

Oxford Brookes Carbon Reduction Action Plan

Annual report 2022/23

Background

The carbon and energy reduction agenda is now extremely high profile and continues to gather pace. New targets and challenges both locally and nationally mean that we must increase our intensity of work and bring forward strategic decision making and associated work streams.

Our interim strategy brings Oxford Brookes in line with the UK Government's near term target of a 68% reduction in emissions by 2030 and supports the City of Oxford's ambitions to be net-zero by 2040. It also shows our commitment to alleviating the harmful effects of climate change by recognising a climate emergency within our proposed strategic vision. This interim target is seen as a pragmatic approach that can be largely delivered within the scope of existing initiatives, with the bulk of carbon savings coming from the proposed delivery of the Oxford Campus Vision.

We are currently in the process of producing a full net-zero strategy (due Dec 23), with work on this having been delayed due to the utility price crisis which came into existence at end of Covid-19 and the outbreak of the war in Ukraine. The long term price outlook predicts that our annual spend for FY23/24 on gas and electricity will be £5.9m, which is a 100% increase (double) on prior years. Significant focus will be placed on this in the nearterm given that this is a key risk for the university, however the interventions associated with this are cost-effective and also support the reduction of scope 1 & 2 emissions.

Key drivers

Further details on the following drivers can be found in our Interim Carbon Reduction Strategy¹

01. Legislative drivers and commitments to zero carbon - the UK is a key signatory of the Paris Agreement which aims to limit global warming to well below 2, preferably to 1.5 degrees Celsius, the UK Government has committed to a legally binding target of reducing all greenhouse gas emissions to net-zero and Oxford Brookes has committed to collaborate to achieve the City of Oxford's target of achieving net-zero carbon by 2040.
02. Financial - there continues to be a proactive need to reduce gas and electricity usage which will mitigate against energy price increases across its largest consuming sites.
03. Student expectations - students take environmental and global developmental issues seriously and are reported to influence their choice of place to study by 54%. 91% that agree their place of study should actively incorporate and promote sustainable development.

¹ <https://www.brookes.ac.uk/sustainability/carbon-and-energy>

04. Maintaining performance and competitiveness with our peers. In the HE sector 53 UK universities have already committed to a net-zero target and declared a climate emergency. The sector average target date is 2035.
05. Benefits to the local community
06. Climate change adaptation

[1] <https://www.euractiv.com/section/emissions-trading-scheme/interview/analyst-eu-carbon-price-on-track-to-reach-e90-by-2030/>

[2] <https://www.gov.uk/government/publications/valuing-greenhouse-gas-emissions-in-policy-appraisal/valuation-of-greenhouse-gas-emissions-for-policy-appraisal-and-evaluation>

[3] <https://sustainability.nus.org.uk/resources/sustainability-skills-2019-20-he>

[4] <https://www.universitiesuk.ac.uk/sites/default/files/field/downloads/2021-10/confronting-the-climate-emergency.pdf>

[5] https://www.oxford.gov.uk/info/20011/environment/1343/oxford_citizens_assembly_on_climate_change

VISION

Oxford Brookes recognises that urgent action is required to reduce or halt climate change and avoid potentially irreversible environmental damage resulting from it.

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ECS SLT sign off date: 12/10/2023

Our strategic goal is to reduce emissions in accordance with legislation and the requirements of the Paris Agreement, which aims to limit the rise of global temperature to no more than a 1.5°C above pre-industrial levels.

OBJECTIVES

In support of our carbon reduction aims we intend to achieve:

1. A reduction in Scope 1 & 2 emissions of 68% by 2030.
This reduction in emissions, from a 2010 baseline, relates to the operation of our buildings and infrastructure.
2. To become a net-zero carbon organisation by 2040, where only unavoidable emissions are offset.

In addition to this there is also a need to control utility and maintenance expenditure.

