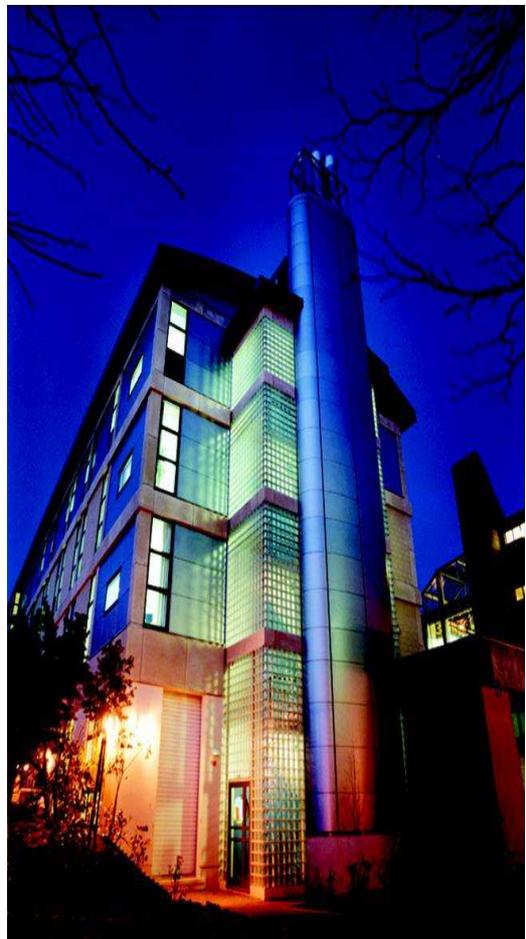


# University of Bath Carbon Management Programme

## Carbon Management Plan (CMP)



**Date:** *March 2011*

**Version number:** *Final*  
*Approved by Council, 3 March 2011*

## Vice-Chancellor's introduction to Carbon Management Plan



Our Mission is to deliver world class research and teaching, educating our graduates to become future leaders and innovators, and benefiting the wider population through our research, enterprise and influence. Our research ethos has a strong focus on impact, tackling challenges of global significance, including sustainability. However, we see sustainability as a local challenge to be addressed practically as well as a global one to be addressed theoretically.

Our Corporate Plan 2009/10 - 2013/14, commits us to the “ongoing development and enhancement of our physical infrastructure and specialist facilities to increase capacity, **sustainability** and quality”. Our overarching Environmental Policy demonstrates how we intend to increase sustainability by promoting effective environmental management. We are seeking to improve our environmental performance in a number of areas:

- Energy
- Water
- Transport
- Waste reduction and recycling
- Procurement
- Landscape management
- Biodiversity

Our new Carbon Management Plan outlines the types of projects that we will be implementing over the coming years in order to make significant reductions in our carbon emissions. Its implementation will make a major contribution to the goals we have set ourselves in a number of the aspects of environmental performance outlined above.

I would like to thank the Carbon Trust for its invaluable contribution to the development of this Plan. We have had a longstanding relationship with them, being the first University to take part in the Carbon Trust Higher Education Carbon Management Scheme in 2003. We were in the vanguard of the Higher Education sector's engagement with the carbon reduction agenda and it is our ambition to be recognised as an exemplar of best practice in the future.

I am pleased to give my full support to this Plan.

A handwritten signature in black ink, which reads "Glynis M. Breakwell". The signature is written in a cursive, flowing style.

**Professor Glynis Breakwell**  
Vice-Chancellor

## Foreword from the Carbon Trust

Cutting carbon emissions as part of the fight against climate change should be a key priority for Universities and Colleges - it's all about getting your own house in order and leading by example. The UK government has identified the Higher Education sector as key to delivering carbon reduction across the UK in line with the Climate Change Act targets, and the HE Carbon Management programme is designed in response to this. It assists Higher Education institutions in saving money on energy and putting it to better use elsewhere, whilst making a positive contribution to the environment by lowering carbon emissions.

The University of Bath partnered with the Carbon Trust on this ambitious programme in 2010 in order to realise substantial carbon and cost savings. This Carbon Management Plan commits the University to a target of reducing CO<sub>2</sub> by 19% by 2014 and underpins potential financial savings to the institution of around £3.9 million by that date.

There are those that can and those that do. Universities can contribute significantly to reducing CO<sub>2</sub> emissions. The Carbon Trust is very proud to support the University of Bath in their ongoing implementation of carbon management.



**Richard Rugg**  
Head of Public Sector, Carbon

## Management Summary

### Background

A great deal of work on Carbon Management and energy-saving has taken place in the University over recent years. We were the very first University to take part in the Carbon Trust Higher Education Carbon Management Scheme in 2003, we recently achieved a target to reduce our carbon emissions by 12.5% per m<sup>2</sup> building floor area, and we have already achieved £0.5m of annual savings from our electricity consumption compared to 4 years ago.

An ever-evolving situation, however, has led to a new approach being required. The issue of climate change and an organisation's responsibility to reduce carbon emissions is seen as more pressing than ever. The expectations of our students, staff and external stakeholders for our organisation to be incorporating sustainability in its key aims are increasing. The Climate Change Act (2008) has set targets for the UK, and these are being implemented in the HE sector via challenging targets set by HEFCE. The financial and legal context has also changed with an even stronger imperative to save energy and carbon. There was also seen to be a need to revisit the previous Carbon Trust process which was then in its infancy, and to build on its work; this document is the key output from that process.

