

West Lothian College Carbon Management Programme

Carbon Management Plan (CMP)



Date: 10 January 2011

Version number: 1

Owner: Steve Williams and Paula White

Approval route: Carbon Management Group/Senior Management Team

Approval status: Approved

Contents

Foreword from Mhairi Laughlin, Principal and Chief Executive	3
Foreword from the Carbon Trust	3
Management Summary	4
1 Introduction	5
1.1 The College	6
1.2 Estate Strategy.....	6
2 Carbon Management Strategy	7
2.1 Context and Drivers for Carbon Management	7
2.2 Our Low Carbon Vision	7
2.3 Corporate Themes	7
2.4 Targets and objectives	8
3 Emissions Baseline and Projections	9
3.1 Scope	9
3.2 Baseline	9
3.3 Projections and Value at Stake	10
3.4 Targets	11
4 Carbon Management Projects	12
4.1 Existing projects	12
4.2 Planned/Funded Projects.....	13
5 Implementation	14
5.1 Financing.....	14
5.1.1 Financial Costs and Sources of Funding	14
6 Governance for Implementation	15
6.1 Embedding Carbon Management.....	15
6.1.1 Data Management – Measuring the Difference, Measuring the Benefit	15
6.2 Resource Commitment	15
6.2.1 Implementing the Initiatives	15
6.2.2 Maintaining Quality Over Time	15
6.2.3 Programme Management of the CM Programme	15
6.2.4 The Programme Board (or other Governance Structure) – Strategic Ownership and Oversight	16
6.2.5 The Carbon Management Group– Delivering the Projects	16
6.3 Implementation Plan	16
Appendix A: Definition of Projects	17

Foreword from Mhairi Laughlin, Principal and Chief Executive

West Lothian College recognises the scale and the speed of climate change and acknowledges the many challenges and opportunities we will face in order to ensure we are a low carbon campus. I am therefore pleased to endorse this Plan which has been driven by the work of West Lothian College's Carbon Management Group.

By engaging in the Carbon Management Programme and with College-wide participation, we will reduce our overall carbon emissions ensuring the long term sustainability of West Lothian College.

Mhairi Laughlin

Foreword from the Carbon Trust

Cutting carbon emissions as part of the fight against climate change should be a key priority for local authorities - it's all about getting your own house in order and leading by example. The UK government has identified the public sector as key to delivering carbon reduction across the UK in line with its Kyoto commitments and the Public Sector Carbon Management Programme is designed in response to this. It assists organisations 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.

West Lothian College was selected in 2009, amidst strong competition, to take part in this ambitious Programme. West Lothian College partnered with the Carbon Trust on this Programme in order to realise vast carbon and cost savings. This Carbon Management Plan commits the organisation to a target of reducing CO₂ by 19% by 2014 and underpins potential financial savings to the organisation of around £270,362.

There are those that can and those that do. Public sector organisations can contribute significantly to reducing CO₂ emissions. The Carbon Trust is very proud to support West Lothian College in their ongoing implementation of carbon management.



Richard Rugg
Head of Public Sector, Carbon Trust

Management Summary

The Scottish Climate Change Scotland Act 2009 sets out some of the most ambitious targets of any country to reduce carbon emissions. Within this context West Lothian College has partnered with the Carbon Trust to produce a 'Carbon Management Plan' so that it plays its part in this important agenda.

West Lothian College has been aware of the carbon management issue for some time and, in anticipation of the above legislation, has taken active steps in addressing initiatives and projects that go some way to reducing our emissions.

The importance that the College places on sustainability is also recognised in the new Corporate Plan covering the period 2010-2013 which contains a Corporate Aim 'to be an excellent and sustainable business' and a Corporate Objective 'Environmental impact analysis of the whole College portfolio is effective, robust and informs targets to reduce carbon footprint and waste'.

This Plan details the financial and environmental benefits of implementation of the Carbon Management Programme compared with a "business as usual" approach which, in the current state of climate change, is not a supportable option

The College has formed a well-resourced cross-college team (including students) to take forward this Plan and will actively engage with all staff and student groups to maintain momentum, ensuring that our Plan is not only fully implemented but is also seen as a cornerstone of civic responsibility by all concerned.