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ANNEX 1 : Action Plan

Key – Target ■ = Achieved. ■ = Partially Achieved / in progress. ■ = Not Achieved

Actions / Targets	Owner	Reporting on targets / actions	Agreed Actions / Target 2023&24	Timeframe
Strategic development				
Heat Decarbonisation Plan	Gavin Hodgson / CPW	Achieved in 22/23 Phase 2 (£253k - Govt Funded) report complete. In Progress feeding into Oxford Campus Vision, investment plans (prioritisation model)	In addition to continued OCV feedback and workshops we will undertake a peer review.	November 2023
Scope 3 report	Gavin Hodgson / Michele Morley	Achieved in 22/23 SUMS report received.	Integrate into Net-Zero Strategy and complete review of ProCHE code with FLS.	November 2023
Net-zero Strategy	Gavin Hodgson	In Progress No significant work undertaken to date		December 2023
Undertake monitoring of A&B block at Clive Booth	Paul Spencer	In Progress At point of procurement.	£5k monitoring to develop business case for thermal store replacement with HIUs and/or	November 2023

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			PhaseChange thermal stores and review of wonder opportunities.	
ARUP RoHS Lighting Project	Gavin Hodgson / Capital Projects	Completed Developed scope of works that was tendered and subsequently award to ARUP - now being managed by Capital Projects	Maintain stakeholder involvement and also evaluate potential benefit of lithium battery emergency lighting.	December 2023
KPIs and dashboard	Gavin hodgson / Paul Spencer	Completed First draft of KPIs and dashboard. In Progress refinement around internal and VCG requirements	To be completed	October 2023
Optimisation (energy efficiency and utility cost reduction)				
Heating schedule ratification	Paul Spencer / Edward Boyle	Achieved in 22/23 Significant review of all areas and implementation complete In Progress Work through the same process again, but also prepare a written	Continue with same plan for 23/24	Oct 23 to April 24

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		procedure to support future years work.		
Heating set points	Paul Spencer / Edward Boyle	<p>Achieved in 22/23 Moved all of the estate over to 19degC</p> <p>In Progress The adoption of 10degC overnight and improve optimised stop BMS functionality</p>	Prepare briefing paper and discuss implementation with key stakeholders ready for implementation as appropriate	October 2023
TRV Setpoints	Paul Spencer	<p>Achieved in 22/23 All TRVs locked to setting '4' in academic spaces.</p> <p>In Progress Evaluate use of intelligent TRVs at Harcourt Hill and Clive booth C, L & M. Finish TRV replacements and lock downs at Marston Road, Fuller, Lloyd and Sinclair building.</p>	Continue with workstreams as per 22/23	Dec 2023
Geo-exchange Project	Gavin Hodgson / ERDA	<p>Achieved in 22/23 delivered 325,000 kWh of energy.</p> <p>In Progress</p>	Targeting 800,000 for current heating season and 1.2GWh thereafter.	April 2024

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		Continued optimisation and defects.		
Vacant/mothballed buildings and areas of buildings	Gavin Hodgson	<p>Not Achieved</p> <p>Buildings identified with poor utilisation, which have potential to be mothballed cannot be progressed due to the intermittent nature of building use.</p> <p>In Progress</p> <p>For Harcourt Hill evaluate BMS control optimisation with potential links to occupancy detection.</p>	Continue to monitor during 23/24 and develop strategy for Harcourt Hill.	Ongoing
Further AHU optimisation (e.g. widening of temperature deadbands; reduced volume flow rates, increase CO ₂ ppm threshold)	Gavin Hodgson / Edward Boyle	<p>Achieved in 22/23</p> <p>Delivered to 11 AHU in John Henry Brookes Building</p> <p>In Progress</p> <p>Rollout to all other areas</p>	Evaluate and provide recommendations within current heating season	Jan 2024
Room thermostat audit and replacement of faulty or poorly	Paul Spencer / Edward Boyle	In Progress	To be undertaken	October 2023

