim to be one of the 'greener' Universities in the UK by 2012. This was supported by two top-level KPIs relating specifically to energy consumption and energy cost:

- Reduce our energy usage per student FTE by 17% from 1,753 kWh per annum to 1,451 kWh per annum by 2011/12.
- Reduce our energy costs by 17% from £14.67 per sq m per annum to £12.41 per sq m per annum by 2011/12.

The University's Environmental Policy Statement also makes a commitment to identify opportunities to reduce energy consumption and the use of fossil fuels to significantly reduce the University's CO_2 footprint, while establishing robust systems for energy monitoring and targeting and continuing to examine the possibility of acquiring electricity from 'greener' sources, either through the purchase of renewable energy, or through an increased use of on site renewables.

The Higher Education Funding Council for England (HEFCE) has stated that they will aim to make sustainable development a central part of their strategy for the future development of the higher education (HE) sector, indicating that carbon performance will be a factor in future capital allocations.

HEFCE first published the strategy document Sustainable Development in Higher Education in 2005, and reviewed this in 2008. During 2009 they have finalised a revised strategy for sustainable development and consulted on a set of challenging targets for carbon reduction within the sector, sufficient to ensure satisfactory progress towards national government targets to reduce carbon emissions by 80 per cent by 2050 and at least 34 percent by 2020 (against 1990 levels).

Legislative drivers include the introduction of the Carbon Reduction Commitment, which will require organisations which consumed more than 6,000 Mega Watt hours of half hourly monitored electricity during 2008 to buy carbon allowances annually, based on consumption, to cover their carbon emissions. This revenue will be recycled by government based on organisational performance on carbon reduction during the year, which will be benchmarked against all other participating organisations resulting in a potential financial and a reputational impact.

Other legislative drivers include compliance with the Energy Performance of Buildings (Certificates and Inspections) (England and Wales) Regulations 2007 and the strengthened Building Regulations Part L (Conservation of fuel and power), published in 2006; and policy levers such as the landfill tax escalator, and Section 106 planning consents leading to the development of our Travel Plan.

The volatility of energy markets and high cost of utilities is also a key driver. In order to manage the risk associated with volatile energy markets it is necessary to ensure that all energy is used as efficiently as possible.

Reputational drivers include performance in the People & Planet Green League, which now includes a number of measures relating to carbon management, as well as other benchmarking activities such as the Universities that Count Project and Students' Union participation in the Sound Impact Awards.

There is increasing stakeholder interest in carbon management, particularly from prospective and current students, staff and members of the local community. Participating in the HE CMP and the development of a comprehensive Carbon Management Plan will help to address the concerns of stakeholders and may lead to increased recruitment and retention of both staff and students.

Bournemouth University also recognises that as we advocate a global perspective and sustainability within the curriculum, and have an academic school focusing on Conservation Sciences, we must demonstrate to students and staff that the University takes its responsibility for sustainable development seriously.

The University also acknowledges that in the face of mounting global scientific consensus on the anthropogenic causes of global climate change, there is a moral responsibility to act to reduce emissions.

2.2 Vision

Bournemouth University recognises that its activities have an impact upon the environment at local, regional, national and global levels and acknowledges its responsibility for environmental protection. The University is committed to act in a responsible manner in relation to carbon emissions and will continuously review and seek to reduce its carbon footprint across all of its operations to meet challenging national targets.

2.3 Strategic Themes

The key strategic themes that will ensure that Bournemouth University continues to increase energy efficiency and reduce carbon emissions and its contribution to global climate change are:

Integration of carbon reduction strategy - The University will aim to ensure that carbon management principles are integrated into the culture and practices of the University and link future carbon reduction target setting into the University strategic planning process.

Strategic Investment - The University will make sufficient resources available to meet its objectives and targets relating to carbon management, and apply for external funding as appropriate.

Policy review - Bournemouth University will continue to review and develop its Environmental Policy, Carbon Management Plan and Environmental Management System to ensure that the underpinning policy context supports ongoing reductions in carbon emissions.

Monitoring and Targeting - The University will continue to ensure that its monitoring and targeting systems are fully utilised to achieve greater understanding and control of energy usage and to ensure that robust data is available to fulfill our obligations, for example under the CRC.

Technical Measures/Infrastructure Improvements and Awareness-Raising/Behavioural Change - The University commits to ensure that carbon savings are achieved through a range of technical/infrastructure improvements and behavioural change programmes.

Benchmarking Performance - The University will continue to actively contribute to benchmarking activities, such as The Green League and Universities that Count, in order to demonstrate progress and learn from the best practice within the Sector.

2.4 Objectives & Targets

Bournemouth University will reduce the carbon footprint of those activities identified in the scope of the Carbon Management Programme by 30% (in absolute terms) by the end of the 2015/16 academic year, compared to the baseline year of 2005/6. This represents a reduction of 43% from the projected emissions should the organisation take no action i.e. the business as usual scenario.

The University also has an aspirational target to reduce emissions identified in the scope of this Carbon Management Plan by 40% (in absolute terms) by 2020, compared to the baseline year of 2005/6.

3. Emissions Baseline & Projections

3.1 Scope

The scope for the carbon management programme, in terms of the sources of emissions covered, is as follows:

1. Utilities use (gas, electricity and water) in all University owned and managed residential (excluding UNILET houses) and non-residential buildings (including University Centre Yeovil)
2. Fleet Transport (University owned or leased vehicles and Student Union owned vehicles)
3. Unilinx bus travel on designated routes
4. Waste Management (General Waste)

Carbon emissions relating to both the Talbot Campus and the Lansdowne Campus will be included.

Sources of emissions not included at this time in the project, but that could be considered in future:

1. Staff business travel
2. Staff and student commuter travel
3. Student placement travel
4. Visitor, contractor or supplier travel
5. Resource consumption other than utilities

3.2 Baseline

Bournemouth University has taken its baseline year for calculating it carbon emissions and forecasting to be the academic year 2005/6 (1 August 2005 to 31 July 2006). This year has been chosen because reliable and complete data is readily available and to align with forthcoming HEFCE reporting requirements for carbon management plans. The University's financial year also runs concurrently with the academic year.

The following identifies the sources of data used to calculate the baseline, as well as assumptions and CO_2 conversion factors (supplied by the Carbon Trust). This information is documented to ensure that any future carbon footprint calculations can use the same methods, ensuring care of comparison and consistency throughout the implementation period.

Table 1: Data sources

Data	Owner	Sources	CO_2 conversion factors	Source
Utilities consumption data (gas, electric, water)	Rachel Mallalieu / Dave Archer, Estates	Invoices Meter readings from ARM System	Elec: 0.537 kg CO_2/kWh Gas: 0.185 kg CO_2/kWh Water: 0.404 kg CO_2/m3	HE CMP Baseline Toolkit
Fleet Transport (University owned or leased vehicles)	Stuart Laird, Estates	Invoices and Bookings Diary; transport type and mileage	Diesel: Litres 2.63 kg CO_2/Litre Petrol: Litres 2.32 kg CO_2/litre	HE CMP Baseline Toolkit
Fleet Transport (Students' Union owned vehicles)	Alan James, SU General Manager	Invoices and Bookings Diary; transport type and mileage	Diesel: Litres 2.63 kg CO_2/Litre Petrol: Litres 2.32 kg CO_2/litre	HE CMP Baseline Toolkit
Unilinx bus travel on designated routes	Stuart Laird, Estates / Wilts & Dorset	Management information reports from the contractor – based on fuel, vehicle type and mileage	Diesel: Litres 2.63 kg CO_2/Litre	HE CMP Baseline Toolkit
Waste Management (General waste)	Amanda Williams, Estates	Weight based data for general waste	447 kgCO_2e/tonne	HE CMP Baseline Toolkit

Notes:

1. Emissions from bus travel are based on Unilinx buses on designated routes.

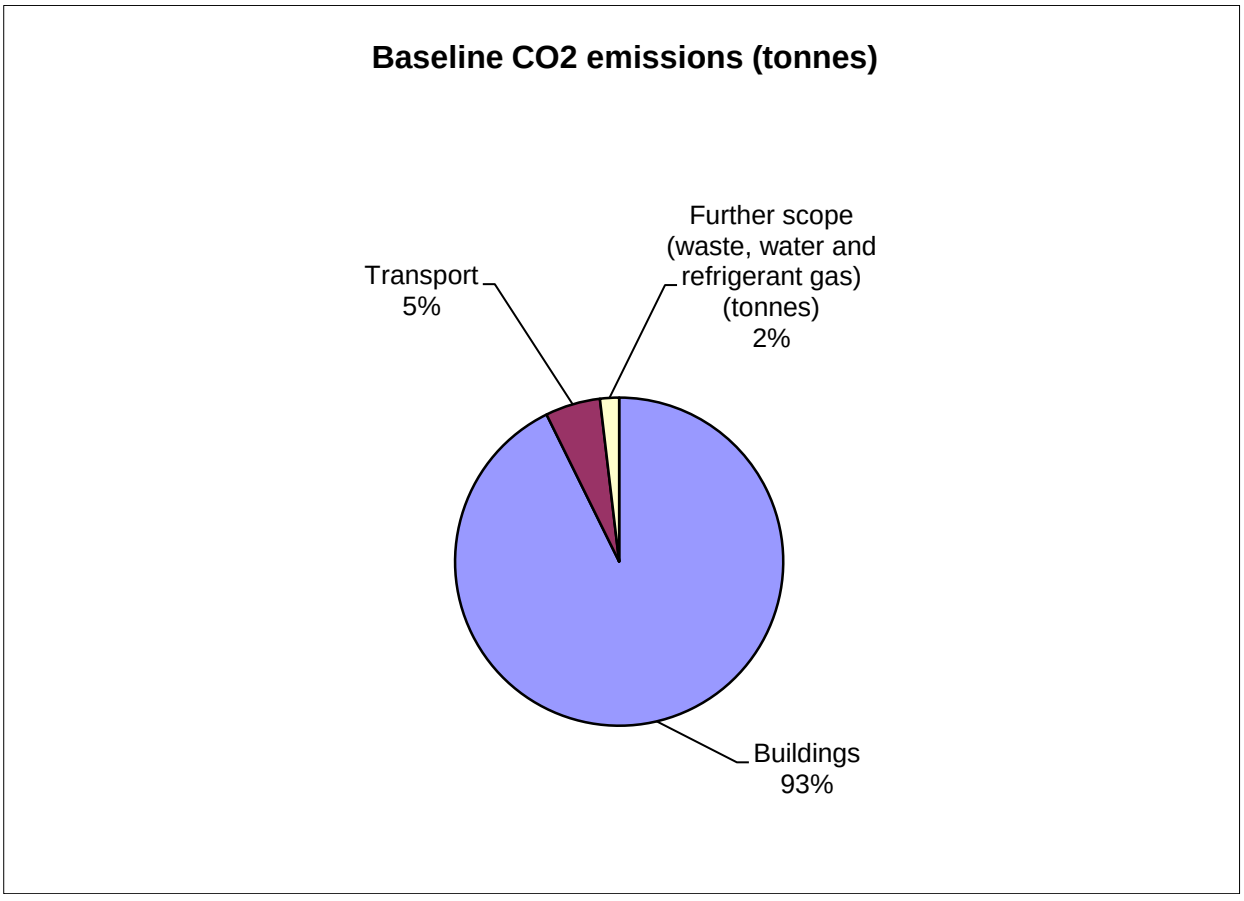
The University's CO_2 emissions baseline for 2005/6 totals 8,275 tonnes of CO_2e.

Table 2: Emissions Baseline Breakdown

The following table illustrates how this is broken down:

Baseline Year	Total CO_2 Emission (tonnes)	Emissions from buildings (tonnes)	Emissions from transport (tonnes)	Further scope (waste, water & refrigerant gas) (tonnes)
2005/6	8,275	7,683	440	152

Chart 1: Emissions Breakdown by Type



3.3 Projections

Having established an emissions baseline, it is possible to estimate what the University's year on year increases in emissions will be if it continues to consume energy at present growth levels (2% per annum).

This Business As Usual (BAU) scenario, which predicts the effect of taking no action to limit the University's increasing consumption of energy, can then be modelled against carbon reduction targets to identify potential savings, in terms of both carbon emissions and financial savings.

3.4 Value at Stake

The Value at Stake (VAS) is the difference in emissions or costs between the Business as Usual Scenario (BAU) and the Reduced Emissions Scenario (RES) (based on the targets set); that is the potential value that could result from carbon reduction measures that reduce baseline emissions by 30% (in absolute terms) from 2005/6 levels by 2015/16.

3.4.1 Carbon Value at Stake

Chart 2: Comparison of actual emissions with BAU increases and reduction targets predicted

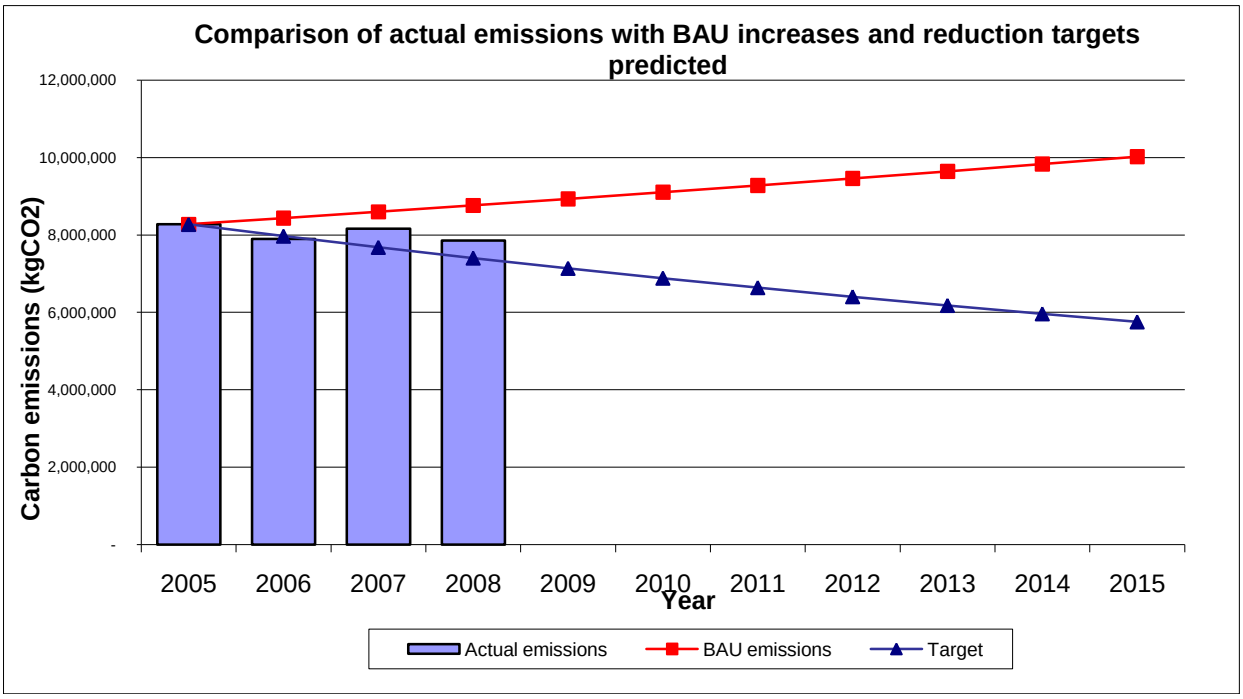
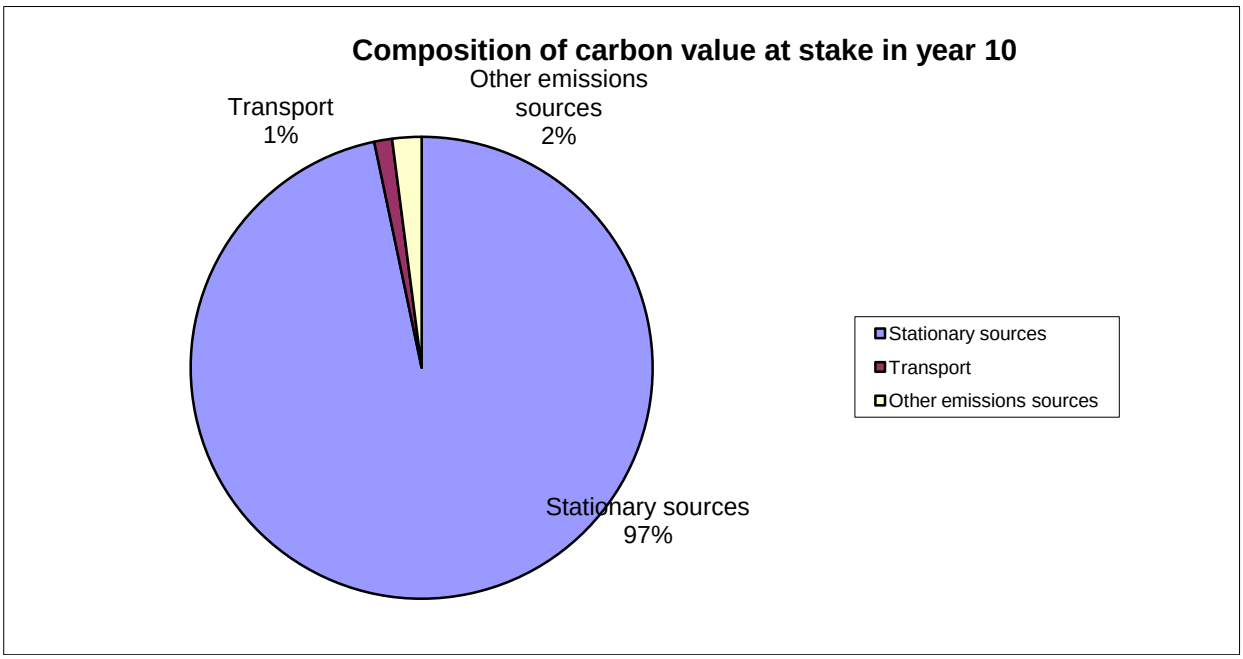


