

# Energy Management Policy

## Mission

Durham University recognises that, as a major user of energy, it has an important role to play in helping to tackle climate change by significantly reducing its CO<sub>2</sub> emissions. We are committed to responsible energy management and the highest standards in energy efficiency. It is in the University's best interest to reduce the amount of money it spends on energy, releasing funds for other purposes. At the same time, reducing energy consumption helps the University to reduce its environmental impact.

## Aims

As a key element of the [University's Environmental Policy](#), and consistent with the University's wider objectives and the resources available, the Energy Management Policy aims to:

- reduce fuel consumption through the introduction of energy-efficient measures;
- increase awareness of energy issues and encourage all members of the University to help reduce energy consumption whenever they can;
- ensure that the highest energy-efficient design standards are included in all new buildings;
- wherever possible, obtain energy from sustainable sources.

This Policy and the accompanying [Energy Management Strategic Plan](#) have been prepared by the Estates and Buildings (E&B) Department working closely with the Environmental Sustainability Strategic Planning Group. It was approved by the University Executive Committee [5<sup>th</sup> May 2009] and endorsed by University Council [27<sup>th</sup> May 2009]. Greenspace Advisory Group has overall responsibility for the policy and strategy; E&B is responsible for its delivery and joint responsibility for annual review.

**Trevor Armour, Director of Estates**

**Professor Tim Burt, Dean for Environmental Sustainability**

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# Energy Management Strategic Plan

## Foreword by the Vice-Chancellor

Durham University's mission is to be internationally recognised as a sustainable university. The University's Environmental Sustainability Strategic Plan aims to initiate changes necessary to improve the University's environmental performance, to make all members of the University community aware of their environmental impacts and to encourage them to develop a sustainable approach to their work and lifestyle. This Energy Management Strategy will help us achieve these aims.

Durham University is a large organisation and, as such, a major consumer of energy. It is in the University's interest to reduce the amount of money it spends on energy, releasing funds for other purposes. At the same time, reducing energy consumption helps the University reduce its environmental impact. A win-win situation!

This Strategy has been prepared by the Estates and Buildings Department working with the Environmental Sustainability Strategic Planning Group commend it to you. I urge all members of the University, students and staff, to work hard to achieve its aims. It is in all our interests to do so.

Professor Chris Higgins  
Vice-Chancellor

## Durham University Energy Management Strategy

### Executive Summary

This Energy Management Strategy supports Durham University's commitment to reducing its environmental impact. It has been developed to achieve specific energy reduction targets and support a process of continuous improvement, building on progress that has already been made. It will enhance the University's reputation as an environmentally responsible HEI.

As a major consumer of energy, the University has had to manage the impact of significant additional costs. The University's total energy expenditure for 2012/2013 was £7.7M and, whilst it is difficult to accurately forecast future costs in a volatile market, we anticipate an increase of about 15% over the next two years based on current consumption levels, with no allowance for growth of the estate, additional equipment or changes to IT infrastructure. The University recognises the importance of both reducing its environmental footprint and minimising its energy costs and has therefore developed this Energy Management Strategy. The challenge for the University is to adopt best practice to reduce energy consumption whilst containing costs and complying with legislation. The University must at the same time achieve its core purpose as a world-class teaching and research institution.

The University aims to reduce its energy consumption and associated carbon emissions by a minimum of 30% by 2013/14 against a 2008/09 baseline year. A saving of at least 7.5% per

year is in line with latest Government targets and is estimated to save the University about £2.3M each year by 2013/14. We are also aiming to reduce our carbon emissions by a minimum of 43% by 2019/20 against our 2005/06 baseline year, this being our prime Higher Education Funding Council for England (Hefce) target to align with UK Government targets.

The Estates and Buildings Department has adopted an integrated approach to the delivery of energy-efficiency measures in line with the University's Estates Strategy (which seeks to improve the quality and standards of the University's existing building stock and address backlog maintenance). All new buildings aspire to achieve at least an 'excellent' BREEAM (Building Research Environmental Assessment Method) rating and major refurbishments a "very good" BREEAM rating. This is demonstrated with the Palatine Building being awarded a BREEAM Excellent rating for its design.