The College's Carbon Management Group will oversee delivery of the 'Carbon Management Plan' and in delivering this Plan the College aims to reduce its CO₂ emissions by 19% over the next five years.

West Lothian College will reduce its CO ₂ emissions by 19% from 2008/9 baseline levels by 2013/14
--

1 Introduction

Climate Change Scotland Act 2009



"We have passed an historic, groundbreaking bill that sets an international example that we hope others will follow."

Rt Hon Alex Salmond MSP, First Minister of Scotland, June 25, 2009

"...The Act is a key commitment of the Scottish Government, and is the most far-reaching environmental legislation considered by the Parliament during the first ten years of devolution.

Reducing greenhouse gas emissions and transitioning to a low carbon economy will help create a more successful country, with opportunities for all of Scotland to flourish, through increasing sustainable economic growth..."

"...**Part 4** places climate change [duties on Scottish public bodies](#). This Part also contains powers to enable the Scottish Ministers, by order, to impose further duties on public bodies in relation to climate change..."

In today's society the above key drivers require us to make serious efforts to reduce our carbon footprint. Within this context the targets set by West Lothian College are being developed to ensure that the College plays its part within this important national agenda.



1.1 The College

West Lothian College, a broad-based Further Education establishment, relocated from Bathgate to a new build site in Livingston, West Lothian, in 2001.

The College has approximately 8,000 full and part-time students and 350 staff. The campus comprises of four teaching buildings, each broadly identified with a specific Learning Centre, and a fifth accommodating support services. Areas of learning and teaching on campus include our Skills Centre, Creative Centre, Wellbeing Centre and Access Centre which offer a wide range of courses. Community-based services are provided in partnership with a number of local education authority establishments.

The College buildings were constructed in 2001 as part of a Public Finance Initiative (PFI) agreement. Full ownership transferred to West Lothian College in April 2007 following a mutually- agreed termination of this PFI contract.

West Lothian College has, since emerging from its PFI phase, made strenuous efforts to maintain the appearance and fabric of the estate in the excellent condition inherited from HBG.

1.2 Estate Strategy

One of the key priorities identified in the Estates Strategy 2010-2020 is to promote environmental sustainability. Given that we now operate and manage our estate directly, and that we anticipate a significant reduction in direct Government funding, there is an opportunity to look at our energy consumption with a view to reducing both carbon emissions and operating costs.

Recent carbon-relevant activities include partial server consolidation and virtualisation, idle PC power-off in conjunction with the Environmental Association for Universities and College (EAUC), reconfiguration of the Building Management System (BMS), and movement sensors on all lights.

2 Carbon Management Strategy

2.1 Context and Drivers for Carbon Management

The effects of global warming have become increasingly apparent over the past 5 years. We all must contribute to a slowing down of the increase in carbon emissions and thus help stem the tide.

In preparation for the Climate Change (Scotland) Act 2009, the Scottish Government placed responsibility on Public bodies to address their current carbon footprint. As part of this legislation it became compulsory in January 2009 for all Public bodies to display their buildings Energy Performance Certificates. West Lothian College now displays these certificates however was concerned by the low ratings achieved, hence participation in the Carbon Lite Programme.

The importance of collective sector action on climate change was highlighted through the Universities & Colleges Climate Commitment for Scotland (UCCCfS), where Principals undertook to “Support the national Climate Change Programmes, reducing our greenhouse gas emissions and implementing adaptation measures for future climate change scenarios”

Additionally the funding provided by the Scottish Funding Council is to be significantly reduced over the next 3 years. This further adds to the impetus for addressing carbon reduction as the unit cost of energy continues to increase dramatically Government making the need to increase energy efficiency and reduce energy costs essential.

2.2 Our Low Carbon Vision

West Lothian College recognise the global importance of embedding carbon management within everything we do; staff, students and suppliers must be educated to recognize the carbon-producing effects of their activities so that working in a carbon-efficient manner becomes second nature.

West Lothian College is committed to sustainability and to reducing its carbon emissions by 19% over a period of five years.

2.3 Corporate Themes

Themes in support of our Carbon Management Plan will include

- Addressing the functional areas that contribute most to carbon emissions, i.e. Estates, ICT and workshops
- Collaborating with other Colleges to share good practice in relation to energy consumption
- Drawing on the expertise of consultants to assist in identifying opportunities for energy saving

- Embedding the focus on Carbon Management within the workings of College groups, e.g. Estates and ICT Forum, Curriculum development.