Chart 3: Composition of Carbon Value at Stake in year 10



3.4.2 Financial Value at Stake

Chart 4: Comparison of the cost of actual emissions with the cost of BAU increases and reduction targets

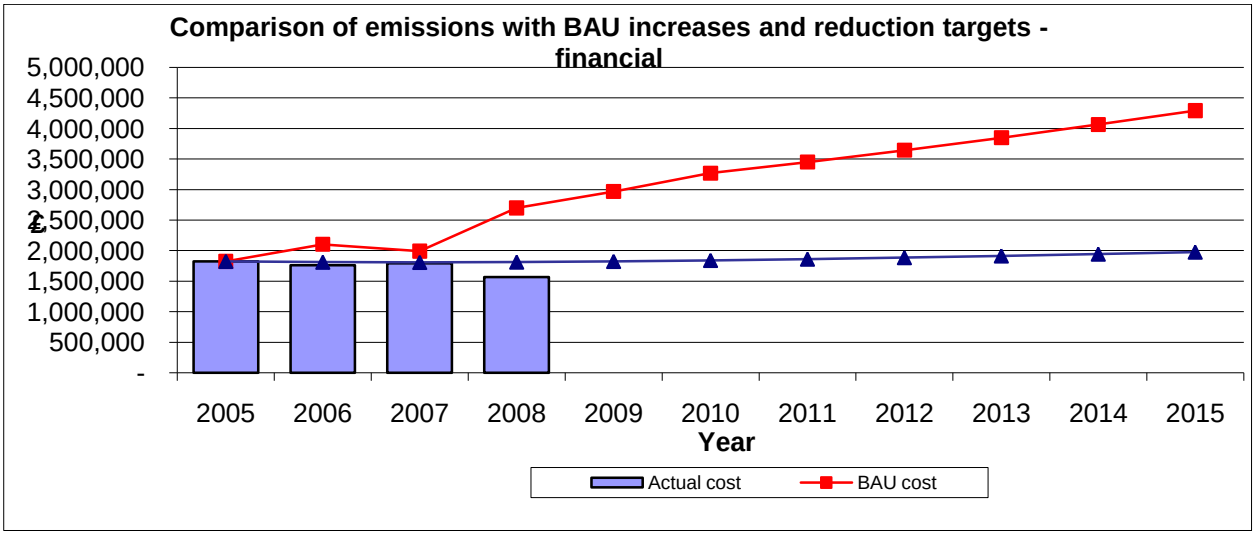
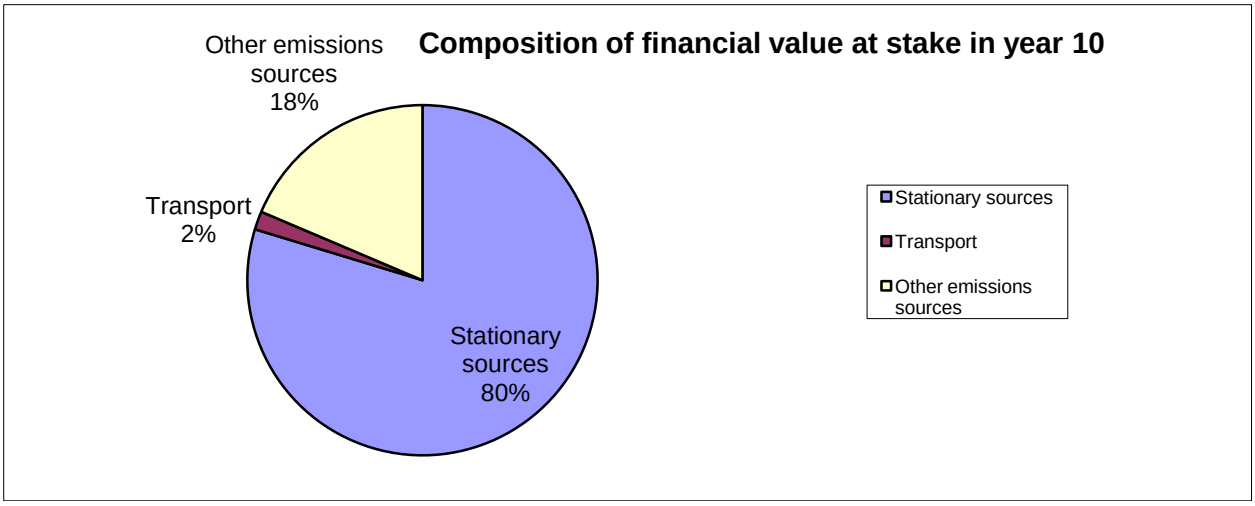


Chart 5: Composition of financial value at stake in year 10



The total estimated Value at Stake from 2005/6 to 2015/16 in costs is £2.3 million and in carbon emissions is 4,271 tCO_2e

Table 3: Value at Stake cost and carbon breakdown based on 2005/6 baseline

	2005/6	2006/7	2007/8	2008/9	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Total BAU (£'000)	1825	2104	1992	2698	2969	3268	3452	3645	3850	4066	4294
Total RES (£'000)	1825	1812	1809	1814	1825	1841	1862	1886	1914	1944	1976
Total VAS (£'000)	0	292	183	884	1144	1427	1590	1759	1936	2122	2318
Total BAU (tCO_2)	8275	8434	8598	8764	8933	9106	9282	9462	9645	9832	10022
Total RES (tCO_2)	8275	7972	7682	7405	7139	6884	6639	6404	6178	5961	5752
Total VAS (tCO_2)	0	462	916	1359	1795	2222	2643	3058	3467	3871	4271

4. Carbon Management Projects

4.1 Existing Projects

The following projects have already been completed since 2005/6 and gave emissions savings that are already known to the project team:

- Building Management System (BMS) adjustments
- Water-cooled cellar replacement – The Old Fire Station
- External lighting – Talbot Campus
- Voltage reduction – Talbot Campus

In order to capture more possible emissions savings opportunities the project team:

- Reviewed recommendations made in the Carbon Trust Energy Surveys undertaken in 2003 and 2007 to identify any opportunities that had not yet been undertaken
- Reviewed feedback received in the Staff Energy Survey in 2008
- Undertook two Opportunities Workshops (one on each campus) to enable project team members and other stakeholders to generate carbon saving ideas
- Reviewed the information on Display Energy Certificates and associated advisory reports to assist in the identification of opportunities
- Commissioned a detailed survey of water consumption and potential savings on both campuses

4.2 Planned/Funded Projects

The following projects, which are approved for implementation and have the funding in place, are due to be carried out during 2009/10. These projects will collectively deliver an estimated 3% of the target reduction.

Table 4: Planned/Funded Projects

Ref	Project	Lead	Cost		Annual Saving		Pay back	% of Target	Year
			Capital	Operational	Financial	CO_2			
5	Cooling replacement Dorset House Open Access	DA/GF	£12,504	£253	£2,935	19.9 tCO_2	4.3	1.46%	2009/10
6	Cooling replacement Poole House (P330/332)	DA/GF	£4,447	£158	£411	3.6 tCO_2	10.8	0.26%	2009/10
10	Roll out of mixed recycling to offices	AW/LW	£850	-	£ tbc	0.4 tCO_2	N/A	0.03%	2009/10
12	Studland House IT Suite Free Cooling	DA/GF	£3,000	£126	£957	6.8 tCO_2	3.1	0.50%	2009/10
13	Smarter Driver Training – Fleet Vehicles	SL/AW	£600		£2,108	4.8 tCO_2	0.3	0.35%	2009/10

4.3 Near-Term Projects

The following is a list of potential projects that the University will implement over the next five years subject to approval. These projects collectively will deliver an estimated 67% of the Target reduction.

