Carbon Management Plan

1. Introduction

Scientific evidence shows that greenhouse gas emissions from human activity are causing the climate to change. Although it isn't the only greenhouse gas, carbon dioxide is the most significant. As such, the term 'carbon emissions' is often used to talk about all greenhouse gas emissions.

This Carbon Management Plan details the actions the University has committed to take as part of our Sustainability Action Plan, approved by the University Executive Committee (UEC) in July 2021. To track our progress, we report our carbon emissions annually to HESA, as part of the Estates Management Record (EMR). HE Provider Data: Estates Management | HESA

In June 2019, the UK became the first major economy to pass legislation that commits the country to net zero emissions by 2050 relative to 1990 levels.

Net zero means cutting greenhouse gas emissions to as close to zero as possible and removing any unavoidable emissions from the atmosphere by methods such as offsetting or carbon capture technologies.

Research suggests that to avoid the worst impacts of climate change and preserve a habitable planet, global warming needs to be limited to 1.5°C above pre-industrial levels. To achieve this, as called for in the Paris Agreement, emissions need to be reduced by 45% by 2030 and reach net zero by 2050.

Many universities and other organisations have declared a 'Climate Emergency' and made public commitments to achieve net zero emissions. Furthermore, the Climate Commission for UK Higher and Further Education is urging every university and college to sign up to the United Nations Race to Zero campaign.

Achieving net zero is a journey with no single route. Different organisations have different starting points, needs, challenges and opportunities. There is no 'off-the-shelf' solution.

1.1 Sustainability Ambition Statement

On 16th May 2023, Durham University's Council approved a Sustainability Ambition Statement. This includes a target to achieve **Net Zero by 2035** and **Biodiversity Net Gain by 2032**. The Net Zero target has been developed using Science-Based Targets Initiative (SBTi) methodology and addresses all scope 1 and 2 emissions and some scope 3 emissions as shown in the table below.

The Sustainability Ambition Statement includes the following aims:

1.1 We will embed sustainability at every level in the University, creating a culture where all staff and students can play their part in the University achieving our vision. Sustainability will be a central element of our research, our education, our wider student experience, and our engagement with stakeholders across the city, the region and beyond.

1.2 We will reduce our greenhouse gas emissions (GHG) to achieve Net Zero by 2035, or before. To do this we will reduce the Scope 1 and 2 GHG emissions (those that we directly control) to as close to zero as possible and offset any remaining by active removal from the atmosphere by natural or technological processes.

1.3 Achieving Net Zero by 2035 is aligned to the Science Based Targets for GHG reductions that the latest climate science says is necessary to meet the goals of the Paris Agreement—to limit global warming to well-below 2°C above pre-industrial levels and pursue efforts to limit warming to 1.5°C.

1.4 Alongside realising our Net Zero 2035 target will be actions that tackle, as quickly as possible, our Scope 3 emissions – with a long-term objective of striving to achieve Absolute Zero emissions by 2050.

Net Zero Key Metrics

Activity over which the University has direct control	2018/19 tCO2e1	Scope*	2035 Net Zero target tCO2e1	2034/35 Science Based Target reduction (%)**
Estate (Gas, Fleet, Fuel & F-Gas)	13,831	1	4,564	67%
Electricity Use	10,179	2	0	100%***
Business travel	5,732	3	3,439	40%
Commuting	37	3	22	40%
Waste	59	3	35	40%
Water	412	3	247	40%
Total	30,250	1,2 & 3	8,308	-73%

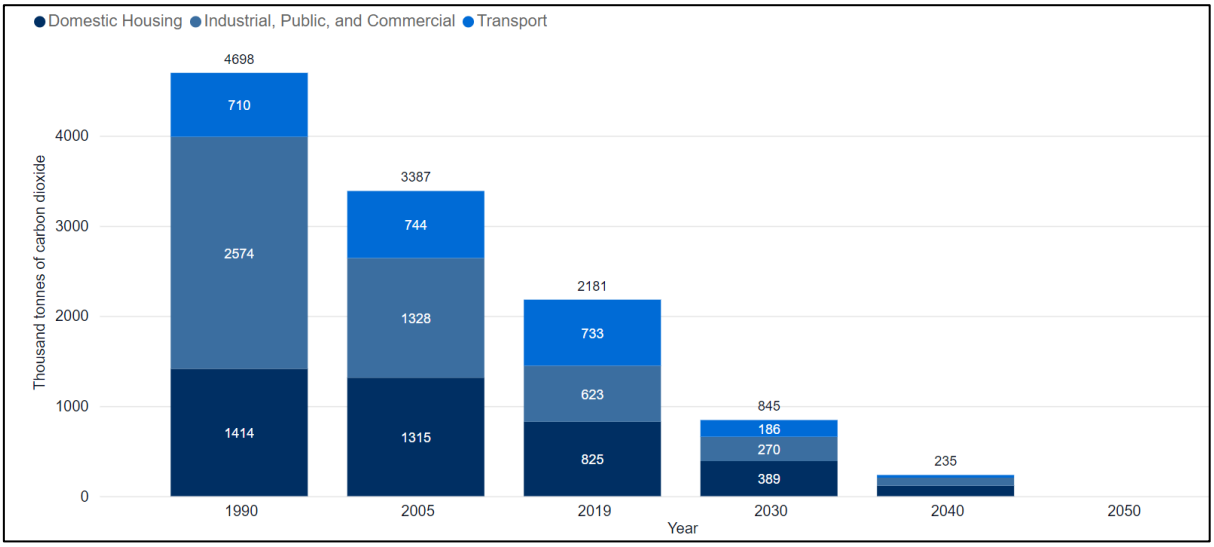
Information about the University's carbon footprint and different emission scopes can be found in **Section 2** of this document. Durham University's Biodiversity Strategy can be found at Enhancing Biodiversity - Durham University

1.2 A Carbon Neutral County Durham

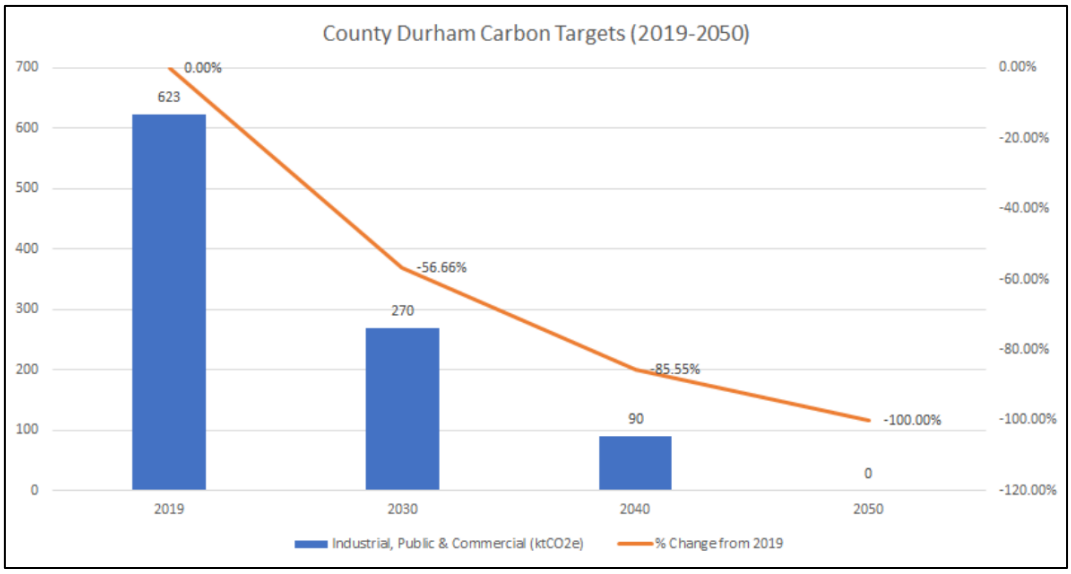
On 20th February 2019, Durham County Council declared a Climate Emergency and adopted targets to reduce emissions from its operations. Following the declaration of a climate emergency, the Council updated its targets and pledged to make County Durham carbon neutral by 2045. The University recognises it has a role to play in making County Durham carbon neutral and will continue to work closely with Durham County Council and others to achieve this.

The graph below shows carbon emissions for County Durham between 1990 and 2019 and target goals for 2030, 2040 and 2050.

