Moray College
Creating the University of the Highlands and Islands

Universities & Colleges Climate Commitment for Scotland (UCCCfS)

CLIMATE CHANGE ACTION PLAN

January 2011

Please ask if you, or someone known to you, would like this document in a different format.

TABLE OF CONTENTS

Introduction & Background

The main outcome of the Stern Review (the Economics of Climate Change October 2006) was that *"strong early action to mitigate against climate change considerably outweighs the cost of carrying on with business as usual (BaU) and then adapting to the new climate".* The review also concluded that organisations could easily reduce their $C0_2$ production by 35% over 10 years coupled with the net financial gains to the organisation.

In January 2009 on behalf of the College, the Principal signed an agreement through the Universities & College Climate Commitment for Scotland (UCCCfS) committing the College to assist both the Scottish and British governments in their shared targets of reducing carbon emissions by 80% in 2050, and an interim target of the Scottish Government of a reduction of 42% by 2020.

Climate change is one of the global challenges of our time, and as such, the College acknowledges its moral, legal and practical obligations to take effective action on climate change. This involves action to reduce the carbon footprint of our direct operations which amounted to approximately 1500 tonnes of carbon dioxide equivalent (CO_2e) in 2008-2009, the baseline year of the Plan.

There is now a widespread acceptance that the reduction of CO_2 and equivalent emissions represents the principal mechanism by which human beings can attempt to mitigate the anticipated worst effects of climate change. Despite recent challenges to the rigor of the science under-pinning climate predictions, the College recognises that it has a moral responsibility to contribute to the development of a low-carbon future.

Rising energy prices and the Carbon Reduction Commitment (CRC) make improving energy efficiency and reducing CO_2 emissions a financial necessity. Though not applicable to the College at this moment, the latter ie CRC, is a mandatory emissions trading scheme that obliges all major energy consumers to buy and trade carbon allowances (in the first instance at £12 per tonne of CO_2) with a financial bonus (or penalty) based on emissions performance. The bonus/penalty will escalate over time, from 10% of the cost of allowances to 50% by 2015.

In addition it is anticipated that energy bills alone will double in real terms by 2020. The difference between likely cost under the Business as Usual scenario (BaU, allowing a 0.7% increase as suggested by EAUC) and the actions of this CCAP for reducing $C0_2$ emissions, is the Carbon Value at Stake. (See graph on Page 11) In financial terms, with public spending, and the College revenue expected to be severely constrained for the foreseeable future, such increases in energy costs can only be met by making savings elsewhere in the College

The College also recognises that the Climate Change (Scotland) Act 2009 places duties on public bodies, including Universities and Colleges, to act in relation to climate change. These duties, which came into force on 1 January 2011, require that a public body, in exercising its functions, will act in ways that contribute to the delivery of these

national targets. As such, public sector bodies will be expected to take a lead in delivering them.

Alongside the legislative, moral and financial drivers that oblige the College to take action, it is recognised that a range of existing and emerging sector benchmarking schemes are using environmental and social responsibility performance as another means of ranking educational institutions and that this is likely to become one of the many factors affecting a student's choice of institution.

The key projects outlined in the Plan are to instigate low cost carbon reduction measures, which will lead to net financial gain for the College, and include:

- Investing in ICT improvements,
- Improving thermal insulation,
- Awareness raising to use energy more efficiently.

Executive Summary

In terms of estate and facilities management, sustainability is directly relevant to the strategic operation of the College buildings and estates. The key drivers for addressing this issue are:

- The Scottish Government's commitment to improving Scotland's natural and built environment;
- Energy issues, including increasing costs and reliability of supply;
- Recognising global warming as a real and genuine threat; and
- The UK Climate Change Bill, and the Climate Change (Scotland) Act

Using a sustainable approach to estate development and estate and facilities management can offer a real contribution to institutions in terms of optimising their assets and reducing risks, costs and impacts.

The College is committed to promoting environmental issues as an integral element of all its activities and to demonstrate its commitment to continual improvement and innovation in best environmental practices.

The College formed a Sustainability Group in 2008 which is tackling in addition to reduction in direct energy consumption, areas of waste reduction, re-use and recycling. The Estates Department is proactively introducing a range of energy saving measures and equipment and regularly reminds staff through awareness raising communications.