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sited units (all areas of estate being retained)				
Hot water rationalisation/improvement	Gavin Hodgson	In Progress A number of options have been discounted during technical review, including for example, switching to point of use hot water supplies.	Continue with investigation and discussion as planned.	TBC
Insulation surveys and improvements	Gavin Hodgson / Paul Spencer / Edward Boyle	In Progress No work undertaken yet.	Review case for improved pipework/valve lagging and insulation to main plant rooms on estate buildings being retained (academic and residential). Review case for improved/top up loft insulation (use of thermal imaging camera for identification of other fabric problems (all areas))	October 2023
CHP performance and contractual review	Gavin Hodgson / Julian Penzo	Achieved in 22/23 CHP at Post-graduate centre now operational via new contract with Capstone.	Prepare paper for SLT on CHP contract once business case in developed.	November 2023

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		<p>In Progress Manage performance to end of contract in 2024 (likely Dec) and review business case for extension.</p>		
Solar PV performance	Paul Spencer	<p>In Progress Ongoing monitoring in place, but requires a deeper dive.</p>	Review performance of all Solar PV installations against expected annual generation profile	February 2024
Evaluate case for secondary glazing at Headington Hill Hall, Richard Hamilton and Gatehouse	Paul Spencer	<p>In Progress No action taken to date</p>	Complete evaluation	March 2024
Hydraulic maintenance	Paul Spencer / Julian Penzo	<p>In Progress No action taken to date</p>	Complete evaluation	January 2024
Capital investment				
<p>Deliver Solar PV installations to Clive Booth N to X, Paul Kent and Clerici buildings</p> <p>300kWp of PV which will generate some £90k worth of annual financial saving.</p>	Gavin Hodgson / Capital Projects Team	<p>In Progress 300kWp of PV which will generate some £90k worth of annual financial saving.</p>	Targeting Jan 2024 completion	January 2024

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Room thermostat replacements at Clive booth N to X	Gavin Hodgson / Capital Projects Team	In Progress Tamper proof rooms stats being fitted		Oct 2023
Improved cooling controls	Gavin Hodgson / Paul Spencer / Capital Projects	In Progress Procurement process now underway.	Retrofit passive infra red (PIR) controls to split systems in pooled teaching areas to reduce unnecessary cooling. Retrofit of Coolnomix compressor control on split systems across 45 network switch rooms Review energy saving recommendations from TM44 reports and consider implementation where viable	Dec 2023
AHU refurbishment	Gavin Hodgson / Paul Spencer / Capital Projects	In Progress Review Camfil AHU filter provisions and maintenance contract, refurb AHUs and seal ducts. Use of higher energy efficiency filters and review of replacement strategy and	Agreed to review SFG20 requirements and then engage with suppliers and procurement team.	March 2024

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		frequency to reduce fan energy consumption. Review case for replacing conventional fan motors with electronically commutated (EC) fans or switched reluctance motors.		
Measurable energy smart electrical sockets trial	Gavin Hodgson / Capital Projects	In Progress Trial deployment of smart sockets to Buckley or Lloyd building (electrical sockets that provide greater efficiency and monitoring functionality)	Budget allocated based on existing quotation from Measurable Energy - currently in project initiation.	March 2024
Utility cost management				
Risk Management Tracking	Gavin Hodgson / Paul Spencer	In Progress Provide appropriate early warning system for excessive consumption / spend (e.g. via Optima Energy Management system and building performance league table).	Continue as planned, completion was delayed due to metering ecosystem being out to tender	December 2023

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Bill validation exercise	Gavin Hodgson / Paul Spencer / Paul Raimbach	In Progress PCMG to undertake revenue recovery exercise on Scottish Power and Total Energies accounts which are now closed..	PCMG currently taking forward	January 2024
Quarterly Energy Management Advisory Group (EMAG) meetings	Gavin Hodgson	In Progress Ongoing commitment to review market performance and utility risk purchasing policies and track spend on at least a quarterly basis.	EMAG meeting group to continue as planned.	Quarterly meetings
Energy use recharging	Paul Spencer / Gavin Hodgson	In Progress No work undertaken yet.	Review of commercial contracts and energy use cost recharging – eg at Coop, Gather&Gather, Doctors, Dentists incl. appliances in situ to ensure costs recovered where appropriate/due.	December 2023
Engagement				
Information and behavioural change campaign.	Paul Spencer / Engagement Officer	In Progress No activity pending appointment of engagement officer	Define approach during FY 23/24	May 2024

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