The Carbon Project Group makeup will be varied depending on knowledge required at any stage. Given the reduced funding from central government, all projects and initiatives will be bound by current budgetary resources. The College Marketing function will be used to communicate initiatives, projects and events in support of the targets and objectives defined below.

2.4 Targets and objectives

Signing up to the Carbon Lite Programme is only the starting point in the drive to reduce our carbon footprint. The College as a whole recognises the financial constraints it faces over the next few years. This together with rising energy costs make it imperative that we monitor and manage our energy use efficiently. Our aim is to identify a range of projects and initiatives, both short and long term and to embed Carbon Management in development of all College Operations. Projects will be published to all stakeholders to keep them informed and motivated in the drive to reduce our carbon emissions.

We are committed to establishing a Carbon Management Plan that will :

- Contribute to reduce our carbon emission by 19% from the baseline of 2008 to 2013-14
- Identify a range of projects and initiatives consistent with the Estates and IT Strategies
- Develop initiatives that require cross-college participation to achieve both energy and financial savings.

3 Emissions Baseline and Projections

3.1 Scope

The College consists of five separate buildings that all generate CO₂ emissions independently. These factors have been included in our emissions baseline along with the landfill waste generated by the College as a whole. West Lothian College at this point has not included any transport figures other than those claimed by staff for business travel. Excluded from the list was student travel since we have no means by which to quantify this source, though this may be addressed during the term of the Plan should a viable method of determination be found. We do supply students with bus tickets in an effort to encourage use of public transport.

3.2 Baseline

West Lothian College has collated information from August 2007 to July 2008 and is using this as the baseline starting point in monitoring our energy consumption.

All CO₂ emissions have been considered and included to determine the factors which contribute to our baseline.

Emission sources targetted in determining the baseline were:-

- Electrical Power
- Gas
- Clean and Waste Water
- Business Transport
- Landfill Waste

Graph 1

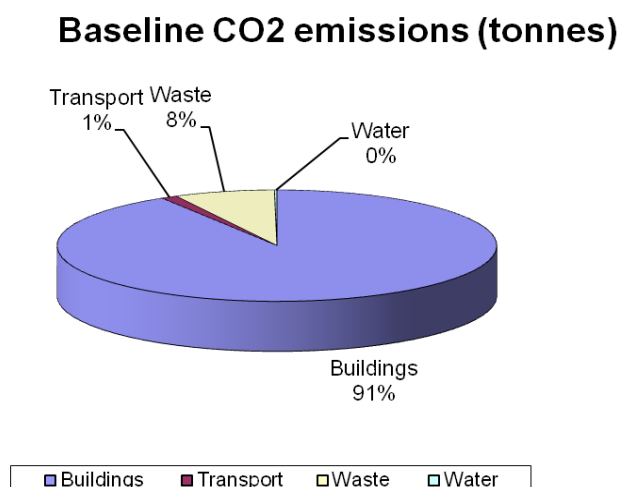


Table 1: Baseline Outputs for CMP Data for Baseline year 2008

	Total emissions	Buildings (Gas & Electricity)	Transport	Waste	Water
Baseline CO2 emissions	1,543	1,408	18	114	3
Baseline cost (£)	213,503	198,760	6,308	8,435	14,074

It is clear from this total that our buildings contribute to 91% of our total carbon footprint. It is therefore in this area where the priority has been identified in order to achieve a 19% reduction in CO2 emissions.