The College as a voluntary signatory to the UCCCfS has committed to this 5 year Climate Change Action Plan (CCAP) which will ensure important reduction in CO_2 emissions whilst making better economical use of limited financial resources. The Plan identifies a range of activities and investments that are already underway, or planned. The College will be able to plan projects effectively, and evaluate against a BaU scenario by calculating CO_2 reductions and with increased energy efficiency, measure the reduction in energy purchases thus making more effective use of public funds

In arriving at an achievable target $C0_2$ reduction figure, a number of variables have to be factored in namely;

- Due to the current uncertainty surrounding SFC funding, and particularly LTIF, it is deemed more appropriate to initially address low cost initiatives, eg improve insulation, which would optimise investment in a relatively short timescale.
- The uncertainty of the impact of the proposed Life Sciences building will have on the current measured building stock relative to its contribution to baseline calculations.

- The changes in climate currently being experienced, eg the College over the last two years has seen a marked increase in the consumption of energy due to more severe inclement weather patterns, and the consensus is that these may be becoming the norm, and not exceptions

Given the foregoing, and in addition the difficulty in being too specific regarding $C0_2$ savings, a reduction of at least 8% is deemed to be achievable measured from the baseline year of 2008/2009.

Baseline Carbon Footprint

The purpose of this section is to provide details of the College's current estimated CO_2 emissions derived from the carbon baseline calculation (footprint analysis/inventory), identifying major sources of emissions.

Table 1: Moray College Baseline Carbon Footprint

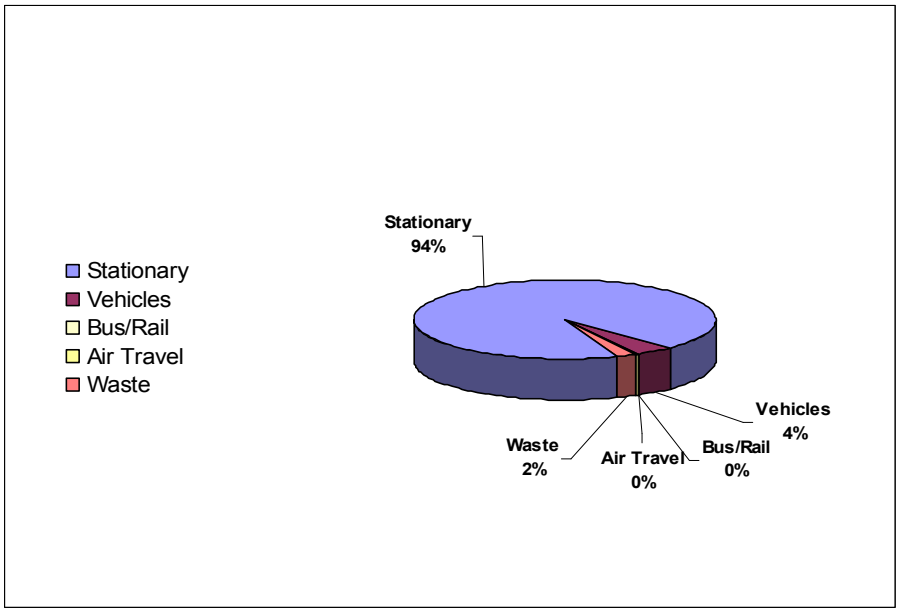
The information contained in the following table is derived from the period Aug 2008 – Jul 2009 and includes only Moray Colleges owned properties; Main Site, Victoria Art, Technology Centre & Forres LC. Leased properties have been excluded due to the difficulty in extracting the information from in some cases, shared occupancy billing.

		Units	Total Used	Emission Factor kg CO2-e/unit	Kg CO2e	Tonne CO2e	Cost (£)	% of CO_2 Total
Stationary								
Sources	Gas	kWh	1,041,591	0.184	191,653	192	37,465	13.05
	Fuel Oil	kWh	1,865,262	0.266	496,160	496	66,676	33.79
	Electricity	kWh	1,232,490	0.544	670,475	670	130,127	45.66
	Water	m3	7,828	1.700	13,308	13	5,841	0.91
Sub Total					1,371,595	1,372	240,109	93.40
Transport								
Owned Transport								
	Diesel	Ltr	5,292	2.669	14,125	14	5,930	0.96
Hired Transport								
	Diesel	Ltr	2,503	2.669	6,681	7	2,805	0.45
Grey Fleet								
	Diesel	Ltr	15,091	2.669	40,277	40	16,909	2.74
Vehicles					61,083	61	25,645	4.16
Bus		km		0.107	0	0	25	0.00
Rail		km	16,879	0.060	1,016	1		0.07
Bus/Rail					1,016	1	25	0.07
Air	Long Haul	km		0.141	0	0		0.00
	Short Haul	km		0.102	0	0		0.00
	Domestic	km	5,074	0.191	970	1		0.07
Air Travel					970	1	0	0.07
Waste						0		0.00
Landfill		Kg	72,467	0.466	33,784	34		2.30
Diverted		Kg	4,867			0		0.00
Sub Total					33,784	34	0	2.30
Total Emissions					1,468,448	1,468	265,778	100.00