In order to reduce energy consumption, it will be necessary to engage with the entire University community, staff and students, to influence attitudes and change behaviour. Communication with the University community will be led by Greenspace, who will coordinate communications in line with the Carbon Management Plan initiatives and promotions. We will build on the 'Environment Champions' initiative to ensure University-wide ownership of the Energy Management Strategy.

This Strategy has been prepared by the Estates and Buildings Department working with the Greenspace Advisory Group. It was approved by the University Executive Committee on 5 May 2009 and endorsed by University Council on 27 May 2009. Environmental Sustainability Strategic Planning Group has overall responsibility for policy and strategy; E&B is responsible for its delivery.

Trevor Armour, Director of Estates  
Professor Tim Burt, Dean for Environmental Sustainability

## **Durham University Energy Management Strategy**

### **1 Introduction**

Durham University recognises that, as a major user of energy, it has an important role to play in helping to tackle climate change. Carbon emissions from fossil fuels are the main contributor to global warming; good energy management and improvements in energy efficiency will play a fundamental role in combating climate change, at the same time reducing energy costs.

The Estates and Buildings Department and the Environmental Sustainability Strategic Planning Group have developed this Energy Management Strategy to underline Durham University's commitment in reducing its environmental impact. This will be achieved by implementing a wide range of energy-efficiency measures across the estate as outlined in the Carbon Management Plan.

By adopting this integrated approach, it broadens responsibility for saving energy, which is essential if we are to achieve a significant reduction in energy consumption.

## 2 Aim and Objectives

The aim of this Energy Management Strategy is to underpin the University's Environmental Policy and Strategic Plan by providing a coherent management framework focused on key strategic objectives to reduce the University's energy consumption, associated carbon emissions and costs. The University is committed to responsible energy management and achieving best practice standards in energy efficiency for higher education institutions.

The objectives of the Energy Management Strategy are:

- to purchase fuel at the most economic cost whilst ensuring security of supply;
- to purchase on-site generation of our own electricity; where possible, if this offers the best value for money and other energy efficiency initiatives have been explored first;
- to utilise energy in the most cost-effective manner;
- to reduce pollution levels caused by our energy use;
- to develop plans which will aim to reduce energy demand and consumption through the use of good design and modern controls in new buildings and refurbishment programmes;
- to control heating temperatures and periods in each building consistent with its pattern of use, to approved University-wide criteria;
- to increase awareness of energy issues among members of the University and encourage 'energy responsible' behaviour.

The Energy Management Strategy will be reviewed annually by the Environmental Sustainability Strategic Planning Group. The Estates and Buildings Department is responsible for the delivery of energy-efficient management of the University's buildings. Communication with the University community will be led by Greenspace, in line with the Carbon Management initiatives and promotions.

## 3 Performance Target

The University aims to reduce its energy consumption and associated carbon emissions by a minimum of 30% by 2013/14 against a 2008/09 baseline year (interim target) and 43% by 2019/20 against our 2005/06 baseline year the latter being our Higher Education Funding Council for England (Hefce) prime target. This target will be reviewed annually by the Environmental Sustainability Strategic Planning Group and Carbon Management Team.

## 4 The University Estate

The University estate is on two sites: in Durham City and the Queen's Campus, Stockton. It comprises over 334 buildings ranging from 1076 A.D. to the present day; collectively they have a gross internal floor area of 351,662 m<sup>2</sup>.

The property base in Durham is fragmented with the buildings spread geographically across the centre of the city which itself presents a significant barrier to effective energy management. In contrast, the Queen's Campus is an entirely modern construction.

Durham Castle and the buildings around Palace Green are part of a World Heritage Site, 3 properties are scheduled ancient monuments, 4 properties are listed Grade 1, 79 properties are listed Grade 2 and 60 properties are within the City's conservation area. Approximately 17% of the University's estate is over 150 years old.