Actual Data and Targets to a Carbon Neutral County Durham[1]



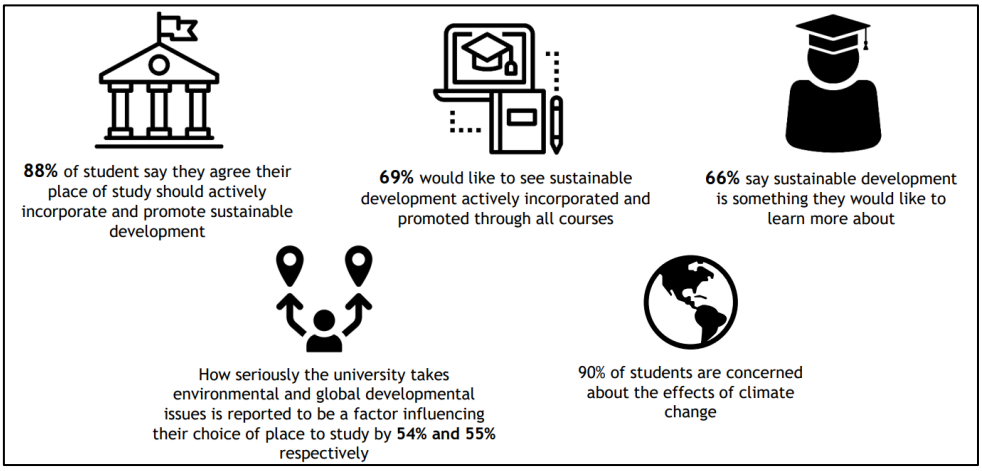
Actual Data and Targets for Industrial, Public and Commercial Emissions in County Durham



[1] Durham County Council (2022), *How are we doing.* [Online] Available at: https://climatecountydurham.org.uk/how-are-we-doing/

What do students think about sustainability?

According to the Sustainable Skills Survey 2020-21 carried out by SOS-UK, around 80% of students want their institution to be doing more on sustainability, and around 60% want to learn more about it[2].



Climate Resilience

Human activities are estimated to have already caused approximately 1.1°C of global warming above pre-industrial levels[3]. According to UK Climate Projections (UKPC) from the Met Office, within the next ten years the UK is likely to experience warmer and wetter winters and hotter and dryer summers. From the University's perspective, climate change presents risks including:

- Damage to buildings and infrastructure caused by flooding and strong winds.
- Power outages that could affect ICT systems and sensitive research.
- More regular and severe overheating of buildings leading to ill health, reduced productivity, and increased costs.
- Disruption of supply chains due to international climate-related impacts.
- Disruption of transport links.
- Disruption to construction of capital projects.
- Drought conditions adversely affecting playing fields and landscaped areas used for student sports and recreation.

[2] Students Organising for Sustainability (2021), *Sustainability Skills Survey 2020-21*. [Online] Available at: https://uploads-ssl.webflow.com/6008334066c47be740656954/60f6908f10bfcc10d2c87d55_20210716_SOS-UK%20Sustainability%20Skills%202020-21_FINAL.pdf

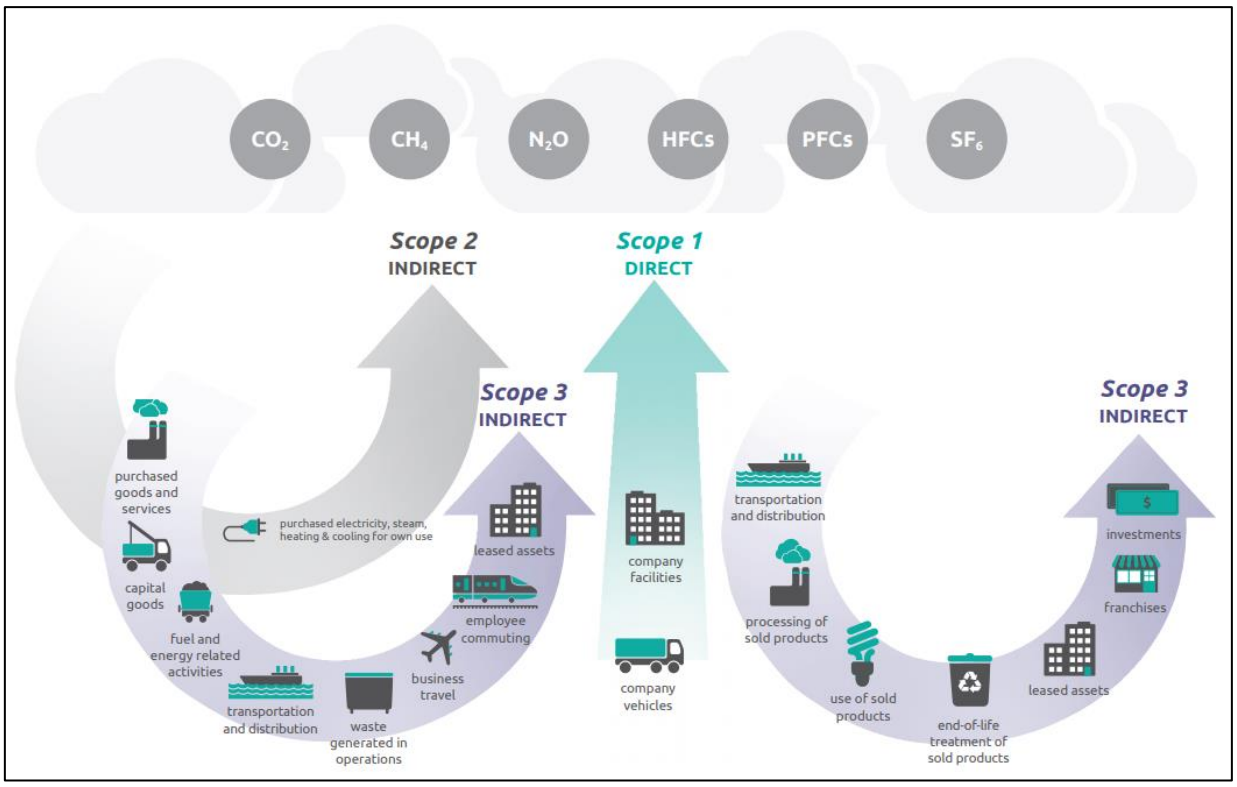
[3] United Nations (2022), *For a Livable Climate: Net-zero commitments must be backed by credible action*. [online] Available at: https://www.un.org/en/climatechange/net-zero-coalition

It is important to identify potential risks caused from existing and locked in climate change; understand how these interact with university operations and ensure we account for climate resilience in plans. As well as risks, climate change has also opened opportunities in research, teaching and funding.

2. Durham University's Carbon Footprint

Durham University has been collecting and reporting environmental performance data for many years and provides detailed carbon emissions data to the Higher Education Statistics Agency (HESA) in the annual Estates Management Record (EMR). This data is publicly available from the HESA website HESA - Experts in higher education data and analysis.

Under the Greenhouse Gas Protocol, emissions are categorised into three scopes[4]:



Scope 1: Direct emissions from sources owned or controlled by the University including:

- Natural gas (boilers and CHP)
- Fuel oil (boilers)
- Petrol and Diesel (university-owned vehicles)

[4] World Resources Institute and World Business Council for Sustainable Development (2011), *Greenhouse Gas Protocol: Corporate Value Chain (Scope 3) Accounting and Reporting Standard.* [online] Available at: Corporate-Value-Chain-Accounting-Reporing-Standard_041613_2.pdf (ghgprotocol.org)