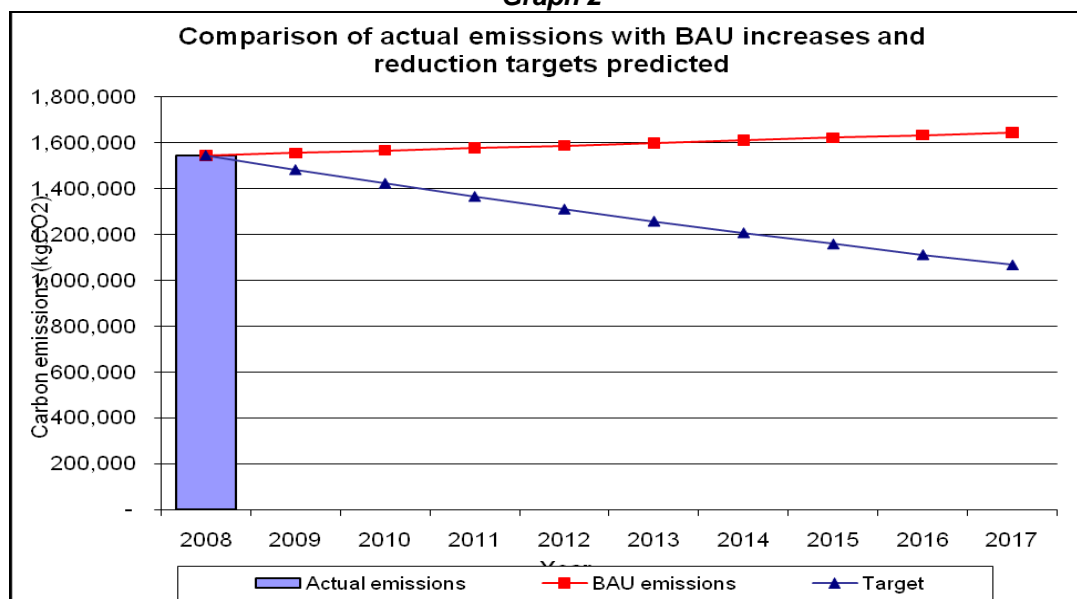
3.3 Projections and Value at Stake

West Lothian College Business as Usual (BAU¹) position has been derived using the following assumptions:-

- A 0.7% year-on-year increase in activity using carbon-generating resources
- An 8.4% annual increase in energy costs
- No mass switch to bio fuels

The Value at Stake concept describes the effects of doing nothing to reduce our carbon emissions in an environment where external factors generate a built-in increase. The graph below illustrates the increasing trend and the shortfall in savings from doing nothing. We therefore need to take action just to keep up with increasing emissions.

Graph 2



¹ BAU represents the College position if it did not take action to reduce its Carbon Emissions

3.4 Targets

This Plan sets a target of a 19% reduction in CO₂ emissions equivalent to a reduction of 287 tCO₂ by 2012-13 against the baseline year of 2007-08.

Table 2

Year	Predicted Business as Usual Emissions (tCO ₂)	Annual Target Emissions (tCO ₂)	Target annual % reduction
2008	1,543	1,543	0%
2009	1,554	1,481	5%
2010	1,565	1,421	9%
2011	1,576	1,364	13%
2012	1,587	1,309	18%
2013	1,598	1,256	21%

4 Carbon Management Projects

4.1 Existing projects

Embedding Carbon Management	Carbon Management Group: consider and implement projects and development within the College
Reducing Gas Usage	Abolishing nightshift working and implement building closures to reduce gas consumption
Reducing Water Usage	Shut down of one water tank per building reducing quantity of water used on site
Reducing Electricity Usage	Abolishing nightshift and implement building closures to reduce electricity consumption Lux light sensors fitted any many of the public areas
ICT – Information Technology	Implementation of computer shutdown overnight Server virtualisation – reducing air con need Thin Client deployment Photocopying – review/restrict usage Free cooling Server Room
General	Increase staff/student awareness by way of promoting good housekeeping measures; erect posters/info. on wasted energy
Waste	Introduce recycling measures

4.2 Planned/Funded Projects

All projects will be assessed and presented as candidates for Capital Funding in the normal round of bidding.

Table 3

Source: Report prepared by Tamburrini Energy Consultants and Suste IT Project Model

