Harper Adams University

Carbon Management Plan 2020/25

Name of Document:	Carbon Management Plan 2020/25
Purpose of the Document:	Quantifies the University's carbon emissions and carbon reduction targets and sets out a strategic route map to reducing emissions through a range of policies, projects and initiatives
Approved by:	University Secretary's Office (Finance and General Purposes Committee)
Responsibility for Updates:	Environmental and Sustainability Manager
Policy Applies to:	All University employees, students, contractors and any interested public parties
Version no:	1
Date of Approval:	11 June 2020
Proposed date of Review:	June 2024
Related documents	Environmental and Sustainability Strategy

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Glossary of Terms / Abbreviations

Executive Summary

This document outlines the University's Carbon Management Plan (CMP) for 2020/25, which sets out a strategy to reduce carbon dioxide emissions by financial year end 2025. The CMP has been approved by the University's Board of Governors

Introduction

Harper Adams University is a leading modern university with a tradition of providing academic excellence dating back to 1901. Set in a unique rural location on the edge of Newport, Shropshire, Harper Adams engages annually with more than 5.000 students (headcount), of which 2,976 (FTE) students are studying a range of undergraduate and postgraduate awards. The University aims to grow its student numbers to 3,500 FTE by 2025, in accordance with its strategic plan 2020-2025, With a 1.1002 Tc 0.002 Tw 0.289 0 Td[s)-8 (t (e t)-13(ead)-12d.01 T2 ((i)3.1 0.2 (d[,)-16.1 (W81Td[.)-1.1 (ead)-12.(at)-1.1 d

- United Nations Paris Agreement requiring global nations to reach ‘net zero’ greenhouse gas emissions within the second half of the 21st century, with wealthier developed countries striving to reach this goal earlier
- UK Governmental bodies increasingly declaring climate and biodiversity emergencies
- Increased media attention from change agents including Sir David Attenborough; Extinction Rebellion and Greta Thunberg leading proactive and disruptive campaigns on concerns such as the single use plastic items/micro plastic agenda and the global climate emergency
- Sector no longer being governed by HEFCE and the Office for Students (OfS) are not structured to oversee a prescribed road map for carbon management compliance.

National Farmers Union Net Zero Strategy

The National Farmers Union (NFU) have declared that farming can be carbon neutral across the whole of English and Welsh agriculture by 2040. It has recognised that farming and agriculture is uniquely placed as significant contributor - accounting for 10% of UK Greenhouse Gases (GHG) emissions (notably methane and nitrous dioxide) whilst having the potential to lead on substantial GHG abatement through careful land and soil management and through sequestration by changing land use to capture carbon. Three broad pillars are expected to deliver the Net Zero ambition:

- Boosting productivity and reducing emissions
- Farmland carbon storage
- Coupling bioenergy to carbon capture, utilisation and storage.

Whilst the ambitions of NFU Net Zero Strategy (and the University Farm) are outside of the scope of this CMP, it has been recognised as an important driver and work is underway to begin to understand the role the Farm can play in helping the University achieve net zero.

University Energy Policy

The current University Energy Policy will be revised to align with the CMP 2020/25. The policy will be expanded to include energy efficiency requirements of IT infrastructure and other electrically powered equipment. The revised policy will be actively promoted to provide renewed clarity supporting purchasing decisions for energy efficient equipment, inform the briefing and development stage of any new build or refurbishment and raise awareness with students and staff on the importance of minimising energy wastage.

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Organisational Resilience

The outgoing CMP 2015/20 focussed on reducing the University's reliance on externally supplied energy by generating both heat and electricity on site. During this next phase of the CMP 2020/25, additional works will be undertaken to maximise the efficiencies of the STEP through a continued optimisation of secondary systems, more extensive feedback loops and control through the established Building Management System (BMS) as well as bringing more load onto the DHN. Some of this work will be supporting the CMP 2020/25 and other elements will be explored as separate investment. Together the aim is to allow the use of the biomass boiler for longer periods of the year as well as reducing the extent of dependency on grid supplied electricity.

Energy Security and Costs

Energy markets have been traditionally volatile over the recent years resulting in a difficc -0.001 Tw 1254A001 Tw 1254

The Climate Change Act

The UK Government had set a long-term goal to reduce CO_2 emissions by 80% by 2050 from a 1990 baseline to help the UK's transition to a low carbon economy. This has created a number of legislative and financial

Carbon Reduction Performance

Historic Baselines

Harper Adams University carbon emissions baseline was first calculated using data from 2005/06 financial year end (1 August to 31 July). The table below shows the University's scope 1 and 2 total carbon emissions for the selected 2004/05 baseline year and subsequent baselining years.

