

## Carbon Management Plan

### **Path to Zero - Strategic principles and plan for the delivery of a net-zero carbon footprint and considering Scopes 1, 2 and 3.**

As a part of the global effort to tackling climate change, Bangor University, in line with all public sector employers, seeks to play its part in reducing adverse impacts on the environment through reducing emissions of CO<sub>2</sub>e<sup>1</sup> and promoting positive behaviour.

Consistent with the spirit of the University Sustainability Strategy and as we transition to a low and then zero carbon future, the University will seek to deliver net zero in conjunction with an ever-improving relationship and understanding between staff, students, and academic and professional services, sharing information, ideas and developing new knowledge.

Our 2005 Scopes 1 and 2 baseline emission rate was calculated as 13,850 tonnes CO<sub>2</sub>e, and we have already achieved a significant reduction in energy usage, down 45% per m<sup>2</sup> in 2023/24. The University is committed to achieving net zero and playing its part in ensuring a sustainable and safe environment for the wellbeing of future generations.

To ensure the University is firmly on the path to attaining net zero, it is also necessary to better understand our Scope 3 CO<sub>2</sub>e emissions and plan to reduce their adverse impacts.

Reducing Scope 3 impact is difficult and often relies on others. However, through better understanding of our wider influences upon the environment and through behavioural change, reduced consumption, improving procurement and thoughtful sourcing, reducing waste, etc., the University can make a real difference.

In pursuance of delivering a net-zero future, Bangor University will:

1. seek to achieve a 3% year on year reduction in CO<sub>2</sub>e Scope 1 fossil fuel heating emissions in line with the target set by the University.
2. reduce the location-based CO<sub>2</sub>e (for Scopes 1 and 2 emissions) from a baseline year of 2018/19 by 25% by the end of 2025, and produce an achievable, clear, and measurable plan for fully attaining Scope 1 & 2 net zero CO<sub>2</sub>e by 2030 and significantly reducing Scope 3 impacts.
3. properly consider carbon impact and environmental implications of all major institutional decisions and ensure initiatives, strategies and major projects are in line with the University's carbon net zero targets and environmental and sustainability commitments.
4. for the built environment and in line with the University Estate Strategy, design all new builds to BREEAM Excellent Standards as a minimum and adopt a net zero carbon approach to all new builds and major refurbishments from 2025 onwards.
5. develop feasibility studies to significantly grow on-site energy generation with the aim to increase, year-on-year, its production of energy at the point of use.
6. develop feasibility studies and implementation plans for new solutions for heating and cooling buildings, where practicable, with the aim to:
  - a) replace gas and oil boilers with alternative low or zero carbon heat sources

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<sup>1</sup> A carbon dioxide equivalent, abbreviated here as CO<sub>2</sub>e, is a metric measure used to compare the emissions from various greenhouse gases on the basis of their global-warming potential (GWP), by converting amounts of other gases to the equivalent amount of carbon dioxide with the same global warming potential.

*Concerning the replacement of gas/oil boilers with low carbon heating technology:*

*i. energy infrastructure will be assessed prior to replacement to confirm that:*

- *existing infrastructure can cope*
- *any infrastructure upgrades required are considered and costed*

*ii. Costing of low carbon heating technologies will include CAPEX and OPEX over the lifecycle of the installation so that the University can:*

- *Benchmark the cost effectiveness of any gas/oil boiler replacements*
- *Evaluate and source any additional funding required to deliver the low carbon heating technology*

- b) replace room and location air conditioning units/systems with air moving and natural ventilation systems

*From 2025-26 no new system will be installed without a clear and defensible case for their installation, e.g. absolutely necessary for research, safe working, etc.*

*The following hierarchy of control will be applied to teaching, research or workspaces that require air conditioning/climate control:*

*Option 1 – reuse warm or cool air via heat exchange/thermal transfer*

*Option 2 – extraction of heat via ventilation/air movement*

*Option 3 – install air conditioning*

7. work with staff, students, Colleges, Schools, Research Teams and Services to evaluate and reduce energy and water use (metering and monitoring). To aid understanding, the University will:

- a) meter and monitor where we can and provide a dashboard for local users.
- b) promote energy and water awareness and encourage staff and students to be energy and water conscious.
- c) work with high users to identifying efficiencies and changes that will reduce energy and water consumption.

*Reducing demand is seen as key to achieving net zero and each facet of the University has a role to play in this.*

8. work with staff, students, Colleges, Schools and Services to decrease Scope 3 waste emissions through reducing consumption, increasing reuse of equipment and materials, increasing recycling, and promoting good behaviours at the University and beyond. The following are the headline targets<sup>2</sup> for operational waste:

- a) Reduction in general waste arising per capita (FTE staff and students) from a baseline of 78.36 kg/FTE in 2018/19 to 70.5 kg/FTE in 2025/26 resulting in at least a 10% reduction in waste generated over this period.
- b) Ensure by 2025 that at least 70% of general waste is recycled.
- c) Calculate construction waste in 2024/25 as the baseline year and establish recycling targets for the future.
- d) Increase the amount of surplus goods, equipment and materials which are then reused, up-cycled and down-cycled, either internally, within the University, or by third parties.
  - Reuse at least 90% of furniture and equipment consequential from accommodation refurbishments.
- e) Promote the use of food waste bins and establish in 2024/25 a new baseline and thereafter agree a reduction target.