It will be apparent from the previous table, and chart below that the main sources of carbon emissions are from the stationary sources (buildings) and total 94% of $C0_2$ contribution, subsequently it is within this area that the most significant savings can be made and where priority for action is the greatest.

Although emissions from waste and transport are comparatively small, it was decided to incorporate what data was available. It has to be acknowledged however, that due to difficulty in obtaining any factual baseline information, certain assumptions have had to be made in regards to waste production.

CARBON FOOTPRINT PERCENTAGES: 2008:2009



Moray College comprises building stock ranging from pre 1900's to 2002, the majority of which have had some form of thermal insulation upgrade, most noticeably prior to incorporation in 1990–1993 where various wings had improvements to roofs, either flat, or pitched. No action was taken at the time regarding single glazing or wall insulation. Since that juncture, The College has embarked on a window replacement programme which has benefited a number of wings, but no action on wall insulation. In 2006, advice was sought from the Carbon Trust, and many of the recommendations from this report have been actioned. A further report was commissioned in 2010 and has contributed largely to this Plan.

Since 2006 some of the actions carried out include:

- Installation of low energy lighting in various corridor and classroom areas,
- Installation of light sensors in various areas,
- Automatic shutdown of pc's in the evenings,
- Commencement of awareness raising,
- Fuel efficiency optimisers fitted to boilers,

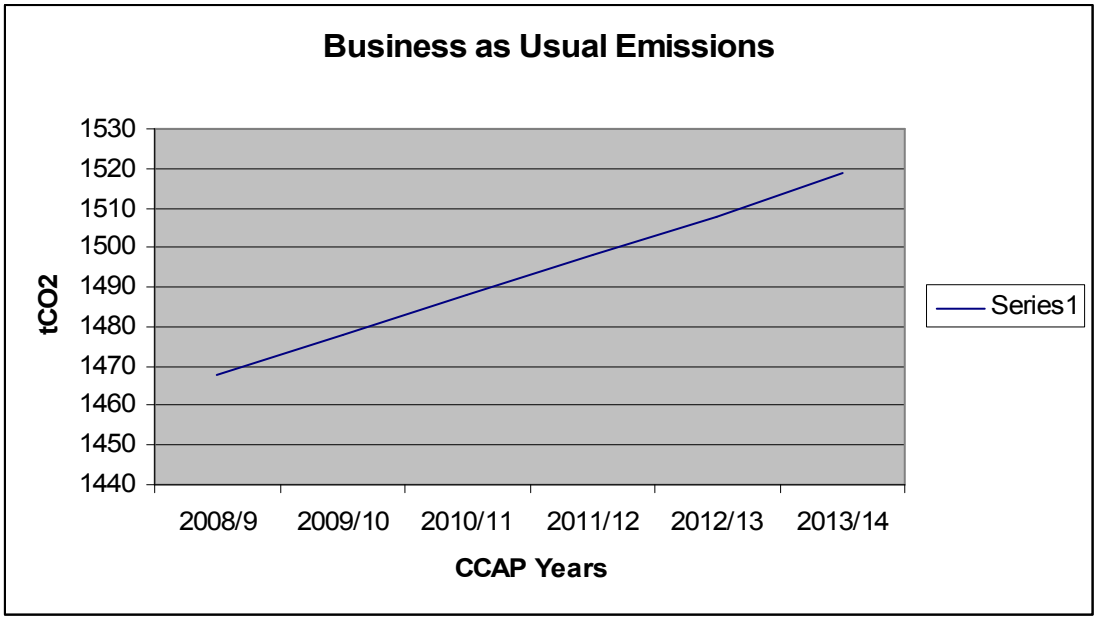
- Formation of a cross college sustainability group,
- Further developments in recycling,
- Removal of electric hand driers on the main site.