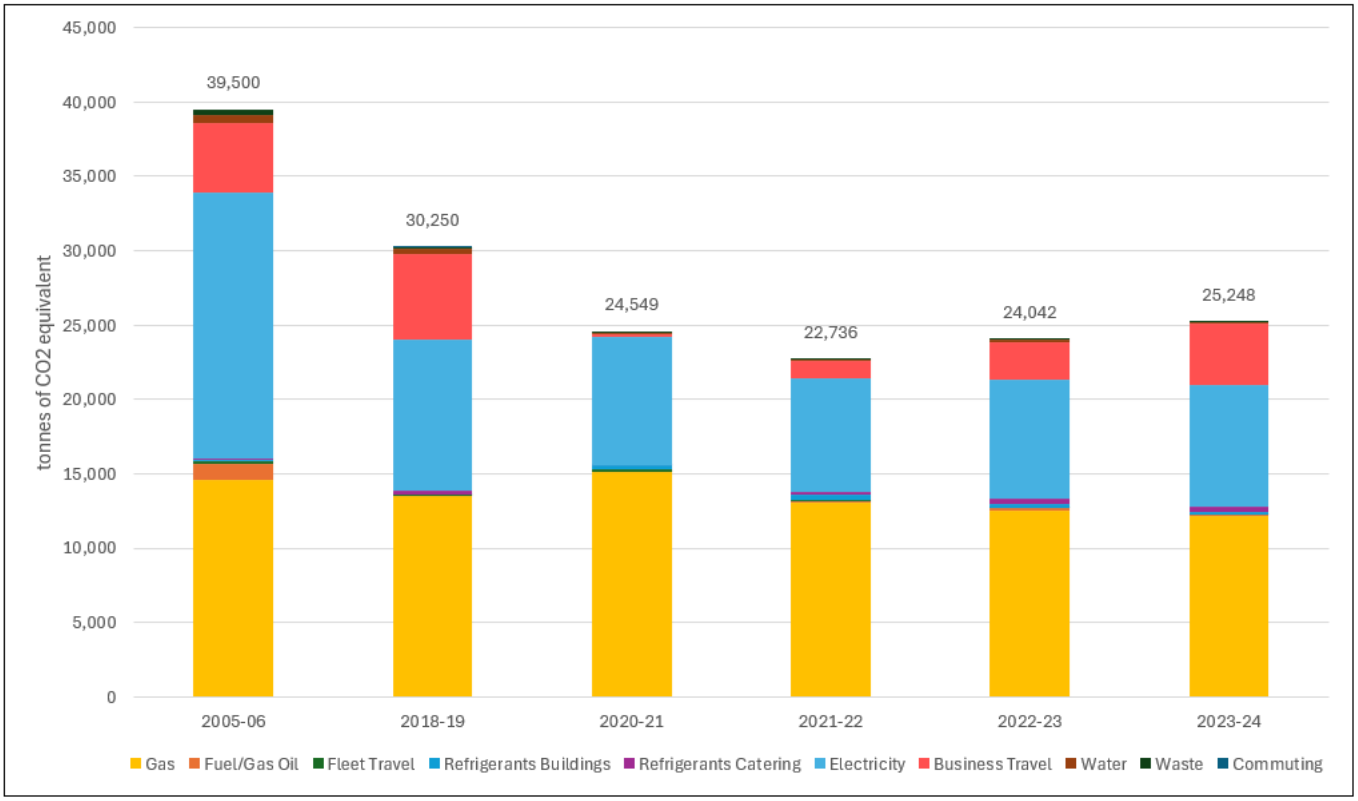
- Fugitive emissions (fluorinated gases found in air conditioning, refrigeration systems and heat pumps).

Scope 2: Indirect emissions from the consumption of purchased electricity used by the University.

Scope 3: All other indirect emissions occurring in the University's value chain. In 2022 we completed a Scope 3 Screening Exercise with the Carbon Trust; details are included in Section 3.

Emissions have been calculated for each year using conversion factors issued by the UK Government's Department for Business, Energy, and Industrial Strategy (BEIS)[5] and aligned with the Standardised Carbon Emissions Framework (SCEF).

The University's reporting year runs from 1st August to 31st July. Our reported emissions cover the provision of education and research, and the management of buildings, laboratories, and land under the University's control in Durham and Stockton.



[5] **Crown Copyright (2020),** ***Government conversion factors for company reporting of greenhouse gas emissions*****. [online] Available at:** Government conversion factors for company reporting of greenhouse gas emissions - GOV.UK (www.gov.uk)

Emissions tCO2e

Emissions Source	Emissions Scope	2005-06	2018-19	2020-21	2021-22	2022-23	2023-24
Gas	1	14,545	13,474	15,132	13,097	12,520	12,170
Fuel/Gas Oil	1	1,079	11	27	44	164	78
Fleet Travel	1	177	139	108	59	34	21
Refrigerants Buildings	1	139	10	279	402	245	132
Refrigerants Catering	1	63	197	53	158	323	402
Electricity	2	17,889	10,179	8,650	7,633	7,997	8,156
Business Travel	3	4717	5,732	143	1,158	2,577	4,149
Water	3	477	412	121	150	147	130
Waste	3	444	59	37	35	35	12
Commuting	3		37				
		39,500	30,250	24,549	22,736	24,042	25,248

Emissions summary of most recent reporting year (2023-24)

Emissions Summary	tCO2e
Scope 1	12,802
Scope 2	8,156
Scope 1 + 2	20,958
Scope 3	4,291
Total Emissions	25,248

Scope 3 Emissions: Independent Colleges

Several of our colleges operate as separate legal and financial entities, they employ their own staff and manage their own buildings. Student accommodation at John Snow and South Colleges is operated and managed by Campus Living Villages, a world leading provider of on-campus accommodation in the UK, Australia and the USA. Durham University works closely with partner organisations to monitor and minimise environmental impact, but because the University does not have direct financial or operation control of these assets the associated carbon emissions are reported under Scope 3 in accordance with the Standardised Carbon Emissions Framework[6]. Our partners also include these emissions within their own greenhouse gas reporting.

Scope 3 emissions from independent Colleges are shown below. These include St. John's College, South College and John Snow College.

Reporting year 2023-24

Emissions Summary	tCO2e
Scope 3 (Independent Colleges)	887

[6] EAUC (2023), Standardised Carbon Emissions Framework (SCEF), [online] available at: https://www.eauc.org.uk/scef

Scope 3 Emissions: Supply Chain

The table below shows the most recent data, as reported to HESA, on emissions arising from purchased goods and services and capital goods, including building and refurbishment.

Reporting year 2023-24		
Scope 3 carbon emissions from supply chain business services (E3SCBS)	t CO_2e	13,473
Scope 3 carbon emissions from supply chain paper products (E3SCPP)	t CO_2e	596
Scope 3 carbon emissions from supply chain other manufactured products (E3SCMP)	t CO_2e	6,289
Scope 3 carbon emissions from supply chain manufactured fuels, chemicals, and gases (E3SCMFCG)	t CO_2e	1,091
Scope 3 carbon emissions from supply chain food and catering (E3SCFC)	t CO_2e	8,705
Scope 3 carbon emissions from supply chain construction (E3SCCON)	t CO_2e	6,743
Scope 3 carbon emissions from supply chain information and communication technologies (E3SCICT)	t CO_2e	17,629
Scope 3 carbon emissions from supply chain waste and water (E3SCWW)	t CO_2e	436
Scope 3 carbon emissions from supply chain medical and precision instruments (E3SCMPI)	t CO_2e	10,340
Scope 3 carbon emissions from supply chain other procurement (E3SCOTH)	t CO_2e	5,332
Scope 3 carbon emissions from supply chain unclassified (E3SCUNC)	t CO_2e	99
		70,732

2.1 Sustainable Travel

The University has targets to reduce Scope 3 emissions from business travel and commuting by 40% by 2035 against a 2018-19 baseline. These targets have been published in the University's Sustainability Ambition Statement.