The University is currently executing a major new strategic development which involves a £60M investment in a new Palatine building, extension to the University's Main Library building, relocation of some departments and support services and the disposal or refurbishment of some existing premises. Rationalisation of the estate will provide the opportunity to dispose of or significantly improve inefficient buildings. Whilst ensuring it makes maximum use of its retained assets, the University has a clear objective to improve the quality of services wherever possible and it is therefore essential that its resources are utilised in the most cost-effective manner.

## 5 Legislative Drivers

Following the Kyoto Protocol, Government policy has introduced legislation and taxation to drive down carbon emissions in line with targets, most recently the Climate Change Act 2008 which aims to develop a low-carbon economy, reducing CO<sub>2</sub> emissions by 80% by 2050 against a 1990 baseline.

The Energy Performance in Buildings Directive (EPBD), in addition to statutory inspections on boiler plant and air conditioning equipment, requires the University to display a Display Energy Certificate (DEC) in the entrance to 74 of its buildings around the estate, which represents approximately 73% of the University's overall floor area. These will inform staff, students and members of the public on the operational performance of each building and what potential there is for improvement - each building's performance will be reviewed annually by an accredited assessor with the DEC updated as necessary.

In April 2010 the Government introduced the Carbon Reduction Commitment Energy Efficiency Scheme (CRCEES) which is a national carbon trading scheme involving approximately 5,000 public and private organisations including Durham University. The University is required to purchase carbon allowances annually to cover carbon emissions related to its energy consumption from April 2010 onwards. The performance of organisations operating within the CRC carbon trading scheme is publicly available through published league tables, we were positioned 369 out of 2103 participants for the 2010/11 compliance year. Our emissions for 2011/12 were down 7% on the previous year and down 5% allowing for the growth metric, our 2011/12 public league table position will be made available in October 2012.

## 6 Other Challenges

The University faces other significant challenges in its efforts to managing energy consumption and cost including:

- Increasing student numbers;
- Increasing size of the University's estate and floor area;
- Increasing intensity of energy consumption within the footprint of existing buildings to support teaching, learning, and research activities;
- Expansion and development of the University's Information Technology Systems;
- The range of plant and equipment necessary to support the increased complexity and intensity of the University's research activities;
- Pressure to increase utilisation of buildings (i.e. buildings operational for longer periods);
- Limitations on improvements within the University's Historical and Listed buildings.

Given these pressures, it is vital that the University encourages behavioural change so that every member of the University community accepts responsibility for energy use.

## 7 Progress to Date

Estates and Buildings have adopted an integrated approach in the delivery of energy efficiency measures in line with the University's Estates Strategy (which aims to improve the quality and standards of the University's building stock whilst addressing backlog maintenance). Greenspace have been working with staff and students on behavioural change initiatives.

Following an independent audit on energy management activities and procedures at Estates and Buildings by external approved assessors, the University successfully achieved accreditation in the Carbon Trust Standard (CTS). The CTS is the leading independent emissions reduction award scheme in the UK. It is managed by the Carbon Trust and awarded to organisations who meet rigorous standards in reducing energy consumption.

Many improvements have already been undertaken to University properties and further work is on-going. In future years, the annual programme of improvement work proposed by Estates and Buildings will be submitted to the Environmental Sustainability Strategic Planning Group for endorsement, to ensure that it aligns with this Strategy and provides best value for money in meeting energy-efficiency targets.

## 8 Monitoring, Targeting and Reporting

To monitor energy consumption in individual buildings and enable targets to be achieved, an accurate, robust and appropriate data collection system must be in place. To support this process, sub-metering has been installed wherever possible to record energy supplied from each fuel source to individual buildings, departments and colleges. Smaller University premises and quarterly accounts will be outside the scope of this exercise.

Metered energy consumption is being recorded monthly, data analysed and reports issued to each department and college, where performance relative to target will be assessed. Where energy wastage is identified, an investigation will be initiated and corrective action

taken.

Reporting will be done jointly by Estates and Buildings and Greenspace. The scheme will build on the "Environment Champions" initiative that in turn will be supported by the resource of Security Officers, Cleaning Staff and Caretakers who will monitor and report energy wastage within our buildings out of hours.