### Our carbon footprint

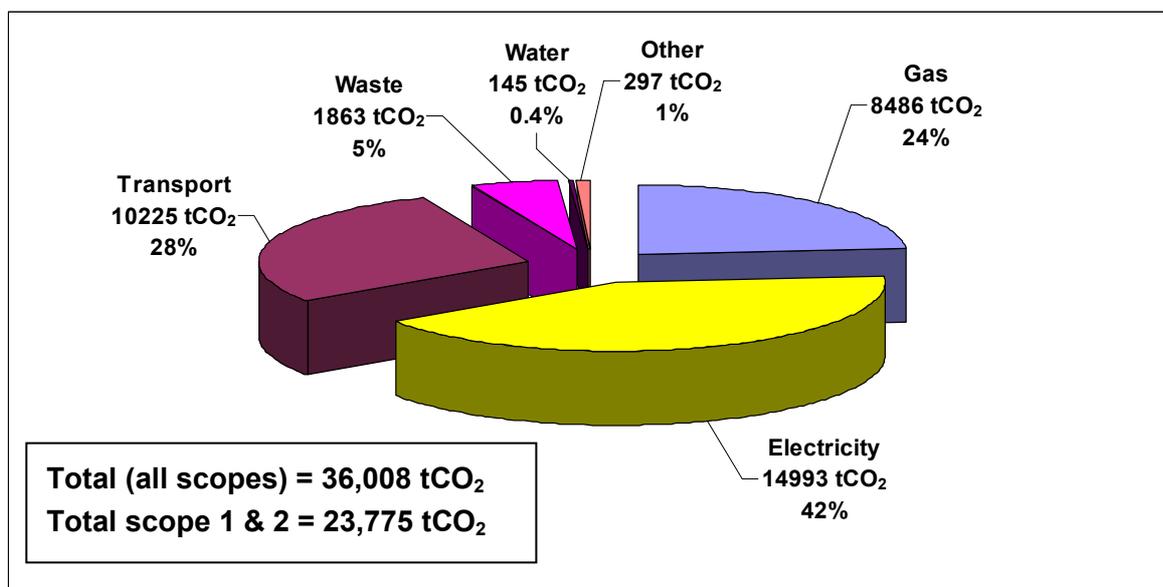


Figure 1 – University emissions by source in 2008/9

### Note

The following is the internationally recognised method of classifying emissions categories as defined by the World Business Council for Sustainable Development (WBCSD):

- **Scope 1 emissions** - from sources that are owned or controlled by the institution, such as heating plant and vehicles.
- **Scope 2 emissions** - from the generation of purchased electricity consumed by the institution.
- **Scope 3 emissions** - all other indirect emissions that are a consequence of the activities of the organisation and include commuting by staff/students, international travel, water use, waste production, and the purchase of goods and services.

## Our target

We have set an aspirational target in line with national targets and the resultant HE sector target as set by HEFCE.

**The University of Bath will aim to reduce the Scope 1 and 2 CO<sub>2</sub> emissions from its activities by 43% by 2020 from a 2005 baseline. We have already achieved a 9% reduction, despite growth in the campus.**

We have modelled a future trajectory towards the 2020 target and have set an interim 5 year target, using a more recent year as a baseline (2008/09).

**Our intermediate target is to reduce emissions by 19% by 2014/15 against a 2008/9 baseline – this document sets out an action plan to reach this target**

The milestone equates to a reduction of 4,600 tCO<sub>2</sub> on a baseline of 23,775 tCO<sub>2</sub>. We have included in the modelling any known or likely increases in emissions due to new buildings and other factors – this growth is likely to be around 7% by 2015, clearly making any absolute reductions in emissions even more challenging – a saving of 25% (6,300 tCO<sub>2</sub>) will actually be necessary.

In line with guidance, given the difficulties in accurately measuring and monitoring some Scope 3 emissions we have initially set a Scope 1 and 2 target only. The means to measure these emissions are being improved and it is intended that a Scope 3 target and a more detailed plan to achieve these will be developed in the next 2 years. This plan and its financing, therefore, deals primarily with Scope 1 and 2 emissions.

## Projects

We have identified a project portfolio capable of delivering 111% of our interim target even when allowing for the expected growth. A key part of this approach will be the major investment planned for the central district heating scheme and Combined Heat & Power (CHP) plant which will deliver a large proportion of the initial savings, but over 50 other specific technical and non-technical projects have also been identified. We will select projects from within the portfolio to achieve our interim target, allowing some margin of safety, and prioritising projects that make financial good sense. This also allows a more realistic probability of achieving the longer term 2020 target.

Much work has already been done to reduce Scope 3 emissions (eg. we have made good reductions in water use, we have clear plans to improve waste performance, and we have had a travel plan for a number of years) and this is highlighted in this report. This action plan and its financing are however focussed on Scope 1 and 2 emissions.

## Finances

To implement these projects we will need an investment of £6.5m over the 5 year period of this plan; this is in addition to the investment that the University makes via its major capital projects and maintenance.

The financial value at stake for this programme as compared with a 'Business as Usual' model is £3.9m over the plan period to 2014/15. If this plan is achieved the annual savings compared to now will be £1.26m. The overall payback of the investment is 5.4 years, the NPV £1.64m, and the Internal Rate of Return 10.8%.

This strategy stands up well based purely on financial criteria, even without taking into account any of the other significant drivers. There are a number of risks associated with this plan, and some assessment of these has been included in this document. We have taken a conservative view on costs, savings, and, particularly, future energy prices, and so would expect the financial case to be even better in reality.

## Strategy

A Carbon Management Board (which will evolve into a Sustainability and Carbon Management Steering Group) chaired by the Deputy Vice-Chancellor will oversee implementation and further development of the plan. The plan also includes other specific strategies to achieve a low-carbon vision and to embed this in the management of the University.