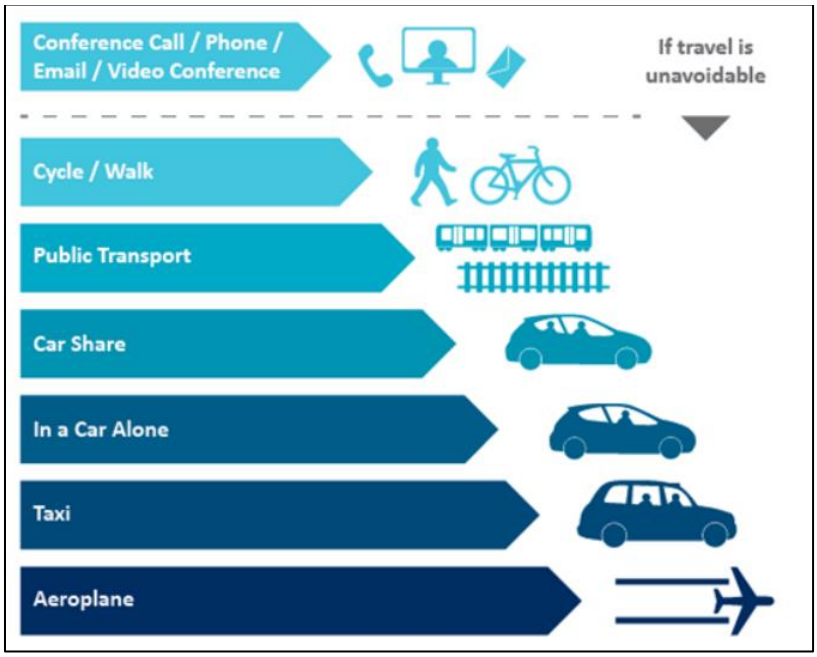
To deliver these targets, the University has developed an Integrated Sustainable Travel Plan (ISTP) 2020-2025. The Plan was approved by the Vice Chancellor in 2020 and aims to:

- Actively promote the health and well-being benefits of all forms of sustainable travel and encourage their use.
- Discourage unnecessary travel through the implementation and promotion of alternatives.
- Reduce the carbon emissions arising from all transport connected to Durham University: journeys to work, business travel, and supply chain delivery.
- Co-operate with key stakeholders and the wider community to further these aims.

A detailed action plan is set out in Section 9 of the ISTP.

The University is currently finalising a Business Travel Policy which will build upon the commitments outlined in our last Integrated Sustainable Travel Plan (2020-25) to using a 'business travel hierarchy'. This will broaden good practice already in place, such as our International Team's travel decision tree which seeks to reduce business travel emissions through minimising carbon- intensive travel. This will also be included in the refresh of our Integrated Sustainable Travel Plan to run from 2026.

Travel Hierarchy



3. Net Zero Feasibility

This section contains information about previous work that has informed our approach to climate action.

- Strategic Decarbonisation Review, Buro Happold, 2017
- Scope 1 & 2 Science-Based Targets and Feasibility Analysis, Carbon Trust, 2021
- Scope 3 Screening and Carbon Footprint Measurement, Carbon Trust, 2022
    - Heat decarbonisation strategy, Buro Happold, 2024

Strategic Decarbonisation Review (2017)

The purpose of the Decarbonisation Review was to consider technologies and approaches that could lead to a significant reduction in Durham University's carbon emissions and/or annual energy costs during the 10-year Masterplan period (2017-2027), whilst also considering a longer-term aspiration to achieve net zero carbon by 2050.

The study compared carbon emissions, energy consumption and energy costs of four different scenarios between 2018-2050.

The four scenarios were:

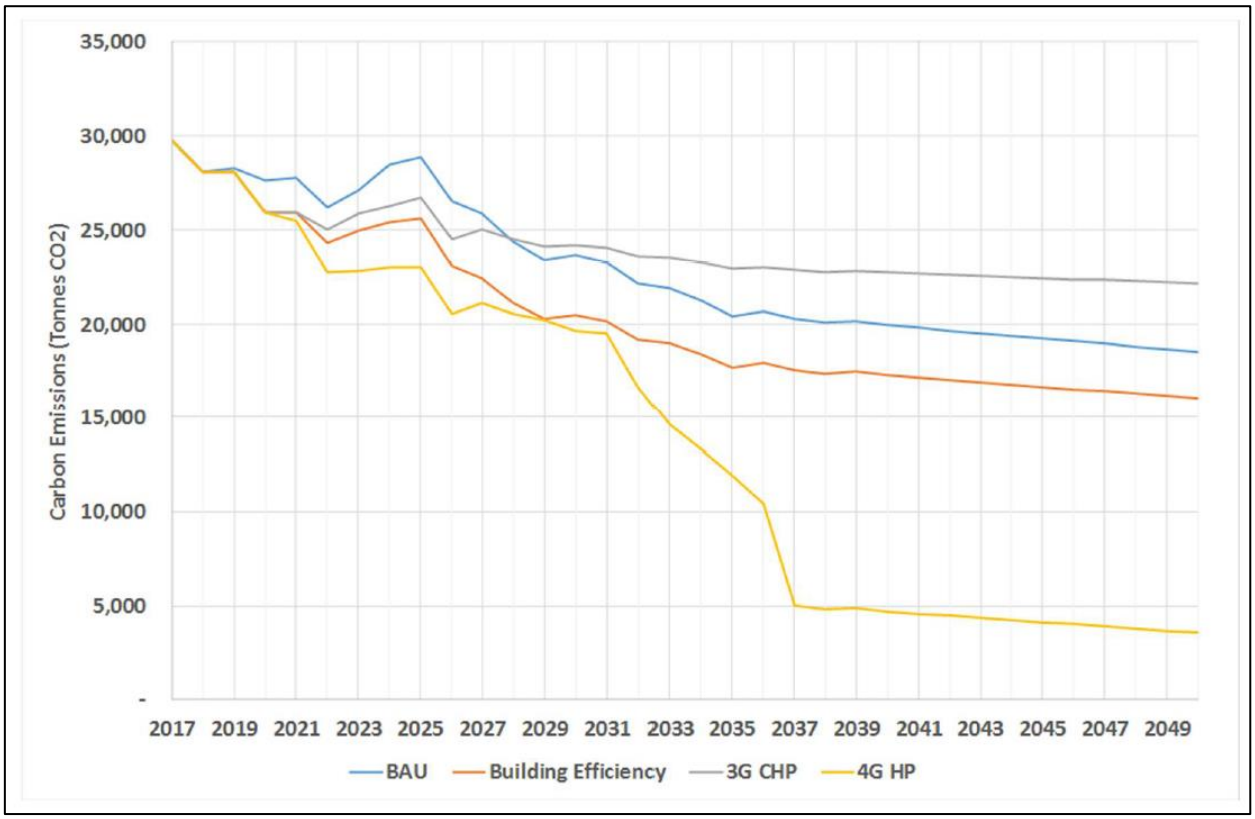
- Business as usual (BAU)
- Building efficiency improvements
- 3G CHP

- 4G Heat Pumps

The study concluded that the 4G heat pump scenario was the best option for achieving net zero by 2050.

Appendix 1. includes a summary of measures recommended by Buro Happold to decarbonise the estate.

Carbon emissions for each scenario (present – 2050)



Scope 1 & 2 Science-Based Targets & Feasibility Analysis (2021)

The University employed the Carbon Trust to carry out a science-based targets and feasibility analysis. Science-based targets provide a pathway for organisations to reduce greenhouse gas emissions in line with the Paris Agreement, which aims to limit global warming to well-below 2°C above pre-industrial levels and to purse efforts to limit warming to 1.5°C[7].

A baseline year of 2018/19 was chosen for the science-based targets because it more accurately reflects normal activity on campus. Due to the operational impact of Covid-19, 2019/20 was not used as a baseline.

[7] Science Based Targets (2021), *How it works*. [online] Available at How it works - Science Based Targets

According to GHG Protocol guidance, there are two ways to report scope 2 emissions[8]. The location-based method uses the average emission factor of the grid. The market-based method involves using an emission factor that is specific to the electricity being purchased.

Durham University's location-based scope 1 & 2 emissions in 2018/19 were 24,010 tCO2e. To reduce emissions in accordance with the Paris agreement, the University would need to achieve a 46% reduction by 2030 and a 67% reduction by 2035.

