



Cardiff
Metropolitan
University

Prifysgol
Metropolitan
Caerdydd



CARBON MANAGEMENT PLAN 2024-2030

Contents

- 3 | Foreword
- 4-5 | About Cardiff Metropolitan University
- 6-7 | Carbon Management Plan: Purpose and Strategy
- 8-9 | - What is climate change?
- 10-11 | - What do we mean by Net Zero Carbon?
- 12-13 | - Measuring our Carbon Footprint
- 14-15 | - Carbon Management Plan: The Journey so far
- 18 | - The University’s Carbon Footprint 2021/22
- 19 | - Carbon Reduction: Action & Ambition
- 20 | - Scope 1 and 2
- 22-23 | - Buildings and Estates
- 25 | - Energy and Resilience
- 28-31 | - Scope 3
- 32 | Value Chain
- 34 | Transport and Travel
- 35 | Green Infrastructure and Biodiversity
- 36 | Organisation and People
- 39 | Resource and Collaboration
- 40 | Governance and Finance
- 42 | Supportive Policy
- 43 | Cross Cutting Themes
- 44 | Next Steps

Foreword

Purpose, Impact and Compassion

The principles that underline the core vision for Cardiff Metropolitan University can be applied directly to how we as an organisation intend to mitigate the impact of climate change.

Our Carbon Management Plan sets out our carbon baseline, targets, action and ambition to achieve Net Zero Carbon. They will be achieved by robust leadership and governance, analysis and planning, and crucially, full engagement from key collaborators and organisational stakeholders. Together, we will act with purpose, delivering impact with compassion to address the complexities and challenges we face as an organisation to achieve our Net Zero goal.

Our strategic priorities include transitioning our campuses to a Net Zero Estate by 2030 and developing a platform for our existing expertise, as well as developing new talent. We will come together to create innovative teaching and research areas that respond to climate change, employer need and student demand - for environmental sustainability, green economies, education for sustainable development and the wellbeing economy.

We will work in partnership with other organisations, including Welsh Government, Cardiff Council, Cardiff Capital Region, further education colleges, business and industry, to ensure a more prosperous, greener and fairer nation.

As a public sector and Higher Education organisation, we recognise the opportunity we have to influence and lead by example. We can influence our supply chains, and crucially prepare future generations who will be facing the direct impact of climate change.

ABOUT CARDIFF METROPOLITAN UNIVERSITY

Cardiff Metropolitan University delivers professionally recognised degrees, together with impactful research and innovation, in art and design, business and management, education and public services, sport and health sciences, and technologies and engineering.

As a driver of education and social transformation, we work with purpose to ensure that every student can realise their full potential to contribute to their own and future generations. We are a catalyst for innovation and the economy, and a key contributor to inclusive and sustainable growth, both nationally and internationally.

A collaborative and compassionate community, our values of creativity, diversity, freedom and innovation are lived through the behaviours of our staff and students; by our leadership, trust, courage and accountability to each other, and to our partners.

Strategy 2030, the University's strategic plan, places sustainability firmly at its heart by identifying 'Low Carbon Futures' as one of five strategic priorities for the University and includes ambitious targets for the creation of a net zero carbon estate by 2030.

As we embark on these next steps it is especially pleasing to know how well we are currently performing in comparison to over 150 universities in the UK.



Cardiff Metropolitan University was ranked as the **leading university in the UK for sustainability** in People and Planet's Green League 2022/23.

People and Planet's Green League is the only comprehensive and independent league table of all UK universities ranked by their environmental and ethical performance.

To add to this accolade, Cardiff Met was also ranked as a gold tier university in Uswitch's Green Universities Report 2022, which highlights UK universities' commitment to sustainability.



CARBON MANAGEMENT PLAN: PURPOSE & STRATEGY

Carbon Management Plan 2024

The University has set a corporate commitment to deliver:

Scope 1 & 2:

Net Zero
Carbon
by 2030

Scope 3:

30% Carbon
emission
reduction
by 2030

Targets are set against the base year 2018/19, which represents the last full year of business as usual prior to the pandemic, and align the University with the Welsh Government's ambition for the public sector in Wales to achieve Net Zero by 2030.

Contained within our carbon management plan are our targets, priorities, actions and ambition to reduce carbon emissions and mitigate the impacts of climate change.