The success of the above projects are difficult to quantify individually, however for example, between 2006 and 2007, the College made a 15% saving in the consumption of electricity, through little more than awareness raising, and therefore has made significant inroads to energy reductions prior to the measurement of our baseline calculation of 2008/2009.

Business as Usual (BaU) Emissions

The purpose of this section is to provide details of the College's current emissions trajectory, i.e. to provide a narrative on what would happen if we opted for a "do nothing" scenario and continued on with BaU. The purpose of providing this information is to demonstrate the impact of doing nothing but also to emphasise the impact the College will make in tackling climate change through the CCAP, and the value at stake.

The graph below shows the year on year BaU, i.e. "do nothing" (ie 0.7% per annum increase).



The following provides a summary of projects as outlined in the Carbon Trust Report received November 2010.

Summary of Moray College CCAP Primary Projects

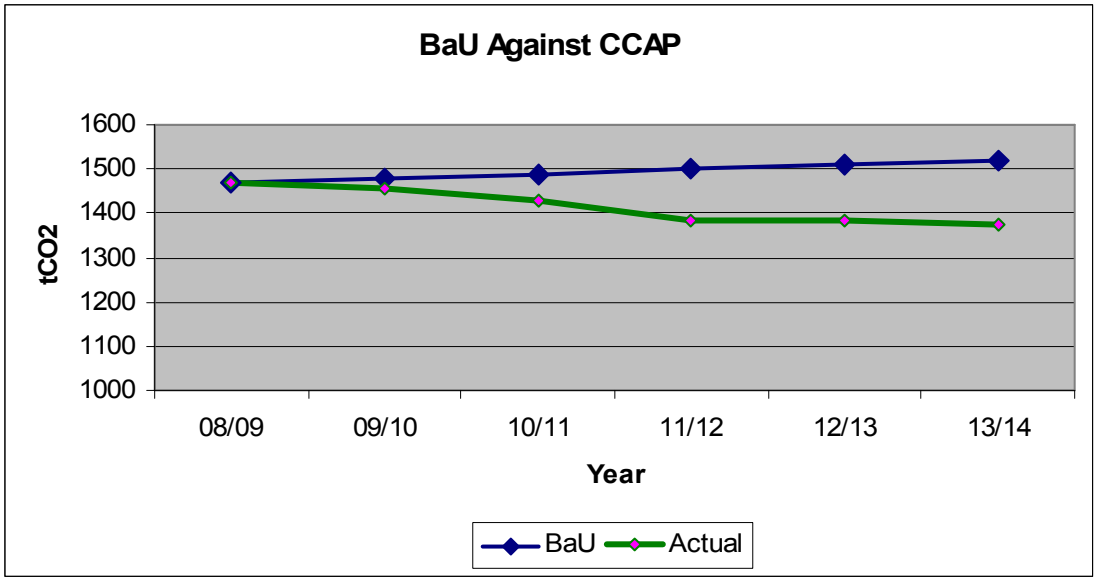
Priority	Recommendations	Estimated annual savings			Estimated cost (£)	Payback period (years)	Timescale for implementation
		(£)	CO_2 (tonnes)	(kWh)			
1	Reduce the Electricity Baseload	£1,240	5.4	10,000	nil	immediate	0 – 3 months
2	Naturally Ventilate the Small Communications Room and Increase Room Temperature Setpoints in Server Rooms	£1,170	5.1	9,390	nil	immediate	0 – 3 months
3	Remove Portable Electric Heaters	£560	2.4	4,500	nil	immediate	0 – 3 months
4	Desktop Printer Rationalisation	£380	1.7	3,100	nil	immediate	3 – 6 months
5	Replace Dichroic Lamps by Compact Fluorescent Dichroic Lamps	£400	1.0	3,190	£500	0.9	0 – 3 months
6	Install Cavity Wall Insulation	£7,240	45.2	172,500	£17,000	1.9	6 – 12 months
8	Consolidate Servers by Virtualisation	£1,350	5.9	10,830	£140,000	3.7	0 – 3 months
9	Insulate Loft Space in Birnie 1930s Building and Pluscarden Wing South	£530	3.6	19,730	£5,000	6.3	6 – 12 months
10	Insulate the Academy Block Loft Space	£250	1.7	9,420	£4,000	10.2**	6 – 12 months
11	Insulate the Grange Wing Loft Space	£230	1.6	8,470	£4,000	10.2**	6 – 12 months
12	Install New High Frequency Luminaires with Modulating Daylight Control, Presence Detection and T5 Lamps	£4,090	17.9	32,850	£55,000	11.0**	12 – 18 months
14	Insulate the Culbin Wing Loft Space	£120	0.8	4,500	£3,000	15.0**	12 – 18 months
TOTAL		**£17,560.00**	**92.3**	**288,480**	**£228,500.00 Inc VAT**		