Durham University's 2018/19 Carbon Footprint Baseline

Scope 2 Reporting Method	Scope 1 emissions (tCO2e)	Scope 2 emissions (tCO2e)	Total scope 1&2 emissions (tCO2e)
Location-based	13,831	10,179	24,010
Market-based		44	13,875

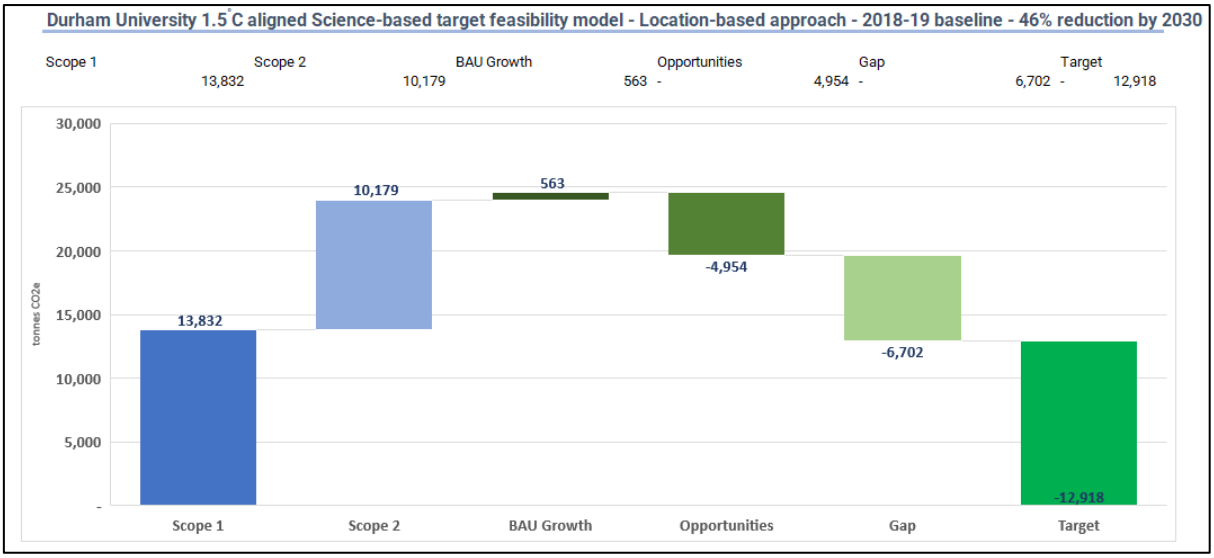
Proposed science-based carbon reduction targets

	Measure	Unit	2018/19	2029/30	2034/35
Location -based	Scope 1&2 absolute emissions	tCO2e	24,010	12,918	7,876
	Change in absolute emissions v. baseline year	%	N/A	-46	-67

The feasibility analysis included a workshop with staff from the Estates & Facilities Directorate and the Carbon Trust to produce a list of opportunities for reducing emissions. The opportunities identified would reduce emissions by 4,954 tCO2e (21%) against the 2018/19 baseline, which falls short of the 2030 target by 6,702 tCO2e.

[8] World Resources Institute (2015), *GHG Protocol Scope 2 Guidance*. [online] Available at: Scope 2 Guidance_Final_Sept26.pdf (ghgprotocol.org)

Priority	Opportunity	Scope	Fuel type	Start year	End year	Energy savings (kWh)	Carbon savings (tCO2e)
1	Energy Management	2	Electricity	2021	2030	1,191,175	278
2	Staff & Student Training	2	Electricity	2021	2030	1,191,175	278
3	Utilising off site data storage centres	2	Electricity	2022	2025	3,500,000	816
4	Complete remaining LED opportunity	2	Electricity	2021	2027	1,786,762	417
5	EC Plug fans	2	Electricity	2022	2030	893,381	208
6	Raising DEC rating to minimum 'C' across property portfolio (excludes 'G' banding)	1	Gas	2019	2030	4,056,813	746
7	Heat Pump	1	Gas	2022	2030	8,408,185	1,546
7	Heat Pump (electricity use increase)	2	Electricity	N/A	N/A	-2,802,728	- 653
8	PV (Large)	2	Electricity	2023	2025	2,997,286	699
9	PV Building	2	Electricity	2023	2030	1,770,963	413
10	Refrigerant gas changes	1	Fugitive emissions	2022	2030		207



Scope 3 Screening and Carbon Footprint Measurement

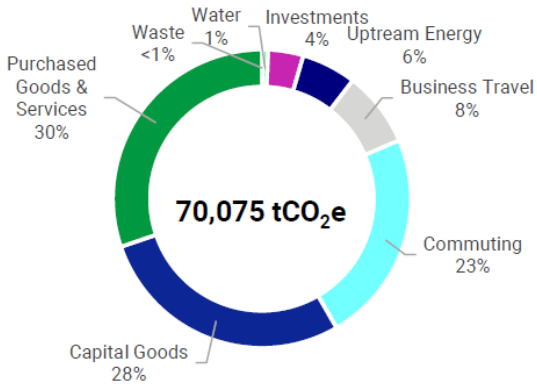
Scope 3 emissions from business travel, water and waste have been reported as part of our Estates Management Record since 2005. Recognising that these are just a few elements of the University's overall scope 3 footprint, we commissioned the Carbon Trust to carry out a more detailed assessment. The study looked at carbon emissions from sources including purchased goods and services, construction, commuting, business travel and investments.

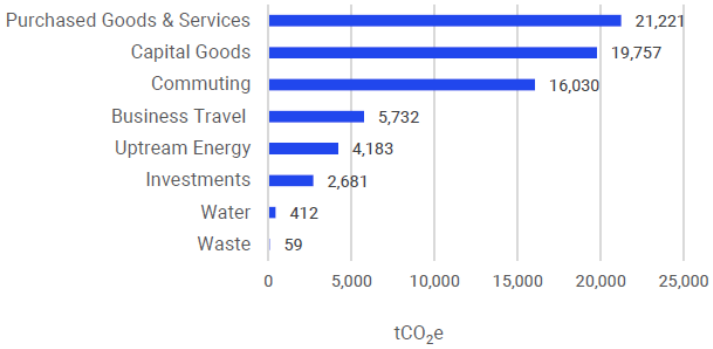
Durham University's total scope 3 emissions in 2018/19 were 70,075 tCO2e.

The three largest contributors were:

- Purchased Goods and Services, representing 30% (21,221 tCO2e)
- Capital Goods (including embodied carbon from construction), contributing 28% (19,757 tCO2e)
- Commuting from staff and students contributed 23% (16,030 tCO2e). This figure includes estimated emissions from travel by international students to and from their home country.

The remaining 19% of the footprint was formed from Business Travel (transport and accommodation), Upstream Energy (including transmission and distribution), Investments, Waste and Water.





Each of these main categories was analysed further to identify more specific emission 'hot spots'.

The largest contributors within **Purchased Goods & Services** were:

- Food & Drink: 5,043 tCO2e (24% of PG&S)
- Estates (maintenance & refurbishment): 4,699 tCO2e (22% of PG&S)
- IT: 3,670 tCO2e (17% of PG&S)
- Lab supplies: 2,628 tCO2e (12% of PG&S)
- Comms services: 930 tCO2e (4% of PG&S)

Scope 3 emissions were calculated using Environmentally Extended Input-Output (EEIO) factors and expenditure information. EEIO factors are useful for providing an estimate but are not specific to a particular supplier or product. To improve the accuracy of our scope 3 reporting, we will continue to engage with our suppliers and obtain emission data for products and services.

Heat decarbonisation study, 2024

In winter 2023/24, Durham University employed Buro Happold to produce a study outlining how Durham University would decarbonise heat at the main part of its estate. A strategic piece of work to consider, building by building, and campus wide, the most effective approach to decarbonising heat in buildings.

Buro Happold concluded that the construction of 3 distinct heat networks at the University would facilitate emissions reduction to reach our Net Zero target by 2035. Heat networks would utilise air source heat pumps to provide heat to buildings, waste heat from the university's data centre could also be salvaged for use around the estate. Energy centres built to serve the heat networks would have potential to utilise novel sources of heat in the future.

To facilitate the construction of these heat networks, the Buro Happold team concluded that the university would need a new electricity supply that would power heat pumps in energy centres. This new supply would also future proof the university for future growth, electric vehicle charging and potential future demand.

4. Carbon Reduction

Reducing emissions as far as possible and removing any unavoidable emissions from the atmosphere are fundamental aspects of our carbon management plan. The actions we will take to reduce our emissions are documented in our Sustainability Action Plan.

Sustainability Action Plan

The University has a Sustainability Action Plan approved by the University Executive Committee. This has been developed using the EAUC Climate Action Toolkit and contains actions relating to a range of strategic areas including Carbon Emissions, Energy, Leadership & Governance, Research, Construction & Buildings, Travel, Waste and Water.

A summary of the actions we will take to reduce carbon emissions can be found in Appendix 2.

Responsibility

This section contains information about reporting, governance, and funding.

