

University of Worcester – Energy Management Strategy 2013/14-2018/19

1. Introduction

- 1.1. The following document is a continuation of the 2008-2013 Sustainable Energy Management Plan which detailed the University's strategy for managing, reducing and reporting on energy consumption across the university's estate.
- 1.2. The University of Worcester has developed this energy management strategy (EMS) in order to support the long term ambition of becoming a flagship institution with regards to sustainability both locally and internationally.
- 1.3. The EMS supports the objectives of the university Carbon Management Plan (CMP) and provides;
 - Clearly defined short, medium and long term targets
 - A strategic framework of both behavioural and technical measures
 - Methodology for reporting on progress
 - Signposts to supporting documentation
 - Outline of the roles and responsibilities of key staff

Funding for projects, both enabling and specific, one off and longer phased retrofit interventions comes from the sustainability projects budget, revolving green fund and other loans and grants bid for separately.

2. Drivers for Change

- 2.1. The Fourth Assessment Report on Climate Change published by the UN Intergovernmental Panel on Climate Change (IPCC) concluded that climate change was unequivocal. It is believed the human caused impact from emissions of greenhouse gases, particularly carbon dioxide, are rapidly increasing the rate of global warming. The University is concerned about this issue and is working towards reducing carbon dioxide emissions to minimise further impact on the environment.
- 2.2. As the threat from climate change has increased, the government has introduced legislation to ensure a reduction in the UK's emissions. The 2008 Climate Change Act committed the UK to a reduction, in carbon dioxide emissions, of at least 80% by 2050 compared to a 1990 baseline. This has led to a number of legislative measures to enforce the reduction of energy consumption and a number of policies have been put in place to assess this. For example, the University is required to obtain a Display Energy Certificate (DEC) for all buildings over 500sqm. The DEC gives an indication of the energy efficiency of the building based on size, energy consumption and the function of each building. These legislations and Higher Education Funding Council for England (HEFCE) requirement for all HEI's to have a CMP, see 2.3 below, have added additional drivers to support the University commitment to manage its carbon dioxide emissions and how they can be reduced.
- 2.3. A significant driver for the reduction of energy use is the financial gain primarily from reduced energy bills. The energy market is becoming increasingly volatile because of dwindling resources; a reduction in energy use would reduce the University's exposure to this market.

Introduction of the Carbon Reduction Commitment (CRC) scheme and enforcement of payment for carbon emissions above a threshold also provides a financial incentive for reducing energy consumption, although currently not in the scheme because our energy usage was not high enough at the time, this may change in the future. HEFCE has published a number of policies and strategies for reducing energy use. In 2011 HEFCE linked their capital allocations to carbon reduction through the Capital Investment Framework. HEFCE require Higher Education Institutes to develop carbon reduction strategies, targets and a carbon management plan.

- 2.4. Sustainability has become an increasingly important factor for students when choosing a university. The third NUS Higher Education Academy 'Student Attitudes towards and skills for Sustainable Development' report shows that, for the third year running, c60% of respondents, regardless of course discipline, want to learn about sustainability, and c80% want their institutions to embed sustainability in their operations. www.heacademy.ac.uk/resources/detail/sustainability/2013_student_skills_final_report.

External environmental groups have been using data from the Estate Management Record (previously known as estate management statistics) to investigate the environmental performance of universities and publish the results. For example, People and Planet have published the Green League Table which ranks the universities based on their environmental performance for the benefit of prospective students. If the university can maintain a consistently high ranking, it shows a commitment to sustainability and could potentially have an impact on student recruitment.

- 2.5. The new strategic plan 2013-2018 reinforces the university's commitment to sustainability. Stated within the plan is the aim to build on existing areas of expertise the University seeks to make an outstanding contribution to be environmentally sustainable and reduce our carbon footprint. The University runs a number of sustainability and environmental science courses and research facilities. Therefore it is important that the University demonstrates a commitment and support for a reduction in carbon dioxide emissions to both students and the community to maintain their reputation within the sustainability field.
- 2.6. The University has a responsibility to consider the impacts of its actions on students, employees, the wider community and environment. Acting to reduce carbon emissions will help to mitigate the environmental impacts and contribute to minimising the effects of climate change. The promotion of energy reduction will also encourage staff and students to be more environmentally aware and therefore have an impact on the wider community.

3. Targeted Energy Reduction

- 3.1 Through the Carbon Management Plan and Energy Management Strategy the university is aiming to achieve a 40% reduction in carbon emissions by 2020 based on the 2008/09 baseline year. This target covers all emissions 'scopes' not just those emissions directly attributed to energy consumption. To place this in context the sector agreed to commit to a reduction in scopes 1 & 2 emissions of 34% by 2020 and 80% by 2050 against a 1990 baseline.

With regards to energy the CMP sets the following target:

“5% p.a. reduction in energy against a 2008/9 baseline from 2010 to 2015”

The table below details the carbon emissions in tonnes of CO₂ for the baseline year, the target emissions and actual emissions achieved between 2010 and 2012.