Other forms of communicating energy consumption will be explored to attract more involvement and ownership of energy usage through a dedicated forum made up of stakeholders representative of the University as a whole.

## 9 Communication

In order to reduce energy consumption, it will be necessary to engage with the entire University community, staff and students, to influence attitudes and change behaviour. Communication with the University community will be led by Greenspace, who will co-ordinate communications in line with the Carbon Management Plan initiatives and promotions. Communication of the strategy across the University will be through a number of channels including the Environmental Sustainability Strategic Planning Group, the Communications Office and Estates and Buildings. We will build on the "Environment Champions" initiative to ensure University-wide ownership of the Energy Management Strategy.

Through providing motivation, training and improved awareness, staff and students will be encouraged to become actively involved in helping to achieve energy efficiency targets and avoid unnecessary waste. Every department, both academic and support, as well as every one of the 16 colleges has a dedicated "Environment Champion". Greenspace will interact and communicate with the Environment Champions to stimulate behavioural change, promote energy efficiency and improve awareness. Energy "walkthrough" visits have been asked of every department and college to help the Environment Champion to identify both "quick wins" and longer-term solutions for energy savings.

Energy events, promotions, information, initiatives and contact details will be publicised on the University's Greenspace and Estates and Buildings web pages, on dialogue signposts and via Environment Champions.

An Energy Awareness email address ([energy.awareness@durham.ac.uk](mailto:energy.awareness@durham.ac.uk)) is available where staff and students can submit energy saving suggestions which will be considered by the Energy Manager.

The Estates and Buildings helpline (ext. 46000) should be contacted to report any building faults that could have a detrimental effect on carbon emissions, where a service level response will be initiated.

## 10 Department and College Responsibilities

Heads of Department and College will support the aims and objectives of the Energy Management Strategy by providing encouragement and assistance to staff and students and will:

- Publicise energy consumption figures and targets to staff and students;
- Demonstrate environmentally responsible behaviour in the workplace and adopt good housekeeping practises.
- Identify items of equipment with high-energy demand and seek to avoid wasteful practices, taking advice from Estates and Buildings where necessary;
- Ensure that utility costs are fully considered in the decision-making process to purchase new equipment;
- Report changes in building use or occupancy times to ensure heating, cooling, ventilation and other services are provided efficiently;
- Report building fabric and building services faults promptly to Estates and Buildings help line;
- Rationalise occupation of accommodation space to maximise utilisation;
- Nominate a responsible member of staff to act as an "Environment Champion";
- Produce a utility reduction plan to support the Carbon Management Plan.

## 11 Energy Procurement

Estates and Buildings manages the University's energy procurement process which at present is arranged through The Energy Consortium (TEC), a not-for-profit company which facilitates the web-based e-auction energy procurement for over a hundred Higher Education institutions throughout the country.

Traditionally, the University has tendered its energy portfolio on the open market and secured supply agreements for a one or two-year fixed period. However, significant increase in the wholesale price of energy and its volatile nature has led many organisations, including Durham University, to re-assess its energy buying and risk management strategies.

There are alternative methods of wholesale energy purchasing which allow a margin of price flexibility based on market conditions and position on risk, they also afford price certainty for budgeting purposes. Estates and Buildings will periodically review its energy procurement strategies and will report on its findings to Environmental Sustainability Strategic Planning Group.

It is not our strategy to pay a premium for Green Tariff Energy from suppliers, although we have contracted our Half Hourly electricity from Good Quality Combined Heat and Power that is generally considered more efficient than grid supplied electricity; this was both cost effective and certified green with no Climate Change Levy Charge applied. Instead we will fund energy efficiency or on site renewable projects to bring down our consumption of energy.



## 12 Renewable and low-carbon energy sources

As part of its commitment to sustainable development and the University's aim to achieve 'low-carbon' buildings, low-carbon technologies have been installed in a number of new and existing buildings around the Estate. It is intended to build on this achievement since renewables contribute to reducing our environmental impact and are an important element to the University's carbon reduction strategy.