Ref	Project	Annual Saving			Pay back (Years)	% of Target	First Year Of Saving	Lead Contact
		Capital Cost	Financial	CO2				
1	Desktop Power Down	£2,500	£7,148	7.68 tCO2	0.3	2.68%	2010	SW
2	Computer units to hibernate mode	£1	£100	0.5 tCO2	0.0	0.17%	2011	SW
3	Reduce set points of gas fired water heaters	£1	£620	3.3 tCO2	0.0	1.15%	2010	PW
4	Install VSD to air handling units	£60,000	£22,900	117.4 tCO2	2.6	40.91%	2012	PW
5	Server Virtualisation	£10,000	£1,870	9.5 tCO2	5.3	3.31%	2010	SW
6-A	Thin Client desktop replacement - year 1 of a 4 year programme	£119,200	£0	0 tCO2	Does not payback	0.00%	2011	SW
6-B	Thin Client desktop replacement - year 2 of a 4 year programme	£52,200	£900	5 tCO2	Does not payback	1.74%	2012	SW
6-C	Thin Client desktop replacement - year 3 of a 4 year programme	£54,200	£1,750	9.3 tCO2	Does not payback	3.24%	2013	SW
6-D	Thin Client desktop replacement - year 4 of a 4 year programme	£56,200	£2,575	13.8 tCO2	Does not payback	4.81%	2014	SW
7	Set electric heaters in lift shaft to frost protection mode	£1	£8,420	42.8 tCO2	0.0	14.91%	2010	PW
8	Switch electric heaters off in switch room or to frost protection mode	£1	£11,230	57 tCO2	0.0	19.86%	2010	PW
9	Install boiler optimisation controls	£25,000	£6,520	33.7 tCO2	3.8	11.74%	2012	PW
10	Building Zones for BMS heating modifications	£40,000	£4,000	20 tCO2	10.0	6.97%	2010	PW
11	Introduce evening cleaning shifts to replace night time shifts	£1	£11,910	70 tCO2	0.0	24.39%	2010	PW
12	Install PIR sensors in relevant areas of the College	£51,000	£6,970	30 tCO2	7.3	10.45%	2010	PW

5 Implementation

In this section we concentrate on the benefits we will achieve by implementing a Carbon Management Plan across the College. These can be summarised as a significant improvement in the College's 'green performance' by reducing our carbon foot print and, with the saving we will make as a result of the many projects we have identified, funding that could potentially be used for further energy saving projects.

5.1 Financing

The majority of the projects have been identified from a report prepared for the College by the Carbon Trust.

Table 4

	2009	2010	2011	2012	2013
Total annual capital cost	£103,504	£119,200	£137,200	£54,200	£56,200
Annual cost saving		£52,168	£52,268	£82,588	£84,338
Annual CO2 saving		240.28	240.78	396.88	406.18
% of target achieved		84%	84%	138%	142%

5.1.1 Financial Costs and Sources of Funding

Table 5

Figures in £ 1000's	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Annual costs:						
Total annual capital cost		119,200	52,200	54,200	56,200	
Total annual revenue cost	103,500		85,000	0		
Total costs	103,500	119,200	137,200	54,200	56,200	
Committed funding:						
Committed annual capital	103,500	119,200				
Total funded	103,500	119,200				
Unallocated funding						
Unallocated annual capital			137,200	54,200	56,200	
Total unfunded			137,200	54,200	56,200	

6 Governance for Implementation

6.1 Embedding Carbon Management

West Lothian College selected relevant staff from cross sectors of the College to form the Carbon Management Group. The Group will consult and be supported by other staff members as projects require their expertise. The Group members will oversee the implementation of the Plan and ensure all aims and objectives are widely communicated throughout the College, with information being distributed on a regular basis.

The Group will make recommendations to the Senior Management Team with regards to sustainable initiatives in order to assist in reaching our target of a 19% reduction in carbon emissions over the next five years.

6.1.1 Data Management – Measuring the Difference, Measuring the Benefit

Progress against the Plan will be monitored on a quarterly basis by the Carbon Management Group and on an annual basis the College's marketing department will communicate this to College staff. The SMT will receive quarterly updates on progress against plan.

6.2 Resource Commitment

6.2.1 Implementing the Initiatives

The Carbon Management Group will be responsible for tracking the implementation of all projects highlighted in the report. They will also be actively promoting the activities of the Group to all College users and invite input from others to develop this Programme.

6.2.2 Maintaining Quality Over Time

There will be a need to maintain and revise the Plan in addition to devising new initiatives on a regular basis. The Plan will be reviewed by the Senior Management Team on a quarterly basis to help maintain momentum over the next five years.

6.2.3 Programme Management of the CM Programme

The Programme will be monitored by the Project Sponsor, who will call on the expertise from within the College to implement projects identified by the group as carbon savings.