	2008/09	2010/11		2011/12		2012/13	
	Baseline	Target	Actual	Target	Actual	Target	Actual
Electricity	1,864	1,770	2,364	1,677	2,414	1,584	2,618
Gas	1,856	1,764	2,674	1,672	1,898	1,580	1,931

- 3.2. Currently the university is struggling to achieve the energy reductions required to meet the 2020 target, this is predominantly due to the expansion of the estate, which is not currently taken into account when determining the above targets. Although the university will continue to report in this manner through the CMP, the EMS proposes an alternative method of monitoring and targeting energy consumption.
- 3.1 Display Energy Certificates (DEC) benchmark a building’s energy consumption against its gross internal area (GIA). Ratings run from A – G with G indicating the most energy intensive buildings. For legal compliance the university must complete DEC’s for all its buildings (over 500m²) annually, this gives an excellent opportunity for ongoing reporting.

The 2013 DEC ratings of both academic and residential buildings are shown below:

Academic	Rating
Student Union	B 36
Sports Centre	C 52
Charles Darwin Building	D 62
Charles Hastings	C 68
Peirson	D 69
Binyon Building	D 78
Bredon	D 78
Edward Elgar	D 78
Nursing block (Edward Elgar)	D 78
Riverside Building	D 82
Mulberry House	D 85
Hines Building	D 86
Woodbury	D 86
Conference Centre	D 96
Sheila Scott	E 112

Residential	Rating
Sansome Hall	C 56
Bishop Bosell Hall	C 67
Chancellor Halls	C 67
Evesham and Pershore (Chandler)	D 76
Ledbury Building (Wyvern East)	D 76
Avon Building (Wyvern West)	D 76
A.E. Houseman Hall	D 76
Elizabeth Barrett Browning Hall	D 76
Sarah Siddons	D 76
Teme	D 76
Abberley	D 76
Ankerdine	D 76
Berrow	D 76
Wulfstan	D 76
Malvern	D 76
William Morris	D 76
Vesta Tilley	D 76
Windrush	D 80

In light of the above the university aims to achieve the following short, medium and long term targets:

- *All university owned buildings to achieve a D rating or above by September 2014.*
- *All university owned buildings to achieve a C rating or above by September 2017.*
- *60% of the university's estate to achieve at least a B rating by September 2020.*
- *All new build projects should be designed to achieve a B rating or above.*

4. How we get there

4.1 The reduction of energy requires the targeted identification of both technical and non-technical efficiency measures which are properly commissioned and periodically reviewed.

In order to achieve the above targets the university will:

- Continually audit buildings to identify technical measures which can be undertaken to improve energy performance.
- Implement identified measures in a timely fashion.
- Utilise automatic meter reading data to identify building baseline energy consumption and trigger investigative works should consumption deviate from these baselines.
- Continually monitor the internal conditions of the estate to ensure occupants have a stable and comfortable working environment.
- Regularly report energy consumption and energy efficiency initiatives to the staff and student body.
- Engage staff, students and the wider community in initiatives designed to increase energy awareness.
- Ensure refurbishment works support the energy objectives of the university.

5. Reporting

5.1 The on-going reporting of building energy data and the relative success of behavioural change initiatives is key to ensuring a proactive approach to energy management is maintained.

Monthly Reporting: Monthly building reports will be compiled which show the month on month trend in energy consumption for both gas and electricity (graphically represented), £/m², kgCO₂/m² and in the case of halls of residence £ and kgCO₂ per student resident, reports will reference baseline 08/9 data and the previous years data when appropriate.

Reports to be stored on O:\ with public dissemination via weekly news, and as part of ongoing campaigns such as Green Impact and Student Switch off. A brief overview report to be provided to SMT & EC where appropriate.

Submeter Reports: Submetering reports and data analysis to be undertaken as necessary to support the work of the facilities and estates teams. Targeted reporting will be undertaken where there are concerns about over/under consumption within a building, such reports and analysis will take into account occupancy, climate and usage as necessary.

Annual DEC Updates: In line with European legislation annual DEC renewals will be undertaken and the corresponding building ratings recorded, SMT/EC and University Executive to be briefed in Sept/Oct on progress towards meeting DEC targets.

Behavioural Change: Reporting on behavioural change initiatives will be completed by means which are deemed appropriate and necessary in line with university policy.

6. Responsibilities

6.1 The table below lists the main responsibilities which are required to be met in order for the EMS to be carried out fully and with as great a positive impact as possible. Overseeing and supporting job titles have been identified. Energy management requires all aspects of an organisation to take ownership and responsibility for the risks associated with excessive energy consumption. Although the roles and responsibilities highlighted below are imperative the contribution of the wider university community cannot be underestimated if the university is to succeed in meeting the EMS targets.

Responsibility	Overseeing Job Title	Supporting Job Titles
Identification & Implementation of technical measures	Head of Estates Services	Estates and maintenance teams
Targeted investigation triggered by baseline data deviation	Head of Estates Services	Estates and maintenance teams
Monitoring of internal conditions	Head of Estates Services	Estates and maintenance teams
Energy Efficiency Project Reporting	Head of Estates Services	Director of Environmental Sustainability
Identification of baseline data	Director Environmental Sustainability	Sustainability Co-ordinator
Identification and implementation of behavioural change initiatives	Director Environmental Sustainability	Chief Executive and President Students' Union, Sustainability co-ordinator
Annual reporting of DEC targets	Director Environmental Sustainability	Sustainability Co-ordinator
EMR related communications with wider staff/student body	Director Environmental Sustainability	Sustainability Co-ordinator

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