New-build projects exceeding 1000m<sup>2</sup> will incorporate energy from renewable or low-carbon sources on-site to a minimum level of at least 10% of the total energy demand of the development in accordance the requirements of local planning authority. Low-carbon technologies will also be considered and evaluated in all major building refurbishments and plant replacement projects and will be integrated as part of the building/building services design where cost-effective and practicable to do so.

Opportunities to integrate renewable or low-carbon technologies into existing buildings will be explored as part of a University-wide initiative.

## 13 Investment

A number of Government initiatives support and encourage energy-efficiency measures within the higher education sector. The funding includes support for awareness training, free or subsidised surveys and grant schemes. These sources of funding will be actively pursued.

Salix is an independent publicly-funded company set up by the Carbon Trust to provide interest-free matched funding to the public sector to invest in energy-efficiency measures and technologies that will reduce carbon emissions. Estates and Buildings has already been successful in securing £400,000 external funding from the Carbon Trust via the Salix Finance Institutional Small Projects (ISP) 'Save to Invest' scheme' and HEFCE 'Green Revolving Fund'. As a condition of this agreement, the University is committed to provide an element of matched funding and maintain an on going 'ring-fenced' budget, which is essentially self-financed by energy cost savings and will be used to support further energy saving initiatives.

Estates and Buildings will continue to investigate and evaluate potential energy-efficiency initiatives to be considered in relation to this scheme and others such as the Green Deal if suitable and assessed against the following criteria:

- Payback period using life-cycle costing
- Capital and revenue costs
- Environmental improvement and reduction in CO<sub>2</sub> emissions
- Benefit to any backlog maintenance reduction
- Improved sustainability

Energy monitoring will identify poor performing buildings, enable resources to be targeted effectively and facilitate the development of an energy-efficiency investment programme.

Estates and Buildings will plan upgrades to building fabric, services and infrastructure to address backlog maintenance issues, thereby improving the energy performance of buildings. The annual programme of improvement work proposed by Estates and Buildings will be submitted to Environmental Sustainability Strategic Planning Group for endorsement, to ensure that it aligns with the Carbon Management Plan and provides best value for money in meeting energy-efficiency targets.

Adequate investment is essential to promote energy efficiency and maintain the estate in good working order which will also enhance the quality and attractiveness of the environment and protect the University's investment.

#### 14 Building Operation and Maintenance

Effective and efficient building operation and maintenance systems will be achieved through a constructive partnership between all University academic staff, students and support staff. It is important to note that in many areas Estates and Buildings has limited control on energy consumption: control generally rests with building occupants who must take responsibility for saving energy and switching off equipment. Departments and colleges are responsible for controlling the consumption of energy within their areas insofar as they are able within the physical constraints of buildings and existing systems. It is the responsibility of Estates and Buildings to ensure that the building fabric and building services affecting the consumption of energy are adequately maintained and operating as efficiently as possible.

Building users should:

- Take a responsible approach to the building they occupy and the energy consuming services and equipment within these buildings.
- Identify and report opportunities for energy wastage reduction in their work area to their Environment Champion and the [energy.awareness@durham.ac.uk](mailto:energy.awareness@durham.ac.uk) facility;
- Report faults and energy waste promptly to the relevant member of staff, who in turn reports to the Estates and Buildings' helpdesk to initiate a timely response;
- Adopt good housekeeping practices e.g. switch off equipment and lights when not in use.

Estates and Buildings will:

- Optimise the operation of heating, ventilation and air conditioning equipment and systems to maximise efficiencies and control internal conditions;
- Through the implementation and management of robust inspection and maintenance procedures, ensure that buildings and related services continue to function reliably, efficiently and effectively;
- Undertake all necessary statutory inspection and testing procedures;

- Establish and maintain effective communication links for fault and energy waste reporting and feedback on repair progress;
- Respond to all reported faults in a timely and co-ordinated manner;
- Replace defective equipment with the most cost effective energy efficient solution where practicable;
- Protect the building, equipment and services as a University asset.
- Install metering where possible to allow monitoring of energy consumption.

## 15 Standard Internal Space Temperatures

The University aims to maintain suitable internal space temperatures within its academic and residential premises to provide staff and students with an appropriate working and living environment whilst also minimising its carbon emissions.