Table 5: Near-Term Projects

Ref	Project	Lead	Cost		Annual Saving		Pay back	% of Target	Year
			Capital	Operational	Financial	CO_2			
7	2nd Floor Poole House Replace Comfort Cooling with VRV	DA/GF	£32,069	-	£14,211	88.7 tCO_2	2.3	6.51%	2010/11
8	3rd – 4th Floor Poole House Replace Comfort Cooling with VRV	DA/GF	£54,859	-	£12,504	78.1 tCO_2	4.4	5.72%	2011/12
9	Studland House External Lighting	DA/GF	£10,000	-	£2,150	13.4 tCO_2	4.7	0.98%	2010/11
11	Poole House Atrium Gallery Lighting	DA/GF	£6,502	-	£1,957	12.2 tCO_2	3.3	0.90%	2010/11
14	Water Reduction Survey	DA/GF	£100		£21,294	4.3 tCO_2	0.0	0.32%	2010/11
15	Bournemouth House / Studland House Corridor sensors	DA/GF	£3,250		£645	4. tCO_2	5.0	0.30%	2011/2012
16	Dorset House LRC Replace Comfort Cooling with VRV Pt 1	GF/DA	£31,565		£7,463	46.6 tCO_2	4.2	3.42%	2011/2012
17	Dorset House LRC Replace Comfort Cooling with VRV Pt 2	GF/DA	£31,565		£7,463	46.6 tCO_2	4.2	3.42%	2011/2012

Ref	Project	Lead	Cost		Annual Saving		Pay back	% of Target	Year
			Capital	Operational	Financial	CO_2			
18	General -adjust lux levels to Design Standards	GF/DA	£500		£1,118	7. tCO_2	0.4	0.51%	2011/2012
19	General Upgrade Pipework Insulation	GF/DA	£1,000		£135	.9 tCO_2	7.4	0.07%	2011/2012
20	Melbury House Building Management System (BMS) FCU	GF/DA	£63,250		£17,761	110.9 tCO_2	3.6	8.13%	2011/2012
21	Melbury House Variable Speed Motor	GF/DA	£1,000		£211	1.3 tCO_2	4.7	0.10%	2011/2012
22	Replace lighting fittings and adding PIRs PH 2nd - 4th Floors	GF/DA	£40,000		£5,676	35.4 tCO_2	7.0	2.60%	2011/2012
23	Weymouth House 2nd Floor Lighting Replacement	GF/DA	£25,821		£6,688	41.8 tCO_2	3.9	3.06%	2011/2012
24	Weymouth House 2nd Floor Lighting Controls	GF/DA	£6,072		£1,355	8.5 tCO_2	4.5	0.62%	2011/2012
25	Weymouth House 3rd Floor Lighting Replacement	GF/DA	£22,656		£6,048	37.8 tCO_2	3.7	2.77%	2011/2012
26	Weymouth House 3rd Floor Lighting Controls	GF/DA	£4,459		£1,154	7.2 tCO_2	3.9	0.53%	2011/2012
27	Weymouth House 4th Floor Lighting Replacement	GF/DA	£21,629		£5,242	32.7 tCO_2	4.1	2.40%	2011/2012
28	Weymouth House 4th Floor Lighting Cntrols	GF/DA	£4,080		£1,000	6.2 $tCO2_2$	4.1	0.46%	2011/2012

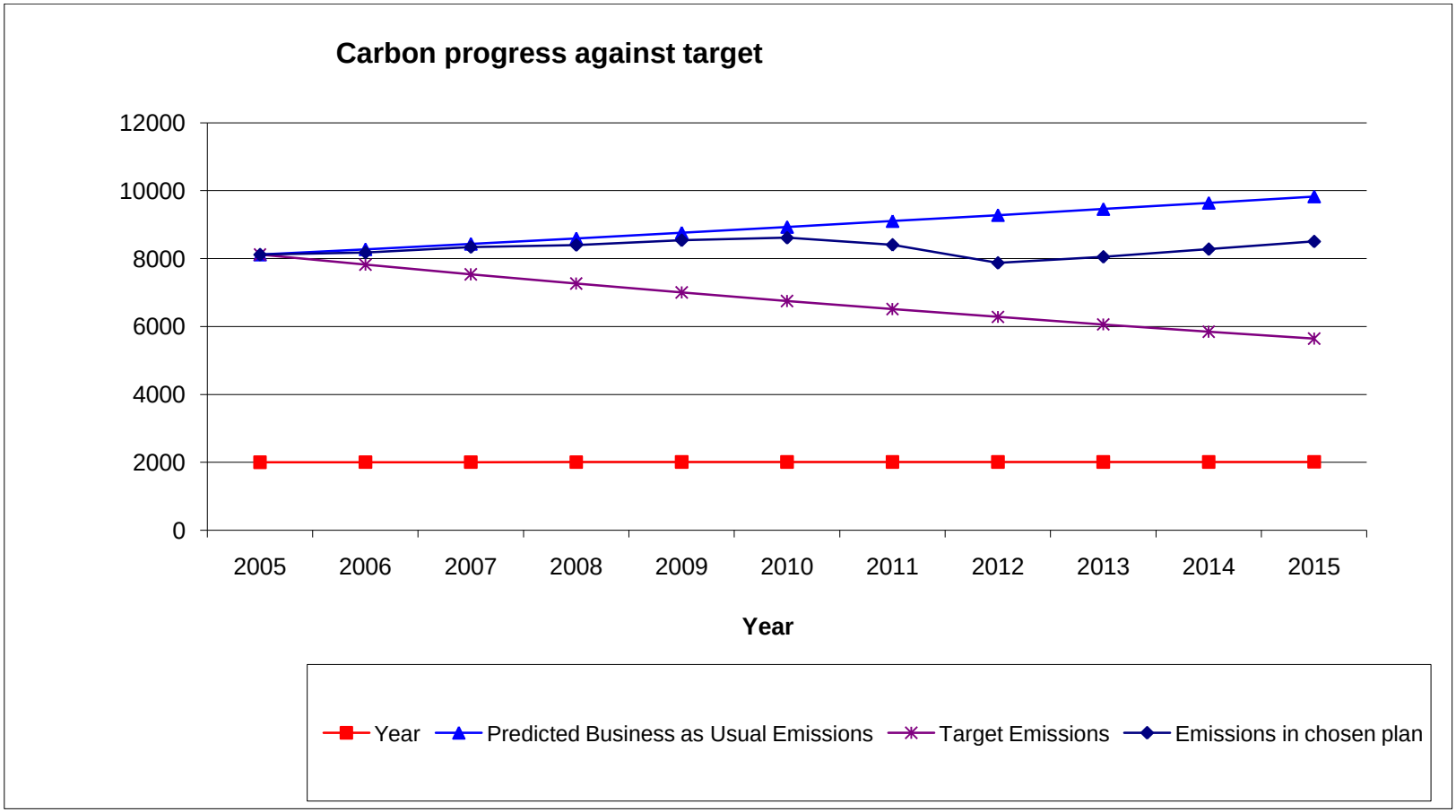
Ref	Project	Lead	Cost		Annual Saving		Pay back	% of Target	Year
			Capital	Operational	Financial	CO_2			
29	Campus wide BMS Upgrade	GF/DA	£300,000		£97,349	607.9 tCO_2	3.1	44.57%	2012/2013
30	Campus wide BMS Upgrade	GF/DA	£200,000		£35,602	243.9 tCO_2	5.6	17.88%	2012/2013
31	Building Insulation /Draught proofing	GF/DA	£50,000		£2,700	18.5 tCO_2	18.5	1.36%	2013/2015
32	General - Installing central water boilers for drinks	GF/DA	£5,000		£645	4. tCO_2	7.8	0.30%	2013/2014
33	General - Replace Ageing Heating boilers with High Efficiency Condensing boilers Dorset House / Christchurch House/ Talbot House / The Old Fire Station	GF/DA	£50,000		£4,482	30.7 tCO_2	11.2	2.25%	2013/2014

4.4 Medium to Long Term Projects

The University is currently undergoing a comprehensive review of the Estates Strategy and a number of additional medium to long-term projects will be identified as part of that process. These projects will be designed to deliver the remaining 30% of target reduction necessary to fulfil the Carbon Management Plan.