6.2.4 The Programme Board (or other Governance Structure) – Strategic Ownership and Oversight

Ownership of the Plan lies with the Carbon Management Group.

6.2.5 The Carbon Management Group– Delivering the Projects

The West Lothian College Carbon Management Group consists of the following members of staff who are committed to leading the way in reducing our carbon footprint:-

Project Sponsor	Jennifer McLaren	Assistant Principal Finance and Resources
Project Leader	Steve Williams	ICT Manager
Project Leader	Paula White	Estates Manager
Project Team Member	Brian Wilson	Assistant Principal Business and Enterprise
Project Team Member	Graham Clark	Lecturer
Project Team Member	Gordon Weir	Lecturer
Project Team Member	Lee-Anne MacKay	Marketing & Sales Centre Head

The cross College representation assists with sector wide participation. The Group meet on a quarterly basis to discuss planned projects, assess report progress and general implementation of the Plan.

6.3 Implementation Plan

The Implementation of all projects are as previously listed in 4.2, unless unforeseen circumstances prevail we intend on implementing in the financial years indicated.

Appendix A: Definition of Projects

Carbon Management Plan – Projects – WL-001

Project reference	WL-001
Owner (person)	S Williams/B Smillie
Department	ICT Services
Description	Desktop Power Down
Benefits	Financial savings £7,148 per annum Cumulative savings over 5 years £35,740 Payback period 0.3 years Annual CO2 Emissions reduction: tonnes of CO2 7.68 Cumulative savings over 5 years 38.4 tonnes % of target – 2.68%
Funding	Project costs £2,500 Operational costs NIL Source of funding CMP Programme
Resources	Additional resource NIL
Ensuring success	Key success factors Ensuring that all PCs are targeted through correct network login. Educating users to log out before leaving at night.
Measuring success	Statistics on extent of power-down achieved multiplied by rating per device.
Timing	Started summer 2009 – upgrade to commercial package 2010
Notes	Savings in kWh and CO2 based on EAUC SustelT project model for computer equipment.

Carbon Management Plan – Projects – WL-002

Project reference	WL-002
Owner (person)	S Williams/ B Smillie
Department	ICT Services
Description	Computer units to hibernate mode
Benefits	Financial savings £100 per annum Cumulative savings over 5 years £500 Payback period Immediate Annual CO2 Emissions reduction: tonnes of CO2 0.5 Cumulative savings over 5 years 2.5 tonnes % of target – 0.17%
Funding	Project costs NIL Operational costs NIL Source of funding N/A
Resources	Additional resource NIL
Ensuring success	Key success factors Ensuring that all PCs are targeted through correct network login. Educating users to log out before leaving at night.
Measuring success	Statistics on extent of power-save achieved multiplied by rating per device.
Timing	Start summer 2010
Notes	Savings in kWh and CO2 based on EAUC SustelT project model for computer equipment.

Carbon Management Plan – Projects – EST – WL003

Project reference	EST – WL003
Owner (person)	Paula White
Department	Estates
Description	Reduce set points of gas fired water heaters
Benefits	Financial savings £620 Cumulative savings over 5 years £3,100 Payback period immediate Annual CO2 Emissions reduction: tonnes of CO2 3.3 Cumulative savings over 5 years 16.5 % of target – 1.15%
Funding	Project costs Nil Operational costs Maintenance time Source of funding 0
Resources	0
Ensuring success	Once done no need to adjust unless requested.
Measuring success	Reduction in CO2
Timing	Complete by March 2010
Notes	

Carbon Management Plan – Projects – EST – WL004

Project reference	EST – WL004	
Owner (person)	Paula White	
Department	Estates	
Description	Install VSD to Air handling units	
Benefits	Financial savings £22900 per annum Cumulative savings over 5 years £114500 Payback period 2.6 years Annual CO2 Emissions reduction: tonnes of CO2 117.4 Cumulative savings over 5 years 587 % of target – 40.91%	
Funding	Project costs Operational costs Source of funding	£60,000 Maintenance time Capital
Resources	Staff training on use of system	
Ensuring success	Continued training	
Measuring success	Reduction in CO2	
Timing	Complete by September 2011	
Notes		