We will need to reduce CO₂e emissions from our direct and indirect activities to the lowest level possible by:

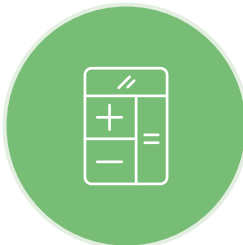
- Reducing our overall energy use to the lowest level possible
- Shifting all residual energy consumption to low carbon options
- Work with our value chain to reduce their emissions
- Work across our organisation to understand carbon impact through smart service design
- Assess how much CO₂e we can absorb
- Utilise the wealth of knowledge and resource available through our students, academics and operational teams.

CARBON MANAGEMENT PLAN 2024 - 2030

Our strategic actions are organised into the following key sections:



BUILDINGS
& ESTATES



VALUE
CHAIN



ENERGY &
RESILIENCE



GREEN
INFRASTRUCTURE
& BIODIVERSITY



ORGANISATION
& PEOPLE



TRANSPORT
& TRAVEL

WHAT IS CLIMATE CHANGE?

Climate change is the long-term shift in average weather patterns across the world.

Since the mid-1800s, humans have accelerated release of carbon dioxide and other greenhouse gases into the air by burning fossil fuels including oil, gas and coal. This causes global temperatures to increase, resulting in long-term changes to the climate.

To mitigate the impact of climate change, it is crucial that we reduce greenhouse gases emitted from our activities.

In its last report in 2021, the Intergovernmental Panel on Climate Change (IPCC) warned that human activity is changing the climate in unprecedented and sometimes irreversible ways. Scientists said that drastic emissions reductions were needed this decade to keep global warming below 1.5C and protect the world's most vulnerable ecosystems and communities.

We are already seeing the consequences of 1°C of global warming in Wales, with June 2023 being the hottest on record in the UK, with a mean monthly temperature more than 2.5°C higher than average.

Climate change:
IPCC report is
'code red for
humanity'
BBC News

As an organisation we are committed to a Net Zero Carbon transition to reduce green house gas emissions arising from both our direct and indirect operations.

We set out in this Carbon Management Plan how we are going to reduce carbon emissions to limit our organisational contribution to climate change and enhance our energy resilience.



WHAT CAN WE DO AS AN ORGANISATION TO MITIGATE THE IMPACT OF CLIMATE CHANGE?

Fundamentally, we need to rapidly reduce the amount of greenhouse gases released to the atmosphere.

- We will engage our internal and external stakeholders to affect action and realise change.
- We will be proactive in our messaging around the climate crisis and the positive action we as a University can take.
- We will set ambitious targets and action plans for delivery, including governance, resource and identified funding streams.
- We will review all our operations through a climate change lens, planning, adapting and increasing resilience.

- We will transition away from fossil fuels and move to more sustainable low carbon and renewable energy options.
- We will reduce the amount of energy we use to facilitate the shift to alternative fuels.
- We will be thoughtful in our decisions around travel and procurement, to minimise carbon impact.
- We will collaborate with local stakeholders to accelerate the transition to a low carbon economy.

WHAT DO WE MEAN BY NET ZERO CARBON?

