



**CARBON
MANAGEMENT
PLAN** 2015 - 2020

SUMMARY

The University of Central Lancashire (UCLan) has in excess of 36,000 students and 2275 staff. The city centre campus extends to 17.76 hectares and comprises of many buildings of varying age, some adapted for university use, others designed and built specifically for our use. As well as the main Preston campus, sites include UCLan Sports Arena, Burnley College and the Westlakes campus.



As buildings account for 50% of the UK's total carbon emissions, it follows that our operations and buildings, totalling a gross floor area of circa 181,922m² do have a significant local, national and global environmental impact.

The University produced its first Carbon Management Plan (CMP) in March 2007 in association with the Carbon Trust as part of the second phase of working in partnership with higher education institutions, the plan was updated in 2010 and this is the second update covering the period 2015 to 2020.

Since the 2010 update of the CMP there have been significant changes in the future strategy of the University. Including the £200m investment in the masterplan, a 10 year vision to create a unified, sustainable and welcoming campus for all those visiting the University.

UCLan is investing £200 million in a 10 year development programme which will see improvements to existing buildings and the construction of new buildings. Over the 10 year project, the estate is estimated to increase by around 15% and it will be a challenge to keep control of carbon emissions. All new buildings will be constructed to BREEAM "Excellent" and have an EPC A rating.

This update to the Carbon Management Plan complements UCLan's ISO14001 certified Environmental Management System, the environmental sustainability goals of UCLan's strategy 2015-2020 and follows on from the 2010 Carbon Management

Plan. All of these documents can be accessed below or via the UCLan website.

http://www.uclan.ac.uk/sustainable_development/environmental_management_system.php

https://www.uclan.ac.uk/corporate_information/assets/UCLan_STRATEGY_DOCUMENT.pdf

http://www.uclan.ac.uk/sustainable_development/sustainable_buildings_initiatives.php

This 2015 update focusses on the carbon emissions from the consumption of electricity, gas and water, previous Carbon Management Plans included transport but this data is now reported separately as part of the Travel Plan.

https://www.uclan.ac.uk/sustainable_development/assets/Travel_Plan_2013-2018.pdf

UCLan is as committed as ever to reducing its impact on the environment through the reduction of carbon emissions and maintains an annual budget dedicated to reducing carbon emissions.



ACHIEVEMENTS AND AWARDS

The University has been steadily strengthening its focus on sustainability since 2007, and its key progress in areas related to carbon management is listed below:

2007	<ul style="list-style-type: none">• Original Carbon Management Plan published• Travel Co-ordinator appointed• Sustainable Development Strategy published;• Travel Plan developed
2008	<ul style="list-style-type: none">• Energy & Carbon Management Officer appointed• Environmental and Sustainability Manager appointed• Energy Policy published• Internal carbon reduction budget provided• Environmental & Sustainable Development Steering Group formed• Pathfinder status achieved for the Carbon Trust Standard
2009	<ul style="list-style-type: none">• Highly Commended at Green Gown Awards for Carbon Reduction• Environmental web pages developed• Held first Carbon Awareness Week
2010	<ul style="list-style-type: none">• Primary phase of ISO14001 audit completed• Developed a compulsory course on Environmental Management, which includes resource efficiency for contractors;• Awarded Business Link North West Carbon Positive Footprint Award

2011

- EAUC Green Gown Awards - Shortlisted in 'Promoting Positive Behaviour' category
- Preston Business Eco-Excellence Award – Bronze
- 8th place in People & Planet's Green League of Universities
- UCLan Students' Union achieved Silver in the NUS's Green Impact Awards
- Carbon Trust Standard recertified March 2011
- Staff training 'Environmental Management at UCLan' upgraded to mandatory training

2012

- Launch of the Green Impact Universities and Colleges Initiative
- 6th place in the People & Planet's Green League of Universities (First Class award)
- UCLan Students' Union achieved Bronze in the NUS's Green Impact Awards
- Shortlisted in the Times Higher Education Award for 'Outstanding Contribution to Sustainable Development'
- Shortlisted in the EAUC Green Gown awards for 'Sustainable Procurement'

2013

- 9th place in the People & Planet's Green League of Universities (First Class award)
- Successful first year of Green Impact: 21 teams took part, 18 of which completed the workbook and 11 of which completed a Green Impact audit
- Carbon Trust certified

2014

- ISO14001 re-certification achieved for the University's Environmental Management System
- UCLan Students' Union awarded £200k for a two year NUS Student Green Fund project - 'Green Ladder'
- 27th place in the People and Planet University League (First Class award)

AIMS, OBJECTIVES AND TARGETS

The aim for UCLan is to increase energy efficiency, moderate energy demand and reduce carbon emissions. Our overall strategy to achieve this goal is to;

Continuously review and improve policy including the Energy Policy and Strategy

Investigate and implement new policy i.e. ISO50001

Enhanced monitoring and targeting to identify energy waste

Improved staff and student engagement programme

Monitoring and Evaluation reporting

The Carbon Management Plan includes scope 1 and 2 emissions from energy consumption and scope 3 emissions from water supply and wastewater treatment.

The original target set by HEFCE was a 48% reduction in scope 1 and 2 carbon emissions by 2020 based on the 2005/06

baseline consumption. UCLan has seen significant change since this target was originally set and is currently undergoing a 10 year project, investing £200 million into improving the University. The size of the University will increase but also become more energy efficient.