Carbon Management Plan – Projects – WL-005

Project reference	WL-005	
Owner (person)	S Williams/ B Smillie	
Department	ICT Services	
Description	Server Virtualisation	
Benefits	Financial savings £1,870 Cumulative savings over 5 years £9,350 Payback period 5.3 years Annual CO2 Emissions reduction: tonnes of CO2 9.5 Cumulative savings over 5 years 47.5 % of target – 3.31%	
Funding	Project costs	£10,000
	Operational costs	NIL
	Source of funding	N/A
Resources	Additional resource	
Ensuring success	Key success factors Ensuring that all servers are virtualised as soon as is practical. Activating virtual server power-down feature during periods of inactivity.	
Measuring success	Some form of per-device metering. Statistics on extent of power-down achieved.	
Timing	Started Autumn 2009 – will be completed once Netware-Windows migration is achieved July 2010.	
Notes		

Carbon Management Plan – Projects – WL-006a

Project reference	WL-006a
Owner (person)	S Williams/ B Smillie
Department	ICT Services
Description	Thin Client Desktop replacement Year 1
Benefits	Financial savings Year 1 £ NIL Cumulative savings over 5 years NIL Payback period Annual CO2 Emissions reduction: tonnes of CO2 NIL Cumulative savings over 5 years NIL % of target – NIL
Funding	Project costs : £119,200 Operational costs : Staff time Source of funding : Capital funding/ Technology Refresh
Resources	Additional resource Staff training in management of Thin Client estate
Ensuring success	Key success factors Ensuring that appropriate desktop PCs are targeted. Informing user expectation of new devices.
Measuring success	Utilisation of deployed thin clients. End-user surveys.
Timing	Pilot commencing April 2011
Notes	

Carbon Management Plan – Projects – WL-006b

Project reference	WL-006b
Owner (person)	S Williams/ B Smillie
Department	ICT Services
Description	Thin Client Desktop replacement Year 2
Benefits	Financial savings Year 1 £900 Cumulative savings over 5 years £4,500 Payback period (Payback period outwith period of plan) Annual CO2 Emissions reduction: tonnes of CO2 5 Cumulative savings over 5 years 25 % of target – 1.74%
Funding	Project costs : £52,200 Operational costs : Staff time Source of funding : Capital funding/ Technology Refresh
Resources	Additional resource Staff training in management of Thin Client estate
Ensuring success	Key success factors Ensuring that appropriate desktop PCs are targeted. Informing user expectation of new devices.
Measuring success	Utilisation of deployed thin clients. End-user surveys.
Timing	Pilot commencing April 2011
Notes	

Carbon Management Plan – Projects – WL-006c

Project reference	WL-006c
Owner (person)	S Williams/ B Smillie
Department	ICT Services
Description	Thin Client Desktop replacement Year 3
Benefits	Financial savings Year 1 £1,750 Cumulative savings over 5 years £8,750 Payback period Payback period outwith period of plan) Annual CO2 Emissions reduction: tonnes of CO2 9.3 Cumulative savings over 5 years 46.5 % of target – 3.24%
Funding	Project costs : £54,200 Operational costs : Staff time Source of funding : Capital funding/ Technology Refresh
Resources	Additional resource Staff training in management of Thin Client estate
Ensuring success	Key success factors Ensuring that appropriate desktop PCs are targeted. Informing user expectation of new devices.
Measuring success	Utilisation of deployed thin clients. End-user surveys.
Timing	Pilot commencing April 2011
Notes	

Carbon Management Plan – Projects – WL-006d

Project reference	WL-006d
Owner (person)	S Williams/ B Smillie
Department	ICT Services
Description	Thin Client Desktop replacement Year 4
Benefits	Financial savings Year 1 £2,575 Cumulative savings over 5 years £12,875 Payback period Payback period outwith period of plan) Annual CO2 Emissions reduction: tonnes of CO2 13.8 Cumulative savings over 5 years 69 % of target – 4.81%
Funding	Project costs : £56,200 Operational costs : Staff time Source of funding : Capital funding/ Technology Refresh
Resources	Additional resource Staff training in management of Thin Client estate
Ensuring success	Key success factors Ensuring that appropriate desktop PCs are targeted. Informing user expectation of new devices.
Measuring success	Utilisation of deployed thin clients. End-user surveys.
Timing	Pilot commencing April 2011
Notes	