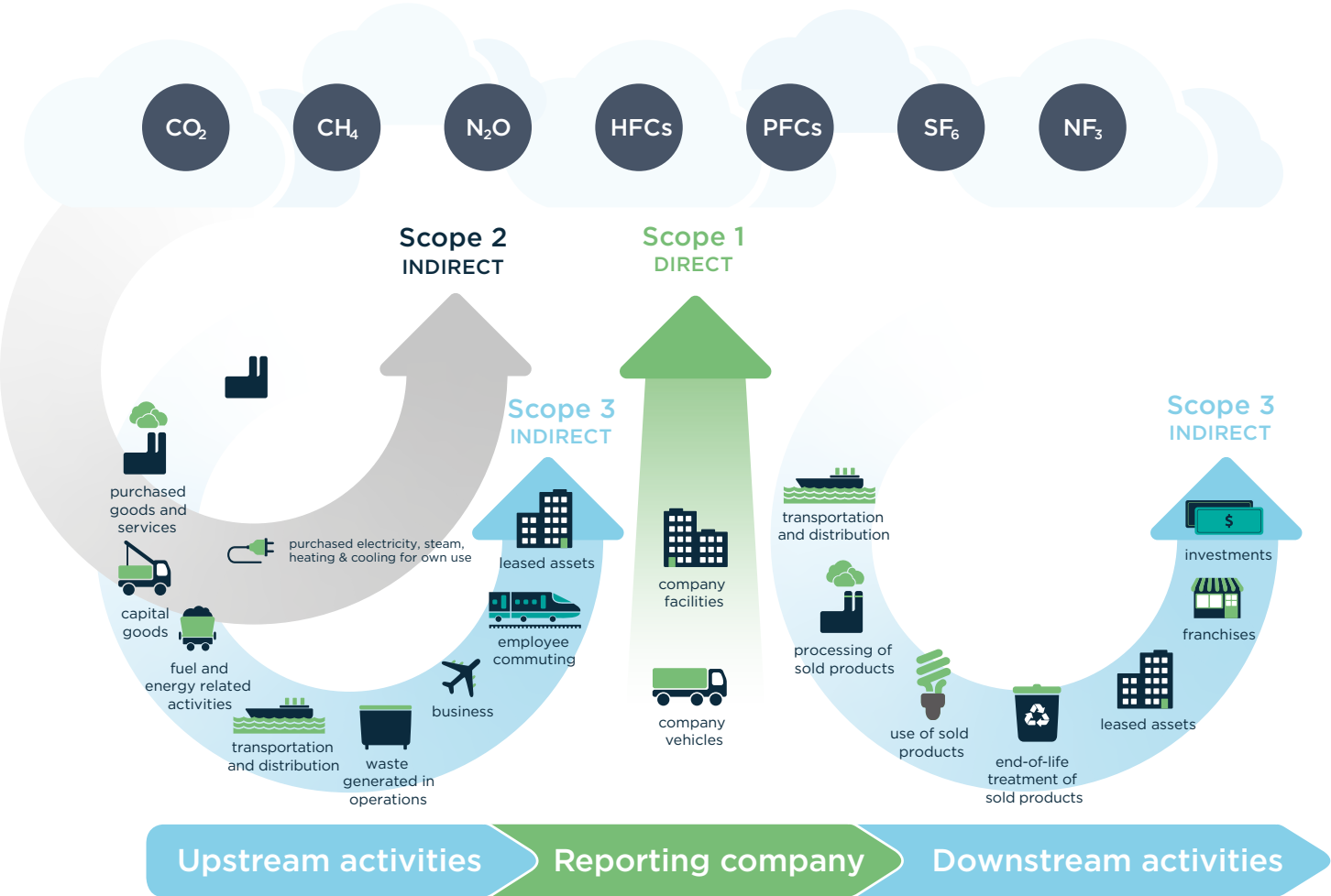
In order to mitigate the worst impacts of climate change on humanity and natural ecosystems, climate science has shown that we need to limit global heating to 1.5°C over pre-industrial levels.

In order to stand a reasonable chance of doing so, we need to achieve net zero carbon globally by 2050 and limit cumulative emissions between now and then to within the remaining ‘carbon budget’.

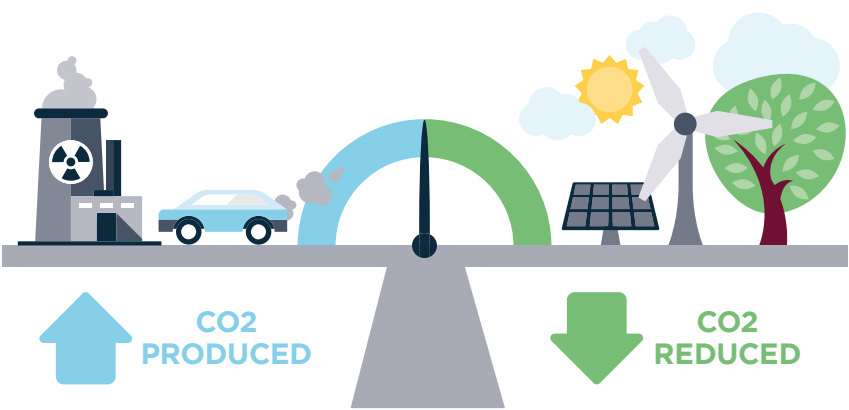
In defining the path to net zero, there is a clear global consensus that all sectors in all countries must reduce their emissions as far as possible, and any ‘residual’ emissions will need to be removed.