In partnership with ISO14001 we have revised the objective for scope 1 and 2 carbon emissions from energy consumption to reflect these changes and have now committed to;

Absolute carbon emissions associated with the consumption of electricity and gas by 2020, to be less than 2013/14

To reach this objective we have set targets to reduce the building energy intensity in kg CO₂e/m² by 1.5% annually. These targets are monitored every 6 months as part of our ISO14001 compliance and progress will be reported in the annual Carbon Management Plan updates. The scope 1 and 2 carbon emissions since the last CMP update and the 2020/21 targets are shown below.



The scope 3 water emissions target has been set in line with the Environmental Management Plan;

Reduce water consumption by 50% by 2020 based on the 2006/07 baseline

This equates to an annual reduction target of 2%

The baseline water consumption in 2006/07 was 189,445 m³ and the objective is to reduce this by 50% by 2020.

The targeted water consumption to meet the objective is below and we are currently on target.



All other Carbon emissions are out of scope of this document.

Scope 1 and 2 carbon emissions from vehicles and scope 3 emissions from travel and commuting are included in the Travel Plan, maintained by the Sustainable Travel Co-ordinator.

Scope 3 emissions from waste are collected by the Environment and Sustainability Manager.

GREEN ELECTRICITY

UCLan endeavour to procure electricity that is from renewable sources and has investigated the possibility of procuring green gas.

Our current HH supply contract is 100% renewable and makes up 96% of UCLan's total electricity consumption. The other 4% is NHH and currently supplied from non-renewable sources.

Green gas was not available during our last contract renewal but will remain part of the criteria for future contract tenders.



PROJECT UPDATE FROM 2010 CMP

Half-hourly metering for gas and electricity in buildings.

We have installed data loggers and sub metering where appropriate and this is an ongoing action for new buildings. The data is collected and analysed in our energy management software.

We are also in the process installing sub-metering on a more granular level. This not only helps us to identify wasted energy but we can also quantify savings made from this analysis and action.

Foster refectory new boilers and CHP.

These were installed in 2010 and to date the micro CHP unit has generated over 100,000 kWh of electricity and 240,000 kWh of thermal output.

Following on from the success of the micro CHP system in Foster we have installed 7 further micro CHP units across campus in Victoria (2), Harrington (2), Student Union (2) and Sir Tom Finney Sports Centre (1).





Boiler Optimisation.

Following a successful initial trial in Darwin building this technology was rolled out to Greenbank building, Brook building and the main boiler house, South Campus.

Darwin's gas consumption reduced by 11% in the first year and is now around 30% lower than before the installation.

Boiler replacements. Boilers in the following buildings have been replaced with new high efficiency models; Harrington, Students Union, St Peters Arts Centre, Library, Maudland Road Houses, Hanover, C&T phase 2 and Adelphi.

Vernon building has been converted from oil-fired boilers to high efficiency gas-fired boilers

Wind turbine at UCLan Sports Arena. A feasibility study was carried out and it was deemed that it was not viable at the time.

A solar thermal system has been installed in Adelphi building, commissioned in 2014. The effect of this is currently being monitored.

Inverters and speed controllers have been installed to pumps and AHUs in Greenbank Building.

LED lighting upgrades. We have invested heavily in the rollout of LED lighting and controls across campus. Projects include; Harrington corridor and reception lighting, all communal areas in Greenbank, all corridors in Media Factory, Darwin Lecture Theatre, Maudland corridors, Kirkham building corridors plus many other smaller upgrades.

Biomass boiler. We commissioned our first wood pellet biomass boiler in October 2014 and this has been the lead boiler for Greenbank, by the end of the 14/15 academic year the biomass boiler



PROJECTS 2015-2020

Significant investment will be required to meet the 2020 carbon emissions target for electricity and gas. The planned projects for 2015-2020 to help us to meet this target are as follows:

- Continuous investment in LED lighting and controls across the whole of campus, including all external lighting
- Review and adjust BMS strategy as required
- Improving building fabric, including cavity wall insulation and replacing windows
- Rolling programme of thermostatic radiator valve installation
- Improving pipe insulation and lagging
- Fume cupboard controls
- Replacing old inefficient hand dryers across the estate
- Rolling programme to install variable speed drives (VSDs) across campus
- Rolling programme to install more granular sub-metering across campus on all utilities
- Investigating more efficient heating and cooling methods with zoned controls across campus
- Large scale investment in a second larger wood pellet biomass boiler at South Campus
- Staff and student engagement programme

We are close to our 2020 water target but are still investing to reduce water consumption. Planned projects include:

- Trialling water efficient air toilets in Foster with the potential to roll out if successful
- Rolling programme to replace all taps with auto sensor taps
- Investigation into reducing water consumed by urinals
Staff and student engagement programme

We encourage key stakeholders within the University to suggest energy and water saving projects and we evaluate these based on the expected carbon saving of the project. For all potential projects we request documentation and evidence from the supplier backing up their energy and water saving claims and in some cases we trial the technology before committing fully to a project.

All completed projects are monitored, evaluated and reported on to establish whether they have been successful with a view to a complete campus-wide roll out. All projects from 2015/16 onwards will be reported on annually as a separate update to the CMP.



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