4.5 Projected Achievement Towards Target

Chart 6: Projected achievement towards carbon reduction target



Based on Planned/Funded Projects and Near-Term Projects, the total identified savings are 1737.6 tonnes of CO_2, which equates to 70% of the identified carbon reduction target.

Additional savings that are more difficult to quantify will come from projects such as staff and student awareness campaigns.

The remaining savings will be achieved through medium to long-term projects to be identified in the Estates Strategy 2010 – 2019.

5. Implementation Plan - Finance

The overall capital cost of projects identified to date within this programme is £1,004,628.

5.1 Assumptions Used

A typical average cost of 8.6 pence/kWh has been assumed for electricity (grid).

A typical average cost of 2.7 pence/kWh has been assumed for natural gas.

A typical average price of 200.0 pence/m3 has been assumed for water consumption (including sewage costs).

All costs for future carbon saving projects are quoted at 2009 prices and will be subject to inflation.

5.2 Benefits/Savings – Quantified and Un-Quantified

The annual cost and CO_2 savings are summarised below:

Table 6: Benefits Savings - Quantified

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Annual cost saving	**£13,630**	**£13,106**	**£34,218**	**£38,131**	**£69,008**	**£124,979**	**£220,965**	**£217,974**	**£207,903**	**£199,703**
Annual CO_2 saving	**94.29**	**91.54**	**195.21**	**221.07**	**317.00**	**697.24**	**1369.51**	**1371.64**	**1328.00**	**1289.32**
% Of target achieved	**4%**	**4%**	**8%**	**9%**	**13%**	**28%**	**55%**	**55%**	**54%**	**52%**

Un-quantified benefits will include:

- Improved utilities consumption data shown in HEFCE Estates Management Statistics
- Improved standings in benchmarking exercises such as the People & Planet Green League and Universities that Count Environment Index
- Improved performance in Capital Investment Framework (CIF2)

5.3 Financial Costs and Sources of Funding

The key financial metrics are summarised below.

Table 7: Financial Costs

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Total annual capital cost	**£2,415**	**£14,236**	**£17,995**	**£43,677**	**£262,448**	**£406,750**	**£82,529**	**£0**	**£0**	**£0**
Total annual operational cost	**£0**	**£0**	**£6,640**	**£7,092**	**£7,024**	**£6,956**	**£6,889**	**£6,822**	**£6,756**	**£6,691**
Total costs	**£2,415**	**£14,236**	**£24,634**	**£50,770**	**£269,471**	**£413,706**	**£89,418**	**£6,822**	**£6,756**	**£6,691**

Sources of funding:

The University has been successful in its bid for funding through the Revolving Green Fund – Institutional Small Projects Fund. The Fund is a partnership between HEFCE and Salix Finance Ltd, set up to help Universities adopt a 'low carbon' approach to energy and increase capital investment in energy efficient technologies. The recoverable grant payment of £200k (50% provided by HEFCE and 50% provided by Salix) will be used to establish and operate a local energy saving fund to spend on projects that meet the compliance criteria. BU will also be required to contribute an additional 25% (£50k) to the fund. This funding will allow BU to take forward a number of the projects identified in this plan.

In addition, Bournemouth University has applied for a Salix Interest Free Loan, to the value of £500k, to fund the implementation of a fully integrated Building Management System.

Some of the projects will be funded from the University's internal Estates capital and revenue budgets.

The Estates Strategy 2010 – 2019 has indicated a requirement for significant additional annual capital funding for energy efficiency projects. The Estates Strategy is expected to obtain full Board approval in April 2010 and will include a commitment for additional funding to support this plan.

6. Embedding Carbon Management

The Higher Education Funding Council for England (HEFCE) has consulted on a planned carbon reduction target for the sector. The proposed sector-level targets suggest that the HE Sector should:

- Commit to reducing scope 1 and 2 carbon emissions by 80 per cent by 2050 and by at least 34 per cent by 2020, against a 1990 baseline (this is in line with national targets outlined in the CCA)
- Aspire to reduce scope 1 and 2 carbon emissions by 50 per cent by 2020 and by 100 per cent by 2050, against 1990 levels
- Commit to improving measurement of scope 3 emissions with the intention of setting targets for these emissions in the future

HEFCE has also indicated that institutions will be required to have Carbon Management Plans in place and reiterates the government's proposal that capital funding will be linked to carbon reduction from 2011 - as outlined by the Secretary of State's grant letters to HEFCE in both 2008 and 2009.

There is little doubt that the sector will be required to reduce carbon emissions in line with national targets (80% by 2050 and 34% by 2020) *at sector level*. This will be a huge challenge for Universities and particularly for Bournemouth where we have seen tremendous growth since 1990 and already use space extremely efficiently. HEFCE will publish its carbon reduction strategy for the sector early in 2010.

Appendix B shows a Summary Analysis of where the University currently sits on the Carbon Management Programme's 'road map' to embedding carbon management within the institution.

Key areas are discussed below, including actions to improve on the current position.

6.1 Carbon Policy, Vision & Strategy

In 2008, the Vice Chancellor signed up to the 'Green Education Declaration', an initiative led by national student campaign group People & Planet. The declaration highlighted that the education sector had an important role to play in addressing climate change through teaching and learning, research and innovation and the way that we manage our estate. This included a commitment to take action to reduce the University's carbon footprint.

The University's Environmental Policy states "*Bournemouth University recognises that its activities have an impact upon the environment at local, regional, national and global levels and acknowledges a responsibility for the protection of the environment and the health of its members and the community."*

The Environmental Policy includes commitments on energy and carbon management, waste management and recycling, water reduction, travel planning, procurement, construction and refurbishment, emissions and discharges and biodiversity management.

It explicitly states that the University will "*identify opportunities to reduce energy consumption and the use of fossil fuels to significantly reduce the University's CO_2 footprint, while establishing robust systems for energy monitoring and targeting and continuing to examine the possibility of acquiring electricity from 'greener' sources, either through the purchase of renewable energy, or through an increased use of onsite renewables*".

The Environmental Policy is reviewed by Environmental Strategy Group (ESG) and published annually to ensure that it remains fit for purpose and covers all significant environmental aspects and impacts.

As part of the EcoCampus Environmental Management System, an environmental programme (a series of objectives, targets and tasks) has been identified to address the most significant environmental aspects and impacts. This includes sections on energy and carbon management, waste and recycling, and travel.

The Estates Strategy is currently undergoing a comprehensive review and will for the first time directly address environment and energy management.

The University Strategic Plan 2009/10 – 2013/14 identifies reducing our carbon footprint and adverse impact on the environment as a key priority for action and includes a top level KPI to reduce carbon emissions (in line with targets identified in our Carbon Management Plan).

The University plans to link future carbon reduction target setting into the University strategic planning process on an ongoing basis in future.

6.2 Programme Management

This factor of embedding Carbon Management is covered in section seven of this Plan.

6.3 Responsibility for Action

The Environmental Strategy Group (ESG) has overall responsibility for the formulation of environmental strategy and for monitoring its implementation throughout the University. Carbon Management Group (a sub group of ESG) provides leadership in

the development of carbon management policy and advises ESG on necessary development of that policy. Both groups will have a key role to play in overseeing the implementation of the Carbon Management Plan.

Day to day responsibility currently lies with two full time staff dedicated to environmental and energy management – an Environmental Officer and an Energy Officer, both based in the Estates and IT Professional Service. The Environmental Officer has responsibility for environmental policy, strategy and objectives (including carbon management strategy), energy awareness and communications and the Energy Monitors scheme. The Energy Officer is primarily responsible for day-to-day energy management. The Director of Estates & IT and the Estates Manager have overall responsibility.

The structure of the Estates and IT Professional Service is currently under review. A proposal included for consultation as part of this process is to establish an Environment Team that would bring together the work of the Environmental Officer and the Energy Officer and provide environment and energy management with a higher profile and additional resources within the broader structure.

A group of approximately 30 volunteer Energy Monitors have been appointed in Schools and Professional Services across the University to champion energy efficiency among colleagues and to assist with the dissemination of energy awareness campaign messages. They are also tasked with taking action to reduce waste, for example by switching off lights and equipment.

However, we should aim to be in a position where environmental responsibility (including responsibility for carbon reduction) becomes a core value of the University and not just the responsibility of a few dedicated staff, with senior staff leading by example, and all staff recognising how this responsibility impacts on them and acting on that duty.