The Science Based Targets initiative (SBTi) has emerged as a guiding framework, suggesting that to genuinely achieve net zero, a reduction of 90-95% in emissions is required, before considering the role of offsets. This ambitious target is underpinned by an intermediate goal: halving emissions by 2030.

GHG PROTOCOL



NET CARBON FOOTPRINT



The balancing of carbon emissions against carbon removals and/or carbon offsetting with the net result being zero.

GHG PROTOCOL SCOPES 1, 2 AND 3

This report utilises the Greenhouse Gas (GHG) Protocol, an internationally recognised framework for measuring and managing greenhouse gas emissions. The GHG Protocol categorises emissions into three scopes:

- Scope 1 encompasses direct emissions from owned or controlled sources, including fuel combustion on site such as gas boilers and fleet vehicles.
- Scope 2 covers indirect emissions from the generation of purchased energy (electricity or purchased heat).
- Scope 3 includes all other indirect emissions that occur in a company’s value chain.

This covers emissions associated with procurement, business travel, staff commute and direct waste. It also takes into consideration sequestration—the removal of carbon dioxide from the atmosphere.

GREENHOUSE GAS PROTOCOL



MEASURING OUR CARBON FOOTPRINT

WELSH GOVERNMENT PUBLIC SECTOR REPORTING

Cardiff Met University has chosen to report in line with Welsh Government public sector guidance aligns the University with the wider public and HE sector in Wales, and will support collaborative efforts with key local stakeholders to work towards Net Zero.

Welsh Government reporting guidance sets out the scope and boundary of carbon impact measurement and reporting for the public sector in Wales.

OPERATIONAL BOUNDARY

In accordance with the Welsh Government guidance, the following operations are included in the University's Operational Boundary and respective emissions form the University's carbon footprint:

- **Staff commuting**
- **Business travel**
- **Land assets and use**

Estate
Building; Land based emissions and sequestration; Waste generated in operations and water consumption

Transport
Fleet and other mobile equipment; Business travel

ORGANISATIONAL BOUNDARY

Supply Chain
Procurement

Services Included

- Delivery of teaching
- Research
- Administration and other services
- Consultancy activities
- Owned or leased residential accommodation and hotel services

Employees
Employee commuting

Services Excluded

- Travel by students from overseas
- Campuses outside Wales
- Electricity use related to charging EVs owned outside the organisation
- Research



The University will measure the carbon impact from its operational activities within each academic year (September to July) under the following categories:

SCOPE 1 AND 2 (*LOCATION BASED) DATA INCLUDES:

- Electricity, gas and fuel consumption
- Fugitive emissions such as gas from air-conditioning maintenance
- Fuel in owned vehicles, both electric and diesel

SCOPE 3 DATA INCLUDES:

- Procurement spend
- Waste generated in operations
- Water consumption
- Staff commuting and travel surveys
- Claimed business mileage
- Land assets and use

*LOCATION AND MARKET BASE ACCOUNTING (SCOPE 2)

Location based methodology is used to measure Scope 1 and 2 carbon impact: kWh of consumed energy (gas, electricity and oil) are converted to CO₂ using the UK Government annual conversion factors, rather than the Market based approach, which allows for procured renewable energy sources to be accounted for.

For Scope 2 (Electricity) emissions, the CO₂ conversion factor has generally reduced year on year as more renewable energy is used to power the grid (replacing fossil fuel generated energy).