Carbon Reduction

The Estates & Facilities Senior Leadership Team are responsible for carbon reduction on the University estate. This is led by:

4.1 Ian Rooney, Director of Estates & Facilities

and includes representation from:

4.2 Helen Strangward, Director of Accommodation and Commercial Services (in which the Sustainability Team sits);

4.3 Paul Hammond, Interim Assistant Director of Engineering and Asset Maintenance (and line manager to Energy Manager (Infrastructure);

4.4 Alison Rutherford, Interim Head of Campus Services (and line manager to Senior Sustainability Manager).

University Executive Committee (UEC)

The University Executive Committee (UEC) has overall responsibility for the University's performance. The committee make strategic decisions and allocate resources to deliver agreed objectives, including those relating to environmental sustainability.

The Director of Estates and Facilities reports to Professor Mike Shipman, Deputy Vice Chancellor and Provost who sits on the University Executive. Professor Shipman is also responsible for our Strategic Performance Indicator on Total Gross Emissions, a key metric in achieving Net Zero.

Monitoring Performance

The Energy & Sustainability Team collect carbon emissions data across all scopes. Detailed carbon emissions data is reviewed by the University's Executive Committee and reported in the University's Annual Report.

The Environmental Sustainability Strategic Planning Group (ESSPG)

The Environmental Sustainability Strategic Planning Group (ESSPG) meet once a term to review the progress of sustainability initiatives and monitor progress against sustainability Key Performance Indicators, including those relating to Carbon Emissions. The ESSPG also carries out the annual Management Review of the environmental management system (EMS). The diverse nature of the University is well represented on the group with membership consisting of both staff and students. Members include representatives from professional services, academic departments, colleges, and other steering groups.

University Energy Conservation Working Group

The Energy Conservation Working Group is responsible for implementing energy saving measures and promoting best practice across the University. The group meets monthly and brings together representatives from academic departments, colleges and professional services. It is chaired by Professor Stefan Przyborski Deputy Provost and reports to Professor Mike Shipman Deputy Vice-Chancellor and Provost, who is a member of the University Executive Committee.

Energy & Sustainability Team

The University's Energy & Sustainability Team are part of the Estates and Facilities Directorate and play a critical hands-on role in the implementation of environmental policies, plans and procedures. The team has a broad remit that includes implementing the University's environmental management system; overseeing compliance with environmental legislation; collecting, monitoring, and reporting energy and carbon data; coordinating engagement with staff and students around sustainability; implementing initiatives relating to active and sustainable travel; maximising recycling and managing the collection and disposal of waste; minimising procurement-related emissions; and protecting and enhancing biodiversity across the estate.

Finance & Funding

In addition to the core funding provided to the Energy and Sustainability Team, £100,000 per year is dedicated to initiatives to reduce emissions through the university's Ring-Fenced Carbon fund. Opportunities to apply for external funding to support decarbonisation will also be considered, as well as partnerships with 3rd parties that could facilitate decarbonisation through long term strategic agreements.

Durham Energy Institute (DEI)

DEI produces world-class research for understanding energy decarbonisation and delivers integrated solutions for the climate emergency incorporating social, policy and technical insights.

The DEI brings together researchers from science, social science, and humanities departments across Durham University to build multidisciplinary teams, as evidenced by the National Centre for Energy Systems Integration (CESI), The Customer Led Network Revolution (CLNR), The North East Centre for Energy Materials (NECEM), BritGeothermal and our Centres of Doctoral Training (CDTs).

The work of the DEI contributes to several Sustainable Development Goals. Particularly SDG 7 Affordable and Clean Energy; SDG 11 Sustainable Cities and Communities; SDG 17 Partnerships for the Goals.

Version Control

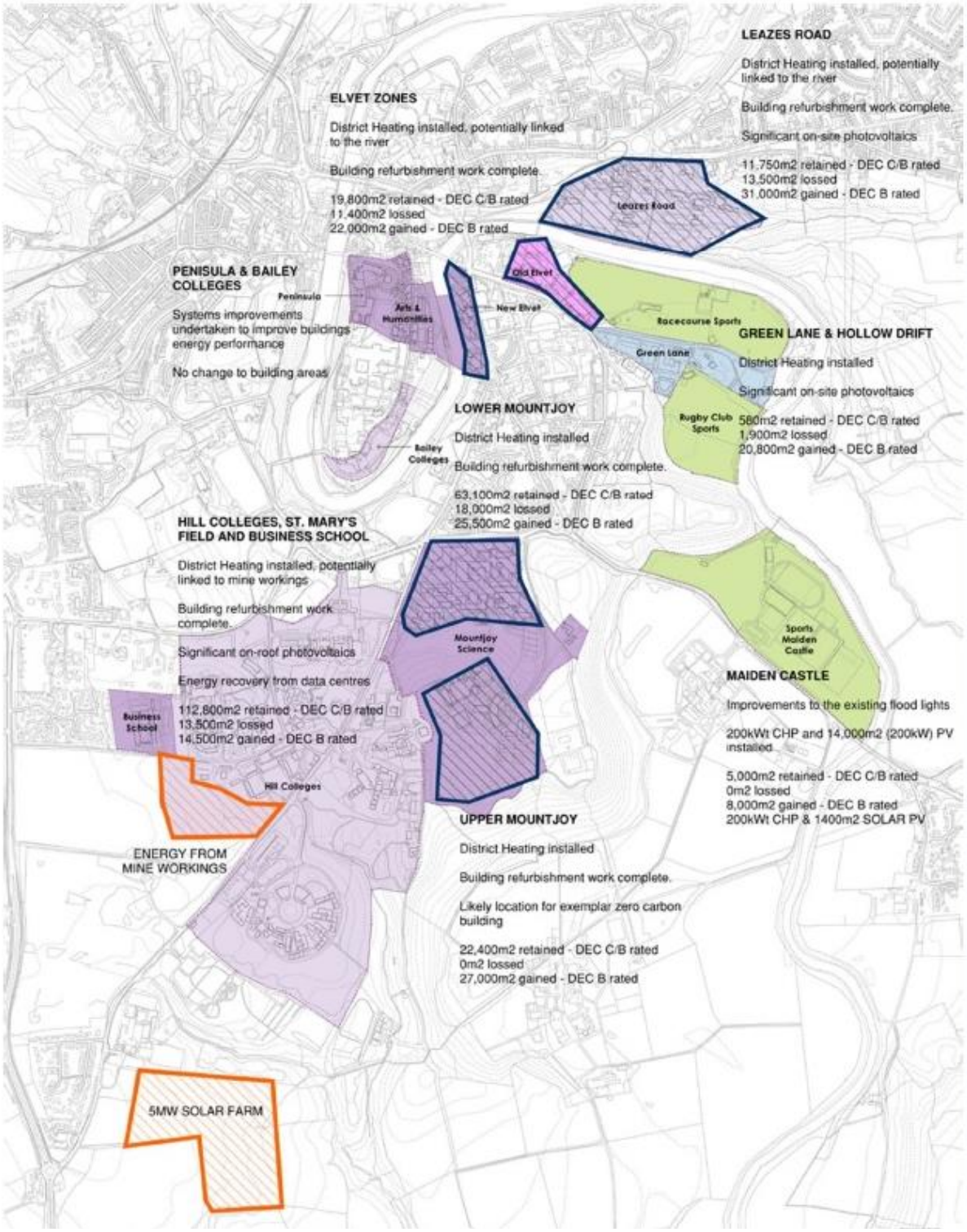
Date:	Version:	Changes:	Author:	Authorised by:
May 2021	0.1	First Draft	Michael Harkness (Manager)	Simon Park (Senior Manager)
June 2021	1	Final Draft approved	Michael Harkness (Manager)	Simon Park (Senior Manager)
24th July 2023	1	Updated to include the Sustainability Ambition Statement and Net Zero target and include latest data	Michael Harkness (Manager)	Simon Park (Senior Manager)
4th July 2024	1.1	Updated to reflect governance changes	Michael Harkness (Manager))	Tom Bray (Senior Manager)
10th April 2025	1.2	Updated to reflect governance changes, to correct a data rounding issue, and to include most recent data	Michael Harkness (Manager)	Jane Simmons (Senior Manager)
16th June 2025	1.3	Updated to include latest plans for the university estate	Tom Bray (Senior Manager)	Paul Hammond (Assistant Director)
5th August	1.4	Update to include Travel Hierarchy, scope 3 emissions for independent colleges and supply chain, and the Energy Conservation Working Group	Michael Harkness (Manager) Jane Simmons (Senior Manager)	Paul Hammond (Assistant Director)

