

UNIVERSITY OF BEDFORDSHIRE

ENVIRONMENTAL SUSTAINABILITY AND CARBON REDUCTION

BACKGROUND

Climate change is one of the greatest challenges facing society today. Evidence shows that the earth is warming and that human activity is making a significant contribution to this. Carbon reduction is a key facet of environmental sustainability.

The government's response to climate change and global warming was to commission the Stern Review on the Economics of Climate Change in 2006, which investigated the effects of global warming on the world economy. The report highlighted that if immediate action was not instigated then climate change would have a devastating effect on the future economic wellbeing on the UK.

The resulting Climate Change Act 2008 empowers the Secretary of State to ensure that the net UK emissions for all six Kyoto greenhouse gases for the year 2050 is at least 80% lower and at least 34% lower by 2020 against a 1990 baseline (or equivalent to an 84% and 48% reduction respectively against the 2005 baseline). The higher education sector is expected to contribute to meeting these targets.

From April 2010, organisations that consume large amounts of energy and therefore contribute more to CO₂ emissions are required to participate in the Carbon Reduction Commitment Energy Efficiency Scheme (CRCEES) or face financial penalties.

The higher education sector is uniquely placed to lead the way as it influences many thousands of minds through its students and graduates; undertakes world leading research which provides solutions to key challenges; controls a very large estate; and procures billions of pounds worth of goods and services.

HIGHER EDUCATION SECTOR RESPONSE

A Policy on Carbon Reduction

During 2009, HEFCE undertook consultation within the higher education sector on possible carbon reduction targets.

The outcome of the consultation was released in January 2010 when it announced that the overall higher education sector would follow the UK target of 34% by 2020 and 80% by 2050 against a 1990 baseline.

HEFCE also announced that this target should be measured using milestone targets. HEFCE have recognised the affect of growth on emissions targets and have therefore set the milestone targets thus; a 1% increase by 2012 & an 18% decrease by 2017 against a 1990 baseline.

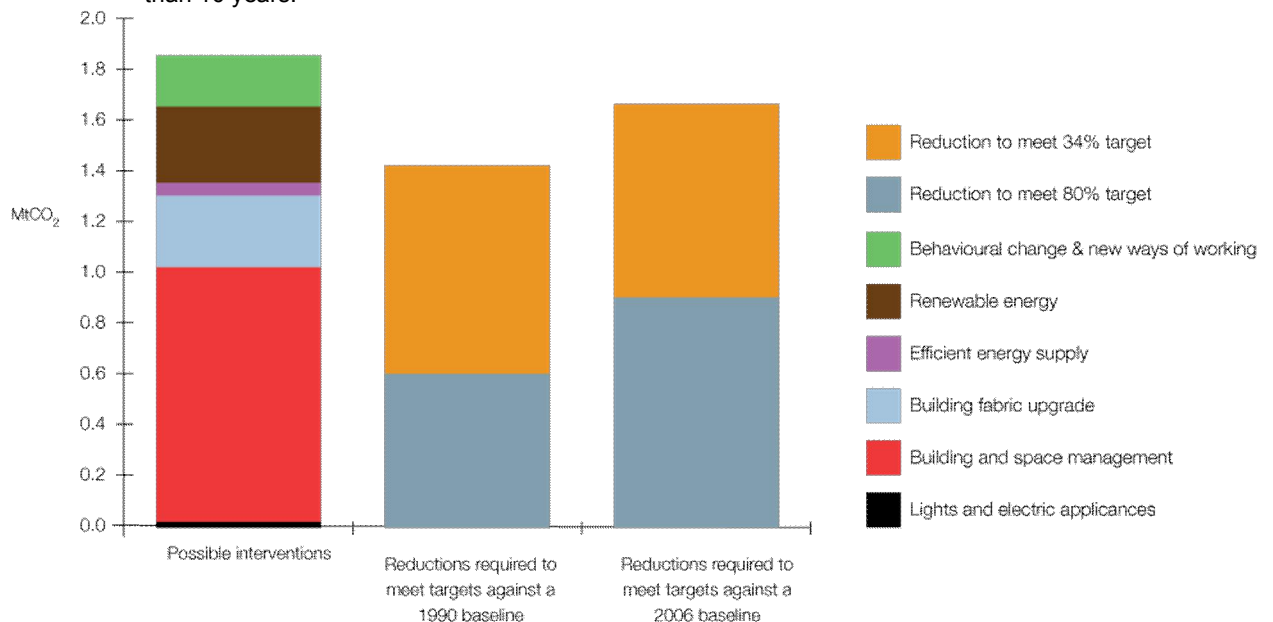
The full Statement of Policy 'Carbon reduction target and strategy for higher education in England' is available for full viewing at: http://www.hefce.ac.uk/pubs/hefce/2010/10_01/