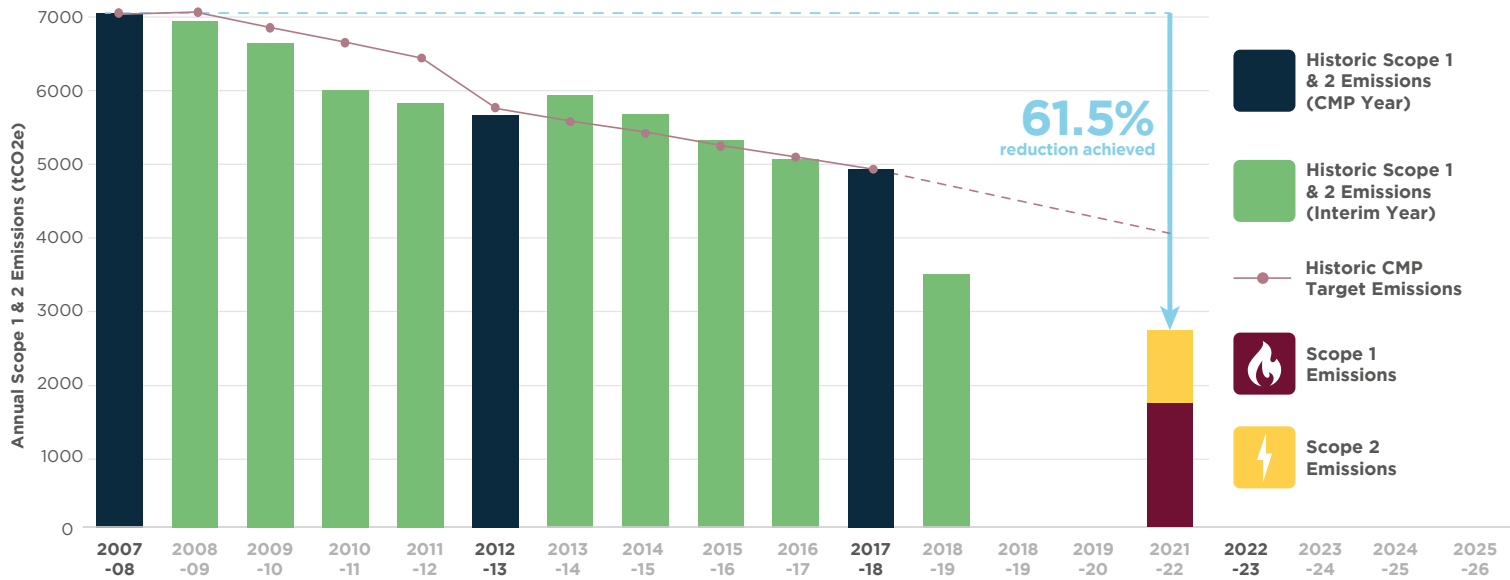
CARBON MANAGEMENT PLAN: THE JOURNEY SO FAR

Between 2013 and 2023, Cardiff Metropolitan University implemented two phases of Carbon Management Planing, delivering a significant reduction in its Scope 1 and 2 carbon emissions.

Since 2005, when the University’s carbon footprint for scopes 1 and 2 was 7,025 tonnes CO2e, the University has achieved 61.5% reduction, bringing its Scope 1 and 2 carbon emissions down to 2,704 tonnes CO2e in 2022/23. More than 99% of these emissions are from the operation of Cardiff Met’s estate, with 0.2% emanating from its vehicle fleet.