Appendix 1: Strategic Decarbonisation Review (Buro Happold, 2017)

STAGE TWO, IMPLEMENTING: 2020 to 2027

Item	Description
Install energy centre(s) and district heating	As default the installation will be to a 3G specification (i.e., mature Gas CHP and boiler plant most common heat sources, efficiently achieve flow temperatures of ≈ 90C), unless coupled to the river. Consider designing for 4G (i.e., flow temperature of 65C or below) or ambient heat loops (i.e., ambient temperature for use of local heat pumps). Include a Technology Test Bed within at least one energy centre.
Implementation of Design Code	All buildings are to be strictly developed to meet or better the Design Code.
Refurbishment and / or retrofit of worst performing buildings (essential work)	Ensure no buildings are performing outside the minimum requirements (DEC D or better). LED lighting the default throughout the estate. Prepare for lower heating system temperatures. Fabric improvement (e.g., wall and glazing). District energy readiness. Roof photovoltaics installations.
Commence energy saving building retrofit activities – academic and support buildings	Commence 2019 following the completion of the detailed retrofit studies.
Commence energy saving building retrofit activities – colleges	Commence 2019 following the completion of the detailed retrofit studies.
Development of an outstanding building to act as a catalyst	An outstanding building that will aspire to be very low carbon emitting. Implement measures that are repeatable across the estate. Be prepared to challenge all aspects of the design, construction, and operation.

Figure 6.2: Implementing Stage, 2020 to 2027



STAGE THREE, REFINING: 2027 TO 2050

Item	Description
Progressively lower the operating temperatures of the district heating system (3G to 4G)	Consider switch to 4G operation (i.e., flow temperature of 65C or below) or ambient heat loops (i.e., ambient temperature for use of local heat pumps). Technology Test Bed is actively bringing new technologies into the estate.
Updated Design Code	Continue to evolve the Design Code to reflect the latest developments in building energy efficiency, with a move towards creating zero carbon buildings.
Introduction of Smart Grid Technology	Significant controls retrofit to enable the introduction of smart grid technology.
Further large-scale renewable energy projects	Develop further large-scale renewable energy source (on or off-site), sufficient to close the carbon emissions gap to achieve a zero-carbon estate.

Durham University

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Appendix 2: Sustainability Action Plan (UEC Approved July 2021)

Focus Area: Carbon Emissions

Sustainability Strate Area	Focus Are	Action	Action Details	Sustainable Developme Goal(s)	Target Date	Progress	Responsible Pers	Reference Number
Estate Operations	Carbon Emissions	Scope 1 & 2 Emissions	Develop a Science Based Target aligned with the Paris Agreement 1.5oC warming scenario, plus an action plan to hit the target approved by UEC	Climate Action	2022	Started	Director of Estates & Facilities	4.2.1
Estate Operations	Carbon Emissions	Scope 3 Emissions	Carry out a Scope 3 Screening exercise to understand our total carbon footprint and identify hotspots for reduction	Climate Action	2022	Completed	Director of Estates & Facilities	4.2.2
Estate Operations	Carbon Emissions	Carbon Management Plan	Produce a Carbon Management Plan detailing how we will reduce Scope 1,2 and 3 emissions by 2030	Climate Action	2022	Started	Director of Estates & Facilities	4.2.3
Estate Operations	Carbon Emissions	Carbon Management Team	Establish a Carbon Management Working Group with a mandate to produce an updated Carbon Management Plan	Climate Action	2021	Completed	Director of Estates & Facilities	4.2.4
Estate Operations	Carbon Emissions	Ring Fenced Carbon Budget	Run the 'Ring Fenced Carbon Budget' scheme	Climate Action	2022	Started	Director of Estates & Facilities	4.2.5
Estate Operations	Carbon Emissions	Carbon Footprint	Understand the institutions operational greenhouse gas emissions reporting boundaries and mechanisms to collect his data	Climate Action	2021	Completed	Director of Estates & Facilities	4.2.6
Estate Operations	Carbon Emissions	Carbon Offsetting	Develop a clear offsetting strategy	Climate Action	2023	Started	Director of Estates & Facilities	4.2.7

Focus Area: Energy

Sustainability Strate Area	Focus Are	Action	Action Details	Sustainable Developme Goal(s)	Target Date	Progress	Responsible Pers	Reference Number
Estate Operations	Energy	LED Lighting	Upgrade the remaining non-LED lighting to LEDs	Climate Action	2025	Started	Director of Estates & Facilities	4.4.1
Estate Operations	Energy	Roof-Mounted Solar PV	Develop a Solar PV installation programme to install panels on viable roof-spaces across the estate	Affordable & Clean Energy, Climate Action	2022	Started	Director of Estates & Facilities	4.4.2
Estate Operations	Energy	Ground-Mounted Solar PV	Look into developing a large-scale ground mounted Solar PV array, either on our estate or close by	Affordable & Clean Energy, Climate Action	2023	Started	Director of Estates & Facilities	4.4.3
Estate Operations	Energy	Electrifying Catering	Kitchen re-refurbishments to transition from gas to electric	Climate Action	2025	Started	Director of Estates & Facilities	4.4.4
Estate Operations	Energy	Heat Pumps	Move away from traditional gas boilers to electric heat pumps	Affordable & Clean Energy, Climate Action	2035	Started	Director of Estates & Facilities	4.4.5
Estate Operations	Energy	Fugitive Emissions	Look to use F-Gases with a GWP of >150	Climate Action	2030	Started	Director of Estates & Facilities	4.5.6
Estate Operations	Energy	Display Energy Certificate Ratings	Raise Display Energy Certificate ratings to a minimum of a 'C' across the property portfolio	Climate Action	2035	Started	Director of Estates & Facilities	4.5.7
Estate Operations	Energy	Energy Management	Adopt energy management best practice and carry out a gap analysis of our current approach against ISO 50001	Climate Action	2022	Started	Director of Estates & Facilities	4.5.8
Estate Operations	Energy	Staff & Student Training	Roll out energy management training and promote awareness through regular engagement with staff and students	Climate Action	2022	Started	Director of Estates & Facilities	4.5.9

Focus Area: Leadership & Governance

Sustainability Strategy Area	Focus Area	Action	Action Details	Sustainable Development Goal(s)	Target Date	Progress	Responsible Person	Reference Number
Leadership & Governance	Governance	Sustainability Champion	Appoint a sustainability champion to University Executive Committee (UEC) and University Council to ensure this agenda is actively promoted	Partnership for the Goals	2022	Started	Vice Chancellor	1.1.1
Leadership & Governance	Governance	Climate Agenda	Ensure climate action is a standing agenda item at appropriate board and committees meetings to ensure regular and consistent consideration and action	Climate Action	2022	Not Started	Vice Chancellor	1.1.2
Leadership & Governance	Governance	Strategy Conflicts	Review policies and strategy to identify conflicts with climate action	Climate Action	2022	Not Started	Vice Chancellor	1.1.3
Leadership & Governance	Governance	Environmental Management System	Achieve Platinum award for Eco Campus environmental management system	Partnership for the Goals	2021	Completed	Director of Estates & Facilities	1.1.4
Leadership & Governance	Leadership	Race to Zero	UEC to sign up to the Race to Zero pledge for Universities and Colleges	Climate Action	2022	Not Started	Vice Chancellor	1.2.1
Leadership & Governance	Leadership	Challenging Targets	UEC to set challenging targets: sign the Global Climate Letter and commit to the Climate Commission's set targets	Partnership for the Goals	2022	Started	Vice Chancellor	1.2.2
Leadership & Governance	Leadership	Climate Emergency	University Council and UEC to declare a climate and ecological emergency and engage with Durham County Council's emergency groups	Climate Action, Partnership for the Goals	2022	Started	Vice Chancellor	1.2.3
Leadership & Governance	Leadership	Communication	UEC to communicate commitments and targets publicly via their institutional strategy, social media and other relevant platforms	Partnership for the Goals	2022	Started	Vice Chancellor	1.2.4
Leadership & Governance	Leadership	Sustainability Training	Access sustainability training for University Council and UEC	Partnership for the Goals	2023	Started	Vice Chancellor	1.2.5
Leadership & Governance	Leadership	Student Feedback	Invite student sustainability leaders to present at UEC and Council/Senate meetings	Partnership for the Goals	2021	Completed	Vice Chancellor	1.2.6
Leadership & Governance	Leadership	Ethical Investment	Develop an Ethical Investment Policy that commits to divesting from fossil fuel extracting companies	Climate Action	2021	Completed	Chief Financial Officer	1.2.7
Leadership & Governance	Leadership	Low Carbon Investment	UEC to build the business case for positive investments in low carbon sectors of the economy	Climate Action	2022	Not Started	Chief Financial Officer	1.2.8