Carbon Management Plan – Projects – EST – WL007

Project reference	EST – WL007	
Owner (person)	Paula White	
Department	Estates	
Description	Set electric heaters in lift shaft to Frost Protection mode	
Benefits	Financial savings £8420 Cumulative savings over 5 years £42100 Payback period Immediate Annual CO2 Emissions reduction: tonnes of CO2 42.8 Cumulative savings over 5 years 214 % of target – 14.91%	
Funding	Project costs Operational costs Source of funding	No initial set up cost Maintenance time 0
Resources	Staff training	
Ensuring success	Monitor effect on equipment and outside temp, adjust if required.	
Measuring success	Reduction in CO2	
Timing	Complete by March 2010	
Notes		

Carbon Management Plan – Projects – EST – WL008

Project reference	EST – WL008	
Owner (person)	Paula White	
Department	Estates	
Description	Switch electric heaters off in switch room or to frost protection mode.	
Benefits	Financial savings £11,230 Cumulative savings over 5 years £56,150 Payback period immediate Annual CO2 Emissions reduction: tonnes of CO2 57 Cumulative savings over 5 years 285 % of target – 19.86%	
Funding	Project costs Operational costs Source of funding	No initial set up cost Maintenance time 0
Resources	Staff training	
Ensuring success	Should be no need to reset.	
Measuring success	Reduction in CO2	
Timing	Complete by March 2010	
Notes		

Carbon Management Plan – Projects – EST – WL009

Project reference	EST – WL009	
Owner (person)	Paula White	
Department	Estates	
Description	Install boiler optimisation controls	
Benefits	Financial savings £6,520 Cumulative savings over 5 years £32,600 Payback period 4.3 Annual CO2 Emissions reduction: tonnes of CO2 33.7 Cumulative savings over 5 years 168.5 % of target – 11.74%	
Funding	Project costs Operational costs Source of funding	25,000 Maintenance Time Capital
Resources	Staff training	
Ensuring success	Ensure staff and trained and retrained in operation of system	
Measuring success	Reduction in CO2	
Timing	Complete by September 2011	
Notes		

Carbon Management Plan – Projects – EST – WL010

Project reference	EST – WL010
Owner (person)	Paula White
Department	Estates
Description	Building Zones for BMS Heating modifications
Benefits	Financial savings £4,000 Cumulative savings over 5 years £20,000 Payback period 10 years Annual CO2 Emissions reduction: tonnes of CO2 20 Cumulative savings over 5 years 100 % of target – 6.97%
Funding	Project costs £10k/building Operational costs Staff time Source of funding Capital
Resources	Additional training for technicians to maximise use
Ensuring success	As above
Measuring success	Reduction in CO2
Timing	Complete by September 2010
Notes	

Carbon Management Plan – Projects – EST – WL011

Project reference	EST – WL011
Owner (person)	Paula White
Department	Estates
Description	Introduce evening cleaning shift to replace night shift clean.
Benefits	Financial savings £11,910 per annum Cumulative savings over 5 years £59,550 Payback period Immediate Annual CO2 Emissions reduction: tonnes of CO2 70 tonnes Cumulative savings over 5 years 350 tonnes % of target – 24.39%
Funding	Project costs Nil Operational costs Training Source of funding Nil
Resources	Staff training on H&S in relation to the public being in buildings when operating.
Ensuring success	Continued training
Measuring success	Reduction in CO2
Timing	Complete by September 2009
Notes	

Carbon Management Plan – Projects – EST – WL012

Project reference	EST – WL012	
Owner (person)	Paula White	
Department	Estates	
Description	Install PIR sensors in relevant areas of the College	
Benefits	Financial savings £6,970 Cumulative savings over 5 years £34,850 Payback period 10 years Annual CO2 Emissions reduction: tonnes of CO2 30 Cumulative savings over 5 years 150 % of target – 10.45%	
Funding	Project costs Operational costs Source of funding	£51,000 Maintenance time Capital
Resources	Staff training on use of system	
Ensuring success	Continued training	
Measuring success	Reduction in CO2	
Timing	Complete by September 2009	
Notes		