In order to achieve this level of buy-in across the University, it will be necessary to go beyond communications campaigns. For example, an environmental duty should be placed on all staff through a standard statement on all job descriptions, which makes clear that all employees are expected to go about their duties in an environmentally responsible manner.

6.4 Visibility of Carbon Management & Communications Strategy

The University recognises that communication and training will be crucial to the successful implementation of the Carbon Management Plan.

The University already has in place an Energy Communications Plan, which is updated annually for the start of each academic year. This includes regular communications via the staff portal, the MyBU virtual learning environment, Bulletin, student publications, distribution of energy awareness bookmarks and posters, competitions, information

stands on campus and participation in national campaigns such as Energy Saving Week. This Communications Plan will be updated to reflect the aims and scope of the Carbon Management Plan and to ensure that progress against agreed targets is reported to staff and students at regular intervals. The Energy Monitors will continue to have an important role in assisting with the dissemination of campaign messages.

During the process of developing the Carbon Management Plan a programme communications plan has also been in place, developed jointly by the Environmental Officer and the Internal Communications Officer, to ensure that progress during the HE Carbon Management Programme has been reported to staff and students and that they have been given opportunities to input to the process.

The University has also implemented the Student Switch-Off campaign for the first time during the 2009/10 academic year, in conjunction with SUBU. This is a national campaign, which involves an inter-hall energy saving competition in student residences with prizes for the halls of residence that makes the biggest savings. This was launched at Freshers' Fair and communicated to residents via email, Facebook and a series of posters in halls. Students in participating halls can sign up to be Eco Power Rangers and champion energy efficiency among residents. Those students that signed up have been offered training in social marketing techniques to assist them in raising awareness among other residents.

Broader environmental training for staff will be developed as part of the ongoing process of implementing the EcoCampus environmental management system.

6.5 Carbon Management Monitoring & Reporting

Substantial investment has been made in additional sub-meters for all buildings and remote monitoring equipment allows the University to measure consumption closely, using half-hourly readings, so that we can better understand and manage our utilities use. This Automatic Remote Monitoring (ARM) System covers all three utilities and allows us to identify and target areas with high consumption and potential problems early, avoiding unnecessary waste.

A pay-by-weight contract for waste management provides us with accurate weight based data for both waste disposed to landfill and materials recycled.

Transport data is collected within the Estates Group to ensure that the carbon footprint of fleet transport and Unilinx buses on designated routes can be monitored.

This data will be analysed throughout the period of the Carbon Management Plan using the foot-printing tool provided by The Carbon Trust to ensure that progress against agreed targets is monitored on a quarterly basis. Regular feedback will be provided to the University's Senior Management Team (SMT) and University Executive Group (UEG).

A set of sophisticated data sets are being developed by Carbon Management Group to ensure that data is readily available to satisfy reporting requirements for all external statutory and other obligations such as the Carbon Reduction Commitment (CRC) Energy Efficiency Scheme and the Carbon Trust Standard.

6.6 Finance and Investment

This factor of embedding Carbon Management is covered in section five of this Plan.

6.7 Policy Alignment

In addition to the details outlined in 6.1, the University will review key policies to ensure that they align with the carbon reduction plan, including:

- Procurement Policies
- Capital Projects Design Standards
- Relevant Human Resources policies, for example relating to travel and expenses

6.8 Curriculum & Research – Climate Change

Since 1999, Bournemouth University has led UK higher education in developing graduates as 'global citizens' who understand sustainable development and are equipped to challenge injustice and champion change in a global society.

A Higher Education Leadership Foundation Fellowship awarded in 2005, enabled Bournemouth to address at a strategic level how it might secure an institutional step-change by embedding sustainable development across a full range of activities encompassing corporate responsibility and behaviour, curricula and pedagogy and the extra-curricular experience.

The resulting strategic report - entitled A Global Perspective at BU: Education for Global Citizenship and Sustainable Development: a blueprint for change' - achieved Senate endorsement in February 2006 and helped to establish an action plan to progress specific developments.

Bournemouth's participatory and holistic approach has successfully employed a top-down/bottom-up method of engagement to gain maximum buy-in and deliver a comprehensive institutional approach to sustainable development.

Curriculum Review is now a vehicle for ensuring that all students are confident in dealing with issues relating to global perspectives and sustainable development. Formal guidelines for curriculum development ensure that programme teams incorporate sustainable development into programme design. Global citizenship is part of Personal Development Planning and linked directly to employability with staff development providing support for change.

This work continues to be progressed by staff in the Centre for Global Perspectives (CGP), which was established in 2008 to champion this agenda across the university. CGP held its third biannual conference Education for Sustainable Development: Graduates as Global Citizens, in 2009 and undertakes substantial activity in the extra-curricular sphere to secure education for sustainable development. The latter has included working with students to address global poverty through micro-finance and social entrepreneurship. Work has also begun on aligning Fair Trade with climate change and exploring the implications in relation to poverty.

World-leading research by Bournemouth University's School of Conservation Sciences is also fostering a number of groundbreaking projects linked to climate change.

BU Professor Adrian Newton currently heads a project funded by the European Commission to study the reforestation of forest landscapes in Latin America. The £1.2 million project entitled 'ReForLan' (Restoration of Forest Landscapes for biodiversity conservation and rural development in Latin America) brings together researchers from organisations in Mexico, Chile, Argentina, Spain and Italy to investigate the potential for the restoration of natural forest in the dry land areas of Chile, Argentina and Mexico through a range of state-of-the-art techniques.

Professor Newton and his colleague, Dr Anita Diaz, published research in August 2009 in the leading journal *Science* showing that ecological restoration in areas of environmental degradation can help reverse global biodiversity losses, as well as promoting recovery of ecosystem services. Examples of ecosystem services include improved water quality and increased carbon storage, services which benefit human well-being.

Dr Diaz herself led an expedition of her students to the remote cloud forests of Ecuador to help conserve some of South America's most threatened wildlife and natural habitats. The students went on the trail of some of Ecuador's – and the world's – most endangered species to monitor the disturbance effects of eco-tourism activities on their behaviour and habitats. The group also joined local people, scientists from the Earthwatch organisation and corporate volunteers in performing rapid environmental evaluation analyses of habitats.

The School of Services Management is also engaged in research on the impact of climate change in relation to tourism. A one-day symposium on Sustainability, Climate Change and Tourism: Challenges posed by the global economic crisis (November 2009) drew a wide audience to share research and encourage futures thinking.

Within the Business School research interests include corporate social responsibility, sustainable development and global citizenship. The Business School is also engaged with UN Global Compact. The University also has a Centre for Sustainable Design within its School of Design, Engineering and Computing.

BU Vice-Chancellor, Professor Paul Curran, has also performed award-winning research in ecological Earth observation, involving the use of satellite sensors to monitor the environment with a focus on climate change.

7. Programme Management

7.1 Strategic Ownership & Environmental Strategy Group

Bournemouth University recognises the need for good governance of this Programme, including senior level strategic ownership of the carbon reduction target.

The governance of the Carbon Management Plan, as well as strategic ownership of the carbon reduction target, rests with Environmental Strategy Group. ESG meets a minimum of once per term and is chaired by the Deputy Vice Chancellor.

ESG will be responsible for overseeing the Programme to encourage delivery, ensuring coherence and coordination of carbon reduction activity and the identification of and removal of barriers.

Table 8: Environmental Strategy Group Membership

Name	Position	Contact Details
David Willey (chair)	Deputy Vice Chancellor	01202 965868 dwilley@bournemouth.ac.uk
Dave Archer	Energy Officer	01202 961029 darcher@bournemouth.ac.uk
Susanne Clarke	Finance Manager (Acting)	01202 961165 sclarke@bournemouth.ac.uk
Michael Humphreys	Director of Estates & IT	01202 966728 mhumphreys@bournemouth.ac.uk
Alan James	Students' Union General Manager	01202 965767 ajames@bournemouth.ac.uk
David Lifford	Senior Procurement Manager	01202 962772 dlifford@bournemouth.ac.uk
James Ricci	SU President 2009/10	01202 965773 SUpresident@bournemouth.ac.uk

Name	Position	Contact Details
Andy Scott	Director of Operations, School of Health & Social Care (HSC)	01202 961639 ascott@bournemouth.ac.uk
Richard Search	Residential Services Manager	01202 961674 rsearch@bournemouth.ac.uk
Chris Shiel	Director – Centre for Global Perspectives	01202 965280 cshiel@bournemouth.ac.uk
Amanda Williams	Environmental Officer	01202 961710 awilliam@bournemouth.ac.uk

7.2 Role of Carbon Management Group

The Carbon Management Group (CMG) will monitor progress on behalf of ESG and advise ESG of any necessary action to ensure implementation remains on plan. CMG meets a minimum of once per term.