This CCAP sets a target of a minimum of 8% reduction in manageable CO_2 emissions against a baseline year of 2008/2009 which is an equivalent reduction of 92.3 tCO_2 by 2014/2015.

Summary of Moray College CCAP Investment & Target Reduction

Timescale	Project Priority	Investment £	Annual Target Reduction
			tCO_2
Year 1	1,2,4,5,8	140,500	19.1
Year 2	14	3,000	17.9
Year 3	6,3	17,000	47.6
Year 4	9,10,11	13,000	6.9
Year 5	12	55,000	0.8
Total		**228,500**	**92.3**

The graph below shows the BAU set against CCAP targets.



Methodology

Our agreed methodology and project selection criterion has been influenced by a number of key factors, including:

- The priorities of the College's Strategic Plan and Estates Strategy i.e. short, medium and long-term business objectives;
- The need to ensure legislative compliance;
- Projects that will deliver us "quick wins" in terms of carbon reduction and cash payback periods in the early years;
- Flexibility of projects as a step towards future emissions-reduction measures;
- Return on investment or financial impact;
- Potential to create positive and/or negative social and environmental side effects;
- Relationship to other potential measures and opportunities for synergistic measures;
- Potential to be scaled upward if successful;
- Potential to involve students and staff.

The CCAP is structured to enable delivery in annual phases i.e. realising annual targets where possible but accepting that some longer-term projects may only see 'a return / profit' at the end of the initial 5-year period, or longer.

To facilitate future investment, mechanisms will be established to reinvest savings in the secondary and tertiary projects that may have higher upfront costs.

The College will reduce the emissions from activities by a minimum of 8% from our 2008/2009 baseline by January 2015.

In addition to the CCAP outlined projects there are projects that are already underway or recently completed that have or will deliver significant carbon savings since the baseline year i.e:

- Installation of energy efficient lighting technologies to various areas of the College
- Insulation of LPHW and HWS valves in plant rooms,
- Reduction of waste going to landfill,

- Installation of draught proofing to doors and windows,

- Reduce reliance on air conditioning plant

The College is also addressing climate change through the provision of skills training, and the embedding of environmental issues into various curricular areas
This 5-year Climate Change Action Plan has been produced to support the delivery of our Climate Commitment, signed on 10/01/09. We recognise that this will require the allocation of time and resources but will ultimately become part of our strategic planning process.

The lead practitioner with overall responsibility for delivery of the CCAP for Moray College is the Head of Estates.

Communications Strategy

The following elements will be incorporated into the CCAP communication strategy:

- The CCAP will be published on both the College web site, and the Intranet,

- The key outcomes of annual progress will be reported to the College Board of Management,

- Reference to the CCAP will be incorporated into both staff and student induction,

- The College Guide and Diary will make reference to the CCAP,

- The College plasma screens will convey key environmental messages,

- Sustainability focus day events will be organised aimed at both students and staff,

- Implementation of the CCAP will be informed to the local press.

Monitoring & Tracking

Progress in relation to this CCAP will be monitored continually. An annual report on progress will be submitted to the College Board of Management each September.

Moray College
Creating the University of the Highlands and Islands

Appendix 1: Individual Project Summary

Year	Project Title/Type and Category Reference	Expenditure	Annual Savings		Lifetime Savings		Payback (yrs)	
			tCO_2	£	tCO_2	£	CO_2	£
1	E.g.Update Lighting	xxx.00	x	xxx.00	xxx	xxx.00	x	x

Project Reference	MOR
Owner (person)	
Department	
Description	
Benefits	
Funding	
Resources	
Ensuring Success	
Measuring Success	
Timing	
Notes	