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<sup>2</sup> Objectives for waste, recycling and reuse are set out in the [Environment Management System's Objectives and Targets](#), and publicised separately.

9. better quantify and then plan for reducing adverse carbon impact of Scope 3 activity, including:
  - a) Reduce mains water consumption and impact on the sewage system, work towards designing out unjustifiable water consumption in new builds and major refurbishment, ensuring soakaways are installed as opposed to discharging to the public sewer.
  - b) Better understand the institution's impact through Scope 3 procurement and enhance upon the general HESCET measurement methodology, to produce impact values for general and specific procurement streams and establish clear carbon reduction targets for procurement sub-categories.
  - c) Calculate the University business travel carbon footprint and reduce the adverse carbon impact of business travel each year by at least 1%, including through carbon offsetting.
  - d) Calculate and report internally each year on CO<sub>2</sub>e emissions associated with the travel between students' homes and the University.
  - e) Utilising the Staff Survey of 2022/23 as the baseline, target an increase in public transport and active travel for staff commuting
  - f) Work with Local Authorities and the Students' Union to develop an Active Travel Strategy that will encompass health, wellbeing, and sustainability, supported by appropriate facilities. Develop a Pedestrian and Active Travel First Strategy on campus, investing in the campus so that the hierarchy of prioritisation changes to Pedestrian First.
  - g) Achieve an annual reduction in calculable Scope 3 CO<sub>2</sub>e emissions, with a 30% reduction target set for 2030 for CO<sub>2</sub>e impact of procurement, business travel, water and waste.
10. address any Scope 1, 2 & 3 off-setting and work towards being fully net-zero before 2050 in line with the Intergovernmental Panel on Climate Change (IPCC) recommendation and the Welsh Government's net zero pathway.

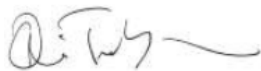
The Sustainability Development Group will annually monitor this Plan and take a lead on the delivery of a net zero future.

**Scope 1** – Direct Green House Gas (GHG) emissions from the consumption of fossil fuel through direct use and operations e.g., our buildings and University vehicles

**Scope 2** – Indirect GHG from consuming purchased gas, oil, and electricity

**Scope 3** – Indirect emissions such as the goods and services we buy, transportation, waste generation and removal, water supply and sewage treatment, investments, leased assets and other

Approved by:



Date: 18 March 2025

**Professor Oliver Turnbull, Deputy Vice-Chancellor, Chair of the Sustainability Development Group**

Review Date: 2028

Summary of Scope 3 categories, performance, outputs in tonnes CO2e, and targets:

	General Waste	Construction Waste	Non-Residential Water Supply	Water Treatment	Student Accommodation <sup>^</sup>	Staff & Student Business Travel (Car use)	Staff & Student Business Travel (Flights)	Staff Commuting	Student Commuting	Student Home – University Travel	Procurement <sup>^^</sup>	Total Scope 3
2018/19	15.32*	-	27.41*	86.09*	24.91*	225.71*	-	-	-	-	27,971*	28,350.44
2019/20 (Covid)	11.56	-	40.66	75.86	N/A	150.82	-	-	-	-	30,617	30,895.90
2020/21 (Covid)	9.41	-	8.17	19.55	4.31	15.87	-	-	-	-	23,856	23,913.31
2021/22	15.2	-	10.7	27.44	7.15	72.79	-	-	-	-	23,560	23,693.28
2022/23	13.76	-	13.76	21.43	9.18	144.41	612.95*	1,871*	-	7,397.14*	34,240	44,323.63
2023/24	5.07	-	8.59	18.24	8.40	159.11	770.60	1,871	4,052*	12,898.72	19,687	39,478.73
2024/25	3.82	-	11.22	17.06	10.91	128.00	488.91	1,504.48	4,052	5,714.65	16,047	27,978.05
2025/26		*										
Current reduction target from baseline	1.5%	-	2%	2%	2%	2%	2%	1%	1%	1%	1%	-

\* Baseline targets created/to be created in this year

<sup>^</sup> Student Accommodation – Water supply carbon emissions for all residences owned by Bangor University, including those managed in-house and all our externally contracted accommodation.

<sup>^^</sup> Procurement data is obtained from the Higher Education Supply Chain Emissions Tool (HESCET) and includes purchased good and services, capital goods including building and refurbishment and transportation of goods to the University.