Focus Area: Research

Sustainability Strategy Area	Focus Area	Action	Action Details	Sustainable Development Goal(s)	Target Date	Progress	Responsible Person	Reference Number
Teaching & Research	Research	Carbon Reduction	Review research processes to identify opportunities for minimising carbon emissions in research activities	Climate Action	2023	Not Started	Vice Provost (Research)	2.1.1
Teaching & Research	Research	Risk Assessment	Support academics to conduct risk assessment for research activities' impacts on the climate	Climate Action	2023	Not Started	Vice Provost (Research)	2.1.2
Teaching & Research	Research	Climate Research	Review and orientate the research and KE agenda towards supporting initiatives that provide opportunities for carbon management, climate mitigation and adaptation	Climate Action	2022	Not Started	Vice Provost (Research)	2.1.3
Teaching & Research	Research	Low Carbon Economy	Map local organisations and industries and identify opportunities to exchange knowledge to advance climate action	Climate Action, Partnership for the Goals	2023	Not Started	Vice Provost (Research)	2.1.4

Focus Area: Sustainable Construction & Buildings

Sustainability Strategy Area	Focus Area	Action	Action Details	Sustainable Development Goal(s)	Target Date	Progress	Responsible Person	Reference Number
Estate Operations	Sustainable Construction & Buildings	Sustainable Construction Policy	Review the Sustainable Construction and Renovation Policy in light of the Science Based Target for Scope 1 & 2 emissions	Climate Action	2022	Not Started	Director of Estates & Facilities	4.7.1
Estate Operations	Sustainable Construction & Buildings	Metering Strategy	Review the Energy Metering Strategy and update the Building Services Engineering Design Guide	Climate Action	2022	Started	Director of Estates & Facilities	4.7.2
Estate Operations	Sustainable Construction & Buildings	Maintenance Programmes	Non-Residential and Residential Maintenance Programmes to identify opportunities for additional energy efficiency improvements, which can be funded from the Decarbonisation Budget	Climate Action	2022	Started	Director of Estates & Facilities	4.7.3
Estate Operations	Sustainable Construction & Buildings	Rating Schemes	Achieve BREEAM Excellent for all new build projects, BREEAM Very Good for significant refurbishments and SKA Gold for other refurbishments	Sustainable Cities & Communities	2025	Started	Director of Estates & Facilities	4.7.4

Focus Area: Teaching

Sustainability Strategy Area	Focus Area	Action	Action Details	Sustainable Development Goal(s)	Target Date	Progress	Responsible Person	Reference Number
Teaching & Research	Teaching	Curriculum Audit	Audit curriculum to identify level of sustainability teaching in courses	Partnership for the Goals	2021	Completed	Vice Provost (Teaching)	2.2.1
Teaching & Research	Teaching	Carbon Literacy	Ensure all staff are carbon literate and have understanding of the Sustainable development goals	Partnership for the Goals	2024	Started	Vice Provost (Teaching)	2.2.11
Teaching & Research	Teaching	First Year Open Module	Provide an 'Open Module' covering sustainability to all first year students	Partnership for the Goals	2024	Started	Vice Provost (Teaching)	2.2.12
Teaching & Research	Teaching	Curricula Reform	Utilise the Education for Sustainable Development Framework to guide curricula reform	Partnership for the Goals	2023	Started	Vice Provost (Teaching)	2.2.3
Teaching & Research	Teaching	Climate Anxiety	Consider climate anxiety and support students to handle climate anxiety through teaching	Climate Action	2023	Not Started	Vice Provost (Teaching)	2.2.4
Teaching & Research	Teaching	SDGs	Ensure all courses, including apprenticeships, include the SDGs	Partnership for the Goals	2023	Not Started	Vice Provost (Teaching)	2.2.6
Teaching & Research	Teaching	Field Trip Emissions	Collect and analyse data on air travel from student field trips	Climate Action	2023	Not Started	Vice Provost (Teaching)	2.2.7
Teaching & Research	Teaching	Land Based Trips	Examine the learning objective for courses and develop field trips accessible via ground travel if possible	Climate Action	2022	Started	Vice Provost (Teaching)	2.2.8
Teaching & Research	Teaching	Internationalisation	Liaise with your international teams to review opportunities and challenges in aligning international student recruitment and retention	Climate Action	2023	Started	Pro-Vice Chancellor (Global)	2.2.9

Focus Area: Travel

Sustainability Strategy Area	Focus Area	Action	Action Details	Sustainable Development Goal(s)	Target Date	Progress	Responsible Person	Reference Number
Estate Operations	Travel	Integrated Sustainable Travel Plan	Develop an Integrated Sustainable Travel Plan from 2020 to 2025 and have this approved by UEC	Sustainable Cities & Communities	2021	Completed	Director of Estates & Facilities	4.8.1
Estate Operations	Travel	Super Route	Complete the £6.5m Super Route to improve walking and cycling infrastructure across the estate	Sustainable Cities & Communities	2021	Completed	Director of Estates & Facilities	4.8.2
Estate Operations	Travel	Secure Cycle Shelters	Review cycling provision on the estate and install secure cycle storage where appropriate	Sustainable Cities & Communities	2022	Started	Director of Estates & Facilities	4.8.3
Estate Operations	Travel	Electric Vehicle Charging Posts	Develop a strategy to increase the number of EV charge posts on campus to accommodate for future EV demand	Climate Action, Sustainable Cities & Communities	2022	Started	Director of Estates & Facilities	4.8.4
Estate Operations	Travel	Business Travel Policy	As per the Integrated Sustainable Travel Plan, we will develop a Business Travel Policy to encourage more sustainable modes of transport	Climate Action, Sustainable Cities & Communities	2022	Started	Director of Estates & Facilities	4.8.5

Focus Area: Waste

Sustainability Strategy Area	Focus Area	Action	Action Details	Sustainable Development Goal(s)	Target Date	Progress	Responsible Person	Reference Number
Estate Operations	Waste	Waste Management Strategy	Produce a Waste Management Strategy outlining how the University will increase recycling rates and reduce waste on our estate	Responsible Consumption & Production	2021	Completed	Director of Estates & Facilities	4.9.1
Estate Operations	Waste	Waste Audit	Carry out a detailed waste audit to identify areas where we can increase our recycling rates and better segregate materials	Responsible Consumption & Production	2021	Completed	Director of Estates & Facilities	4.9.2
Estate Operations	Waste	Hazardous Waste Review	Carry out a review of hazardous waste provision to identify opportunities for improvement	Responsible Consumption & Production	2022	Started	Director of Estates & Facilities	4.9.3
Estate Operations	Waste	Single Use Plastics in Labs	Work with Technical Managers to identify opportunities to reduce and reuse lab plastics	Responsible Consumption & Production	2022	Not Started	Director of Estates & Facilities	4.9.4
Estate Operations	Waste	World Heritage Site	Improve the waste provision at Palace Green to reduce the impact of littering on the World Heritage Site	Responsible Consumption & Production	2022	Started	Director of Estates & Facilities	4.9.5
Estate Operations	Waste	Litter Picking	Establish a programme of staff/student volunteering to litter pick in hot spots - Palace Green, Race course and Maiden Castle	Responsible Consumption & Production	2022	Started	Pro-Vice Chancellor (Colleges & Student Experience)	4.9.6

Focus Area: Water

Sustainability Strategy Area	Focus Area	Action	Action Details	Sustainable Development Goal(s)	Target Date	Progress	Responsible Person	Reference Number
Estate Operations	Water	Water Automatic Meter Readers (AMR)	Agree a contract and roll out AMR for all of our fiscal water meters	Responsible Consumption & Production	2022	Started	Director of Estates & Facilities	4.10.1
Estate Operations	Water	Legionella Flushing	Look for alternatives to Legionella flushing that use less water	Responsible Consumption & Production	2022	Not Started	Director of Estates & Facilities	4.10.2