Table 9: Carbon Management Group Membership

Name	Position	Contacts
David Lifford (chair)	Senior Procurement Manager	01202 962772 dlifford@bournemouth.ac.uk
Dave Archer	Energy Officer	01202 961029 darcher@bournemouth.ac.uk
Gerry Frith	Maintenance Manager	01202 961002 gfrith@bournemouth.ac.uk
Andrew Floyd	IT Operations Manager (Field Support)	01202 965578 afloyd@bournemouth.ac.uk
Stuart Laird	Estates Manager	01202 961001 slaird@bournemouth.ac.uk
Rachel Mallalieu	Finance & Resources Manager	01202 961012 rmallalieu@bournemouth.ac.uk
James Ricci	SU President 2009/10	01202 965773 SUpresident@bournemouth.ac.uk
Amanda Williams	Environmental Officer	01202 961710 awilliam@bournemouth.ac.uk

7.3 Role of the HE Carbon Management Programme Core Team

The HE Carbon Management Programme core team, a group formed to ensure key stakeholders across the University were represented during the process of developing the Carbon Management Plan, will reconvene twice per year to ensure that they are updated on progress and given opportunities to feed into the future development of the plan.

Table 10: HE CMP Core Team Membership

Role in HE CMP	Name & Position	Contact Details
Project Leader	Gerry Frith Maintenance Manager	01202 961002 gfrith@bournemouth.ac.uk
Deputy Project Leader	Dave Archer Energy Officer	01202 961029 darcher@bournemouth.ac.uk
Project Sponsor	Stuart Laird Acting Estates Manager	01202 961001 slaird@bournemouth.ac.uk
Project Co-Sponsor	David Lifford Senior Procurement Manager	01202 962772 dlifford@bournemouth.ac.uk
Board Level Sponsor	David Willey Deputy Vice Chancellor	01202 965868 dwilley@bournemouth.ac.uk
Project Advisor	Sean Gibson Briar Associates	01384 397777/07917 820690 sean.gibson@briarassociates.co.uk
Project Administrator	Helen Langdown Administrative Assistant	01202 961407 hlangdown@bournemouth.ac.uk
Core Team Member	Amanda Williams Environmental Officer	01202 961710 awilliam@bournemouth.ac.uk
Core Team Member	Maurice Downing IT Service Management	01202 965593 mdowning@bournemouth.ac.uk
Core Team Member	Andrew Floyd IT Operations Manager (Field Support)	01202 965578 afloyd@bournemouth.ac.uk
Core Team Member	Alan James Students' Union General Manager	01202 965767 ajames@bournemouth.ac.uk

Role in HE CMP	Name & Position	Contact Details
Core Team Member	Fred Ruffle SU President 2008/9	01202 965773 SUpresident@bournemouth.ac.uk
Core Team Member	James Ricci SU President 2009/10	01202 965773 SUpresident@bournemouth.ac.uk
Core Team Member	Lucy McQuillin Internal Communications Advisor	01202 961037 lmcquillin@bournemouth.ac.uk
Core Team Member / Academic Representative	Chris Shiel Director, Centre for Global Perspectives	01202 965280 cshiel@bournemouth.ac.uk
Core Team Member	Keith Boyes Capital Developments Manager	01202 961003 kboyes@bournemouth.ac.uk
Core Team Member	Russell Evans Senior Project Manager	01202 961282 revans@bournemouth.ac.uk
Core Team Member	Richard Search Residential Services Manager	01202 961674 rsearch@bournemouth.ac.uk
Core Team Member / School Representative	Andy Scott Director of Operations, HSC	01202 961639 ascott@bournemouth.ac.uk
Core Team Member / Student Representative	Paul Westbrook-Merry School of Conservation Sciences	e90851585@bournemouth.ac.uk

7.4 Succession Planning for Key Roles

The role of Project Leader will be covered by the Energy Officer (as Deputy Project Leader) if the Maintenance Manager is unable to undertake this role at any time.

The role of Project Sponsor will be covered by the Director of Estates & ICT if the Estates Manager is unable to undertake this role at any time.

7.5 Ongoing Stakeholder Management

Stakeholders can be considered to be those either within or external to the University who will be affected by the implementation of the Carbon Management Plan and may influence its success.

Key stakeholders are identified below in Table 11.

Table 11: Key Stakeholders & Methods of Communication

Name	Level of **Influence** (High, Med, Low)	Likely **impact** on Carbon Management / Key issues & concerns	Means of **Engagement** / Communications / Actions
Vice Chancellor	High	Funding, strategic goals, reputation/profile of University	Through Committee Structure
UEG/SMT	High	Funding, strategic goals, reputation/profile of University, leading by example	Through Committee Structure
Board	High	Funding, strategic goals, strategic support, reputation/profile of Uni	Through Board Meetings, Annual Report
Deans of School & Heads of Professional Services	High	Space utilisation, disseminating information to Schools/depts, staff numbers etc	Through Committee Structure, internal communications etc
Finance	High	Financial planning, managing RGF, CRC, Procurement etc	Participation in core team, through committee structure, internal communications, departmental communications etc
Estates & ICT	High	Estates Strategy, ICT Strategy, running costs, capital implications, capital projects, etc	Participation in core team, through committee structure, internal communications, departmental communications etc
Residential Services	High	Energy use in student accommodation, communicating with residents etc	Participation in core team, through committee structure, internal communications, departmental communications etc
Procurement	High	Energy and resource implications of contracts, etc	Participation in core team, through committee structure, internal communications, departmental communications etc
ICR / Marketing	Medium	Communicating key messages	Participation in core team, through committee structure, internal communications, departmental communications etc
Students' Union	Medium	Representing the views of students, energy use in University buildings e.g. OFS, impact of fleet vehicles	Participation in core team, through committee structure, internal communications etc

Name	Level of **Influence** (High, Med, Low)	Likely **impact** on Carbon Management / Key issues & concerns	Means of **Engagement** / Communications / Actions
Staff	Medium	Securing buy-in for Carbon Management Plan among wider University community, work environment, recruitment & retention, etc	Communications Plan, Opportunities workshops, internal communications etc
Students	Medium	Customer expectations, growing environmental awareness, recruitment of prospective students, buy-in of current students etc	Communications Plan, Opportunities workshops, internal and external communications, Students' Union, Freshers Fair, Student Switch-Off Campaign, Eco Power Rangers etc
Environmental Strategy Group	High	Coordinating role on environmental strategy	Termly report from a member of the Project Team to ESG
Energy Monitors	Low	Champions for energy efficiency/dissemination of project news	Involvement in opportunities workshops, direct communications, general communications plan
Local Authorities & Agencies	Medium	Collaboration on CMP, compliance issues etc	Link established with Bournemouth Borough Council who completed the LA CMP in 2009. Meetings, external communications, etc.
Contractors & Suppliers	Medium	Retaining contracts, added cost burden (if applicable), carbon footprint of supply chain	PQQs, Tenders, contract review meetings etc
Local media	Low	Corporate image	Press releases as appropriate
Neighbours/community	Low	Travel Plan, congestion, parking, corporate image etc	Press releases, local neighbourhood forums etc
HEFCE	High	Carbon Reduction Targets for the Sector, Strategic Plan for the Sector	EMS Statistics, CIF2, Carbon Management Plan and associated reporting requirements

A communications plan will be developed and updated annually to ensure that all key stakeholders are kept appraised of progress towards implementing the Carbon Management Plan.

General Principles of the Communications Plan:

- The University's Internal Communications Advisor will advise on the development of the Communications Plan on an annual basis
- The Communications Plan will be developed to align with the existing Energy Communications Plan, coordinated by the Environmental Officer
- The existing committee structure will be utilised as far as possible to disseminate information about the programme at all levels within the University
- The Communications Plan will reflect the feedback collecting during the Staff in 2008

7.6 Annual Progress Review

The Carbon Management Group (CMG) will undertake a formal annual review in August/September of each year.