Financial Year End	Baseline in tCO_2 (scope 1 & 2)	Utilities Expenditure	tCO_2 Change from 2005 baseline
2004/05	3,414	£336,000	-
2009/10	3,866	£493,000	+14%
2014/15	3,336	£742,771	-2%
2018/19			

Progress to date on carbon sapT

Scope of Projects

The University commissioned an independent comprehensive carbon reduction opportunity review during 2019. The campus wide survey compiled an accurate register of lighting, heating and control changes to inform future funding applications, with carbon reduction opportunities categorised as:

- **Immediate operational/improvement measures** – including adjust
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- Changes in operational requirements of mechanical ventilation building services as a result of COVID-19 resulting in increased energy uses;
- Uncertainty on how the Office for Students will engage on the climate agenda.

The Environmental and Sustainability Manager will maintain a risk and issues register which will be reviewed and updated regularly for the overall 2020/25 CMP and hold project specific risk registers for non-capital works. The Estates and Facilities team will hold project specific risk registers for non-capital wora6gion

To ensure this CMP successfully achieves its objective of cutting carbon, reducing energy demand and expenditure it is important that the CMP is owned and communicated effectively within the University and adequately resourced. The next table outlines the responsibilities of key staff:

Key Personnel	Responsibilities
(Deputy) Secretary	Reporting to the University Secretary. This new role focuses on supporting the successful delivery of the University's strategic plan including its future sustainability goals. It will involve leading and managing the delivery of key strategic projects, supporting effective governance, and engaging with a wide range of internal and external stakeholders.
Head of Estates and Facilities	Responsible for the ongoing maintenance and operation of the University estate and any capital works. Overall responsibility for the reduction of carbon emissions in the management, development and refurbishment of maratg3 (ns)-8 (-1.1 the University's estate.2 (v)-8.1 (er)-6.3 (s)-8 (i)3.1 (t)-1.1 (y)-8 ( )]hm8 (t)-1.me

Key Performance Indicators

The University carbon footprint will be recorded as scope 1 and 2 emissions and will be published annually (financial year), compiling tonnes CO_{2e} emissions from the following sources:

- Biomass heat energy (kWh)
- Natural gas heat energy (kWh)
- Grid electricity (kWh)
- Liquefied pet 275.88 719.76 TTd( ).2.2 (peti4388 7/4)Tj-0o141554MCID 18 -8 (hea)-.1 (o)-12.ectricit x OTj1.34

Appendix A: Carbon Emission Reduction Project List

Ref	Building/Area	Initiative	Estimated Budget Cost (£)	Annual Savings		
				Quantity (kWh)	Financial (£)	CO_2 (tonnes)
1	Whole site	Staff and student awareness campaigns	100,000	348,647	54,040	78

Project:	**Monitoring and Targeting (M & T)**
Reference:	2
Owner	Facilities, Utilities & Waste Manager
Department	Estates

Project: **Reference:**	**Reporting** 3
Owner	Environmental and Sustainability Manager, supported by Facilities, Utilities and Waste Manager
Department	Covers all aspects of HAU energy use
Description	Another opportunity to show initiative towards emissions reduction is to provide regular reports, visible to all staff and students, showing the University's progress on carbon reduction, highlighting the work that is being done and demonstrating the success of carbon reduction policies and investment.
Benefits	Embedding of carbon reduction reporting into ways of working across HAU. Making carbon reduction initiatives visible to all. This is an enabling measure and as such does not provide direct savings, but will show success and help to drive future energy management initiatives.
Resources	Staff time will be required to implement initial systems and maintain reporting procedures
Ensuring Success	Staff time to

Project: **Reference:**	**Controls & BEMS (DHN Secondary systems)** 4
Owner	Head of Estates and Facilities
Department	Estates and Facilities

Project: **Reference:**	**ICT Projects** 52 – 55
Owner	IT/AV Service Delivery Manager and Head of Infrastructure
Department	IS
Description	Increased use of cloud storage rather than on site servers Continue move toward single device policy for all users as appropriate Move towards thin client or laptop rather than PC for staff Reduce/phase out non-essential individual desk printers.
Benefits	Financial savings estimate is: £19,259 Estimated savings are 124,250kWh pa Emissions reductions: 32 tonnes of CO_2
Funding	From existing ICT budget
Resources	This project will be delivered within current resources. Principal risks: continued funding required.