The original consultation document is also available for full viewing at: http://www.hefce.ac.uk/pubs/hefce/2009/09_27/

These papers suggest that there are six viable interventions that institutions can progress to make the most impact on reducing carbon emissions. These are described in a more detail

below and graphically illustrated in a table extracted from the consultation papers showing the opportunities available to help the sector meet the targets set.

- Behavioural change and new ways of working**
 Providing more information, education, instruction & signage for staff and students. Conducting more bespoke training in procedures designed to mitigate against impacts on the environment. Re-engineering and re-organisation of faculties and departments in how they use resources.
- Renewable energy**
 Either purchase energy solely from renewable energy suppliers i.e. wind and hydro-electric power or from a mix that includes energy from power station and various forms of renewable energy supply.
- Efficient energy supply**
 Using the energy supplied to the buildings in a more efficient manner for example by installing a Combined Heat & Power plant that provides heat in winter as a by-product of generating electricity from gas which is cheaper & cleaner than coal or oil.
- Building fabric upgrades**
 Improved insulation and draught proofing to stop heat being lost in winter and conversely heat penetrating into the building in summer, reflective solar film coatings applied to windows to reflect solar radiation in summer and to reflect heat energy back into the building in winter
- Building and space management**
 Space is valued at a premium and should be used wisely as every m² of building space on campus has a financial and carbon emission cost assigned to it associated with heating, lighting and cooling. Space needs to be utilised to its maximum in order to gain the most use out of the limited resources available and in order to allow growth without significant capital investment in new buildings.
- Lights and electrical appliances**
 Replace inefficient lighting & electrical appliances for modern light fittings & electrical appliances that are on average consume 50% less energy than appliances that are older than 10 years.



Impact on Funding

In the Capital Investment Framework (CIF) consultation in early 2010 (HEFCE Paper 2009/48) it was identified that future capital funding through CIF2 would be testing:

- A) Reducing Carbon Emissions, and
- B) Improving Space Usage

The further process in the consultation is expected anytime but may have been delayed by the change of Government. It can also be expected that a similar impact on revenue grant funding will probably follow sometime in the near future.

Carbon Management Strategies and Plans

In January 2010 HEFCE issued a Good Practice Guide "Carbon Management Strategies and Plans". This gives guidance to all HEI's producing and supporting a carbon management plan (CMP) with absolute carbon reduction targets signed off by the governing body. In April 2008 the university adopted a carbon management plan which is currently under review to realign it to accommodate the requirements of this paper. This document sets out key points that should be included in any CMP and these can be summarised as:

- A carbon management policy or strategy, which could be part of a wider environmental sustainability policy.
- Carbon reduction targets that are set against a carbon baseline of 2005 and that covers scope 1 and 2 emissions.
- Carbon reduction targets set to 2020
- Carbon reduction targets must be absolute and not relative.
- Targets to be publicly available
- Clear responsibilities are laid down for carbon management
- Annual report of progress towards targets also reported publicly
- Carbon management plan & carbon reduction targets are signed off by the Governing Body
- Institutions must submit their carbon management plans to HEFCE by autumn 2010

The full Good Practice 'Carbon management strategies and plans' is available for full viewing at: http://www.hefce.ac.uk/pubs/hefce/2010/10_02/

ACTION BY THE UNIVERSITY

Current and on-going initiatives

The University has already undertaken a number of initiatives to improve our sustainability and deliver carbon emission reductions year on year. These include:

- Publication of an Environment Policy Statement (see appendix A)
- Adopting a Carbon Trust Higher Education Carbon Management Plan (HECMP) in April 2008, reviewed every 3 years
- Producing and issuing an annual carbon emissions progress report
- Development and implementation of an Environmental Management System, aligned with ISO 14001 clauses (see appendix B)
- Environment awareness added to new staff induction process
- Providing a dedicated environment sustainability 'revolving' budget of £500,000 mostly supported by a loan from HEFCE/Salix

- Projects already completed or to be completed by July 2010
 - Installation of smart electricity meters & automated gas meters
 - Thermostatic radiator valves and other controls across entire Luton campus
 - Six variable speed driven hot water pumps fitted at Park Square & Putteridge Bury
 - Lower energy lighting with daylight/occupancy sensors
 - Remote monitoring and closedown of desktop PC's

Targets for the Future

The principle targets for carbon emissions have been laid down in statute under the Climate Change Act 2008, and further work has been carried out by HEFCE and its appointed consultants to establish baselines and targets, but without complete success especially with regard to a 1990 baseline. There has been recognition that the growth in the sector since 1990 will have had some effect and therefore suggest using a 2005 baseline.

The records since 2005 are available more readily but do require some adjustments required to accommodate the merger of the Luton and Bedford campuses. Nevertheless these do show that we have generally been increasing our emissions by approximately 500 tonnes of CO₂ per annum. The figures are:

	Annual tonnes of CO ₂	Comments
2005	5158 (interpolated 7370)	Bedford Merger
2006	7161	Loss of Lansdowne Road
2007	7658	
2008	8193	
2009	8600 (<i>anticipated</i>)	<i>Investments not yet fully impacting</i>

To comply with the requirements of the Climate Change Act we will need to reduce our emissions by 48% by 2020 against a 2005 baseline and based on plausible milestones as outlined in the Statement of Policy we need to target 20% by 2012, again based on the 2005 baseline. Given our current emissions performance, this represents approximately 5900 tonnes by 2012 from today's position or a significant 31% reduction. By continuing on this trend we will achieve the 48% required reduction by 2020 and ultimately 84% by 2050. This can be seen illustrated in the graph at Appendix C.

Although these figures may still have some slight adjustments, they do represent the extent of the challenges that lay ahead.

Initially it is proposed that the University should therefore set an emissions target of 5,900 tonnes of CO₂ by 2012 and further reports will be presented to adjust this and any future targets up to 2050 as more information becomes available.

Future Objectives

Whilst much of the current activity is focussed on carbon reduction measures, other factors affect our environment and therefore we also propose to:

- Improve our position in any “green tables” e.g. Universities that count, People and Planets green league
- Ensure all existing staff are training in “Basic Environment Awareness”
- Increase student awareness of local & global environment issues through various media and the curriculum
- Reduce water consumption through instillation of more efficient equipment and by locating and fixing leaks as soon as they occur.
- Reduce quantities of general waste being sent to landfill by increasing the recycling rates of food, plastics, metals, cardboard and paper.
- Reduce staff & student travel for example by championing distance e-learning, video conferencing and providing improved cycling facilities.
- Comply with requirements of the Carbon Reduction Commitment & other energy specific legal requirements
- Review procurement of energy from sources not dependent upon fossil fuels
- Ensure all building or energy consuming projects or purchases are designed or procured to achieve the highest possible rating in schemes such as BREEAM, Building Energy Performance Certification, Energy Star Compliance, and others

Proposed Carbon Management Structure

To deliver these objectives, the University needs to ensure that the management structure and resources are properly aligned. It is therefore proposed that:

- Environment sustainability matters are reported to and agreed upon at the Vice Chancellors Management Group and Corporate Management Team meetings every three months.
- The responsibility for monitoring progress is vested with the Resources and Employment Committee and reported twice annually
- DVC (Resources) is appointed as key responsibility for Environment Sustainability
- Energy & Environment Manager and Space Utilisation Officers are appointed and fully supported
- University of Bedfordshire Energy Action Team is continued focusing on university wide carbon reduction initiatives
- Departmental and faculty Environment Champions and Space Champions focusing on energy efficiency, carbon reduction and space utilisation are nominated by department to help achieve local priorities.

The policy has been agreed by the Vice Chancellors Management Group on 14 June 2010.

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