### Heating season

The Heating season shall be from 1 October to 30 April inclusive. The heating season may be extended if internal air temperatures fall below an acceptable level. The decision to extend the heating season will rest with the Director of Estates.

### Academic and Administrative Buildings

During the heating season, building heating systems will be optimised to provide an internal space temperature of 20 °C between the core hours of 09.00 - 17.00hrs Monday to Friday. Additional heating will be provided in areas where there is an extended occupation period or where equipment requires a certain operating temperature.

At weekends and on customary/public holidays, heating will be set to a minimum level for building fabric and services protection only.

### College accommodation

During the heating season, when the building is occupied, heating systems will be optimised to provide an internal space temperature of 20°C during two core periods 07.00 - 09.30hrs and 17.00 - 22.00hrs Monday to Friday and three core periods of 07.30 - 09.30hrs, 12.30-14.00hrs and 17.00 - 22.00hrs at weekends.

Each college has been provided with an override facility which can be activated at the discretion of college staff to extend the heating beyond core hours. The number of hours the heating has been extended will be automatically logged and reported each month.

Outside the core periods or when buildings are not occupied, heating will be set to a minimum level for building fabric and services protection only.

Heating to college office areas will follow the same pattern as detailed in the academic and administrative buildings section above.

## General

Heating will be provided to satisfy the minimum legal requirements for indoor workplace temperature.

The University does not allow the use of personal portable heaters except where approved. Where necessary, under the authorisation of the Assistant Director (Estates Operations) or the Maintenance Manager, Estates and Buildings will provide electrical heaters as a temporary heating measure: where the building's heating system has failed or where supplementary electrical heating is necessary to maintain the required internal space temperature until a permanent solution can be found. Estates and Buildings is responsible for maintaining a stock of heaters to cover heating system breakdowns; guidelines covering the use of portable heaters on University premises are available from Estates & Buildings.

Faults on heating systems should be reported to the Estates and Buildings' Helpline (ext. 46000).

## Air Conditioning

It is not University policy to promote the installation of air conditioning within in any of its buildings. Comfort cooling would only be considered in the event of excessive heat gains resulting in high internal space temperatures consistently above 28 °C and only after all other more environmentally-friendly, cost-effective alternatives have been fully evaluated. Generally, air conditioning will only be provided under the following circumstances:

- Where internal environmental conditions need to be maintained within a specific temperature and/or relative humidity parameters for scientific/research purposes or for the protection of sensitive collection materials.
- To prevent damage or malfunction of sensitive business-critical equipment.
- Where internal space temperatures consistently rise above 28°C due to excessive heat gains that cannot be mitigated.

Where air conditioning is installed, it must be switched off outside of occupied periods. Internal space temperature control thermostats will be set to achieve a minimum space temperature of 25°C during occupied periods.

## 16 Building Design

Estates and Buildings will ensure that building design teams exceed the minimum energy and environmental performance standards outlined in the building regulations and current codes of practice. They will progressively and systematically appraise and incorporate

energy efficient measures, low-carbon technologies and engineering best practice through consultation with Estates and Buildings engineering staff at all stages of the design process, whilst also incorporating environmentally sensitive and sustainable design solutions. Greenspace Advisory Group will be consulted about all new-build projects to ensure that sustainability requirements are paramount from the outset.

A Building Research Environmental Assessment Method (BREEAM) is a means of reviewing and improving the environmental performance of buildings linked to best practice in environmental design and management. There is a suite of standard BREEAM assessments methods which are tailored to suit the type of building under construction or refurbishment with a specific BREEAM standard covering Further and Higher Education Establishments, latest UK version 2011. A BREEAM assessment will be undertaken on all new University buildings being planned and major refurbishment projects with a target to achieve a rating of “Excellent and Very Good” respectively.

## 17 Review of the Strategy

The Energy Management Strategy will be reviewed annually by the Greenspace Advisory Group and will publish an action plan annually to indicate how the Energy Management Strategy is being taken forward.

Due to be reviewed Nov 2014

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