Appendix C: Review of completed (2015 -2019/20) and on-going (2020 – 2024/25) projects

Below is a list of project proposals and status from the 2015/20 CMP. There are 21 initiatives that will be carried forward into the CMP 2020/25, as identified by the ‘project stage’ column

Building/Area	Category	Building/Area:

		Building/Area:	Project	Date for

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					estimated 3.2 million PC hours/year; over the past 2-4 years due to the virtual client roll out, all virtual clients switch off after being idle for 10 mins
Building/Area	**Category**	**Building/Area: Description of Recommendation**	**Project Stage**	**Date for Completion**	**Comments (Responsibility)**
QMH	Lighting	QMH: Upgrade Halogen spots to LED and T8 Lighting to T5	Complete	from 2016	Dining room - all led spots and T5 tubes in alcoves
Sports Hall	*Lighting*	*Sports Hall: Upgrade T12 lighting to T5*	*Carry forward (CMP 2020/25)*	*2025*	*Not complete. Site wide review of move to LED lighting will be rolled out as part of 2020/25 CMP. (University Engineer)*
Bamford Library	*Lighting*	*Bamford Library: Upgrade Halogen spots to LED*	*Carry forward (CMP 2020/25)*	*2025*	*Not complete. Site wide review of move to LED lighting will be rolled out as part of 2020/25 CMP (University Engineer)*
Foulkes Crowther	*Lighting*	*Foulkes Crowther: Upgrade Halogen spots to LED and T8 Lighting to T5*	*Carry forward (CMP 2020/25)*	*2025*	*Not complete. Site wide review of move to LED lighting will be rolled out as part of 2020/25 CMP (University Engineer)*
Weston	Lighting	Weston: Upgrade Halogen Spots to LED	Complete	n/a	
Main Building	*Lighting*	*Main Building: Upgrade T8 Lighting to T5*	*Carry forward (CMP 2020/25)*	*2025*	*Not complete. Site wide review of move to LED lighting will be rolled out as part of 2020/25 CMP (University Engineer)*
Organisation Wide	*Load management*	*Active management of loads and triad periods*	*Carry forward (CMP 2020/25)*	*2025*	*Being reviewed as part of the Briar Associates revisiting of the STEP project with the 2020/25 CMP (Facilities, Utilities & Waste Manager (Lead) University Engineer)*
Organisation Wide	*M&T*	*Organisation Wide: Improve Monitoring and Targeting*	*Carry forward (CMP 2020/25)*	*2025*	*Being reviewed as part of the Briar Associates revisiting of the STEP project with the 2020/25 CMP (Facilities, Utilities & Waste Manager)*
Organisation Wide	Onsite generation and renewables	Energy project: solar PV	Complete	n/a	
Organisation Wide	Onsite generation and renewables	Energy project: Biomass boiler	Complete	n/a	
Organisation Wide	Onsite generation and renewables	Ground mounted solar	Complete	n/a	
Organisation Wide	Onsite generation and renewables	Explore opportunities for on and off-site wind	Rejected	n/a	Rejected - studies undertaken demonstrated this was not feasible as a large-scale project.
Organisation Wide	Onsite generation and renewables	Explore energy storage opportunities	On hold	2030	Current 2020/25 CMP does not include for this but might be revisited as part of a wider strategy. Potential solution for Net Zero ambitions by 2030.
Organisation Wide	Reporting	Make energy and carbon data available to staff and students	Ongoing	n/a	EMR information submitted annually. Detail to be included in Sustainability web pages *(Facilities, Waste & Utilities Manager (Lead) Environmental & Sustainability Manager)*

Building/Area	Category	Building/Area: Description of Recommendation	Project Stage	Date for Completion	Comments

Carbon Emissions (LPG)

Indicator reference	Set	Carbon Emissions (LPG)	Indicator(s)

Carbon Emissions (University owned / operated fleet fuel)

Indicator reference	**Set**	Carbon Emissions

Total Renewable Energy Generation

Indicator reference

Heat Consume[illegible] Onsite CHP

Indicator reference e6fEMC /ETE[illegible]	**Set**	Heat consumed from onsite CHP	**Indicator**	Tonnes CO_2