The review will monitor progress against the implementation plan and identify costs and benefits that have resulted from the programme, including:

- Financial savings
- Carbon savings against target
- Contribution towards sector level carbon reduction targets
- Qualitative benefits including increased staff and student buy-in, influencing the local community etc

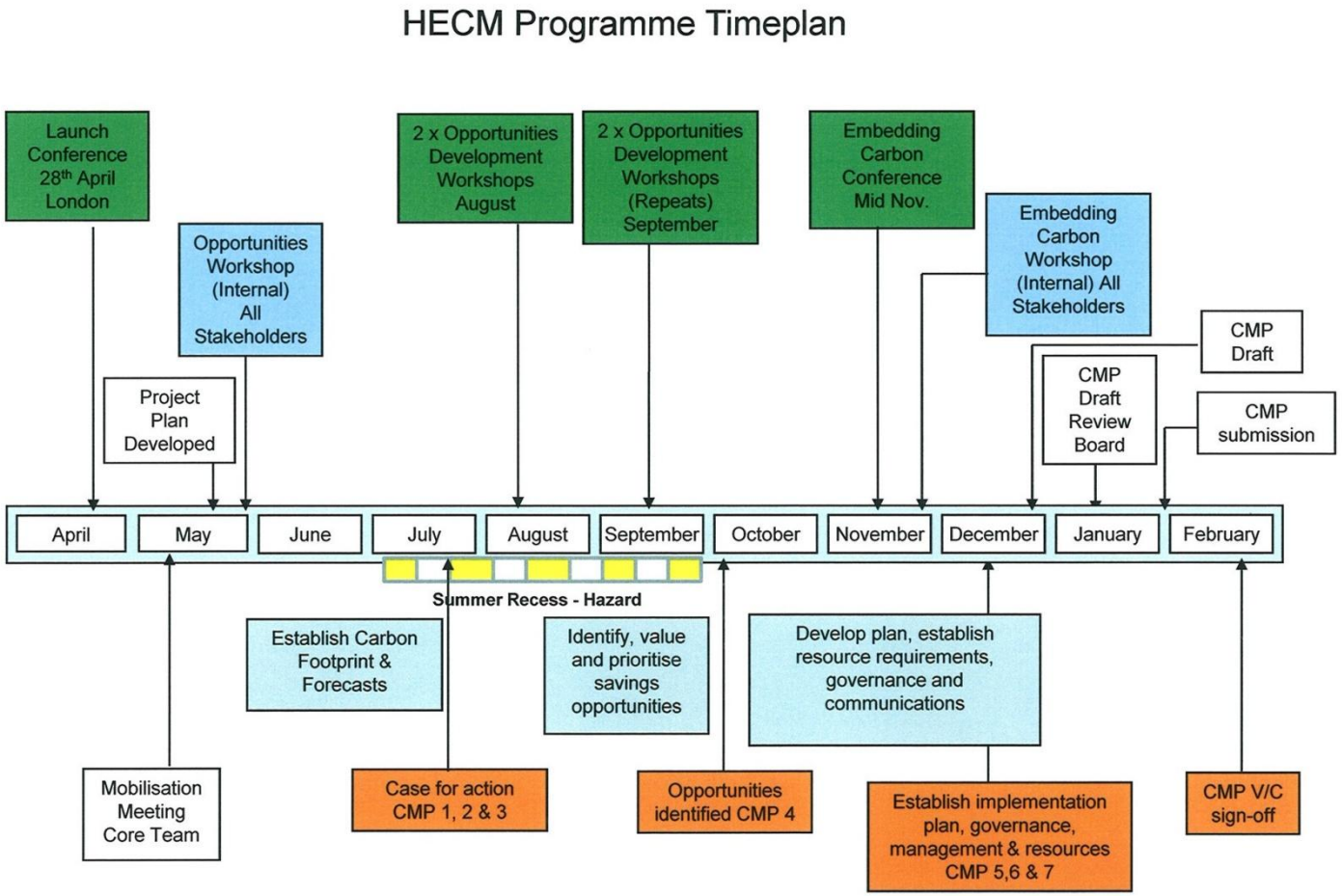
These reviews will necessarily include updates to the Carbon Management Plan as approved projects are executed and completed, and new opportunities are identified to achieve carbon reduction, to show how the overall reduction target is being achieved by BU.

CMG will report on progress to the Environmental Strategy Group (ESG), which in turn will report to Senior Management Team (SMT)

The University Strategic Plan 2009/10 – 2013/14 identifies reducing our carbon footprint and adverse impact on the environment as a key priority for action and includes a top level KPI to reduce carbon emissions (in line with targets identified in our Carbon Management Plan). Therefore, progress against the carbon reduction target will also be reviewed quarterly by the Board, in line with reporting requirements for the University Strategic Plan and KPIs.

The Carbon Trust will contact the University annually to request a programme update.

Appendix A – Project Timeline



Appendix B – Summary Analysis – Current Progress on Embedding Carbon Management at BU

										Point Score
1. Carbon policy, vision & strategy	1	2	**3**	4	5	6	7	8	9	**3**
2. Case for action & benefits	1	2	**3**	4	5	6	7	8	9	**3**
3. Stakeholder Management & Communications	1	2	3	**4**	5	6	7	8	9	**4**
4. Carbon Footprint Monitoring & Reporting	1	2	3	4	**5**	6	7	8	9	**5**
5. Roles & Responsibility	1	2	3	4	**5**	6	7	8	9	**5**
6. Student Engagement	1	2	**3**	4	5	6	7	8	9	**3**
7. Curriculum Development – Climate Change	1	2	3	4	**5**	6	7	8	9	**5**
8. Carbon Reduction Measures	1	2	**3**	4	5	6	7	8	9	**3**
9. Measure Your Success	1	2	3	4	**5**	6	7	8	9	**5**
10. Risks & Issues	1	2	3	4	**5**	6	7	8	9	**5**
									Total	**41**

Summary of Scores:

10-30	Carbon Management is embedded to a high degree in your University
31-60	Carbon Management embedded to a good level but more to be done
61-90	Urgent action needed to embed carbon management

Appendix C (i): Definition of Projects

Project: Reference:	***Building Management System (BMS) upgrade/replacement***
Owner (person)	***Dave Archer***
Department	***Bournemouth University Estates Group***
Description	*To upgrade and extend the University's ageing Building Management System with a new modern system that gives greater control of all heating, mechanical and electrical plant.*
Benefits	Financial savings: £143,474 per annum. Payback period: 3.5 years electric, 3.4 years gas. CO_2 Emissions reduction: 817.4 tonnes of CO_2
Funding	*Total project cost £500,000* *This project is to be funded by a Salix interest free loan.*
Resources	*This project will involve a number of people, including University staff and an external Building Management System specialist consultant.*
Ensuring Success	*The key to the success of this project is ensuring the correct design for the University's requirements is fulfilled allowing for the continuous expansion across all areas and sections of this project. If this project as not installed to the full requirements it will reduce our ability to control, adjust and reduce energy usage.*
Measuring Success	*The performance of these works will be measured using the University's automatic metering system.*
Timing	*Start date: 01/04/2010* *Completion date: 01/12/2010 at the latest.*
Notes	

Appendix C (ii): Definition of Projects

Project: Reference:	***Cooling and Heating replacement for 3rd & 4th floors Poole House.***
Owner (person)	***Dave Archer / Gerry Frith***
Department	***Bournemouth University Estates Group***
Description	*There are many individual cooling/heating systems across the 3rd and 4th floor areas in Poole House that operate independently and at 100% capacity. The proposed VRV heat recovery system allows all these to be integrated into one system and operate to meet the required demand. This is achieved by using inverter controlled motors that only operate at the required demand. The design of this system also allows central control of all the individual units so that they can be controlled using a BEMS.*
Benefits	*Financial savings: £13,691* *Payback period: 4.43 years* *CO_2 Emissions reduction: 94.86 tonnes of CO_2*
Funding	*Total Project Cost £60,588.90* *Energy Consumption Pre-Project Energy Consumption Post-Project* *kWh pa 477,962 / £ pa £22,579 kWh pa 301,038 / £ pa £10,038* *Funding is to be provided by Salix Revolving Green Fund.*
Resources	*This project has been designed by the manufacturer and will be installed by external contractors.*
Ensuring Success	*This type of project has been carried out previously in other buildings across the university campus. This method has proven to be energy efficient.* *2 located in Poole House 2nd floor (heat recovery)* *3 located in Weymouth House (cooling only)* *1 in Christchurch House (cooling only)* *2 in Royal London House (heat pump)* *2 in Poole House 1st floor (cooling only)* *Our new EBC building has 8 Heat recovery systems installed providing heating and cooling for the whole building.*
Measuring Success	*The performance of these works shall be measured using the University's automatic metering system.*
Timing	*Start date: 01/04/2010* *completion date: 01/06/2010* *The first part of savings will be within the summer period for cooling. The second part of savings shall be over the heating season for heating.*
Notes	*The greatest savings on this project is the ability to recover waste heat and reuse this in other areas.*