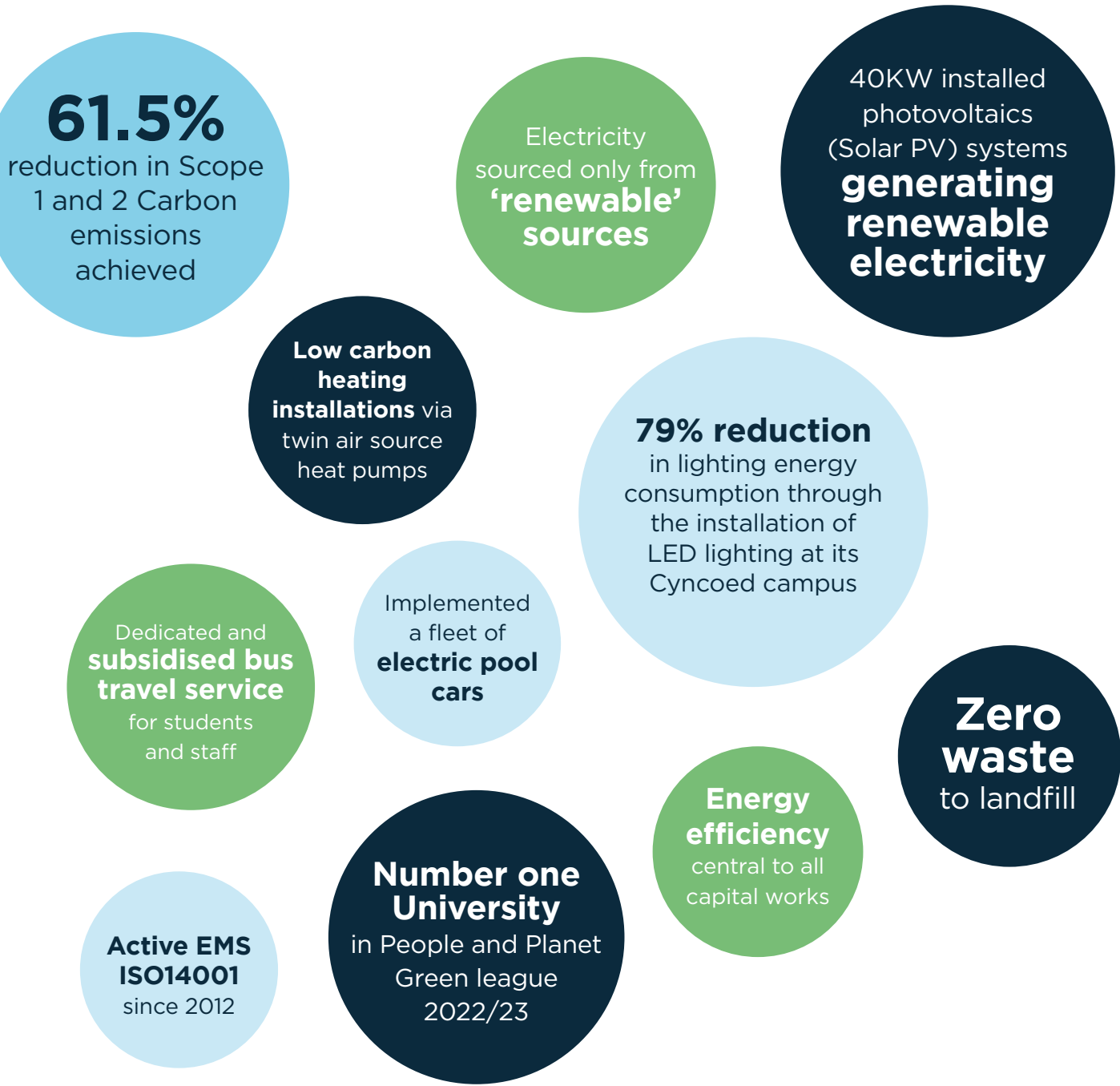
CARBON MANAGEMENT PLAN 2013-2018

The first CMP, issued in 2013 and revised in 2016, showcased a 16.3% reduction in carbon emissions against the 2007/08 baseline, with an ambitious target to reduce absolute carbon emissions by a minimum of 15% by the end of 2017/18, against a new 2012/13 baseline. Key measures identified included LED lighting upgrades, building management system (BMS) enhancements, voltage optimisation, boiler and heating upgrades, and staff engagement programmes aimed at reducing energy wastage.



KEY ACHIEVEMENTS TO DATE

The University has been working on reducing its carbon footprint for a number of years, delivering initiatives to reduce the University’s environmental impact, and receiving recognition of its efforts by ranking as the number one University in the UK in the People and Planet University League 2022-23.



WHAT ARE WE DOING AS AN ACADEMIC ORGANISATION?

NET ZERO INNOVATION

As a University, we have a responsibility and opportunity to shape future generations and prepare them to respond and tackle the climate change emergency. Across our academic portfolio we have a wealth of knowledge, experience and delivery of practical projects aimed at mitigating climate change and accelerating decarbonisation.

Here are two examples of the projects our academic teams are working on. By collaborating together we can accelerate our transition to Net Zero. Here are just a few examples of the groundbreaking projects our academic teams are working on.

CIRCULAR & FOUNDATIONAL ECONOMY INNOVATION ACROSS WALES

A fully-funded programme to support businesses in Wales to develop their circular economy understanding and innovation plans to support clean growth and contribute to Welsh Government's 'Net Zero Wales' ambitions.



The programme is implementing circular economy principles, while building local community wealth.

The Cardiff Circular Economy Network created a CE community within the Cardiff Council boundary, in collaboration with One Planet Cardiff. We brought businesses and schools together into an experiential learning network where they have enhanced process innovation knowledge and skills.

CARBON LITERACY TRAINING:

The role of the University in delivering Net Zero Carbon

Universities and colleges can do three things here:

- Along with all other organisations and individuals – take prompt action to mitigate emissions
- ...and close the gap through...
- Research & innovation
- Education and awareness raising

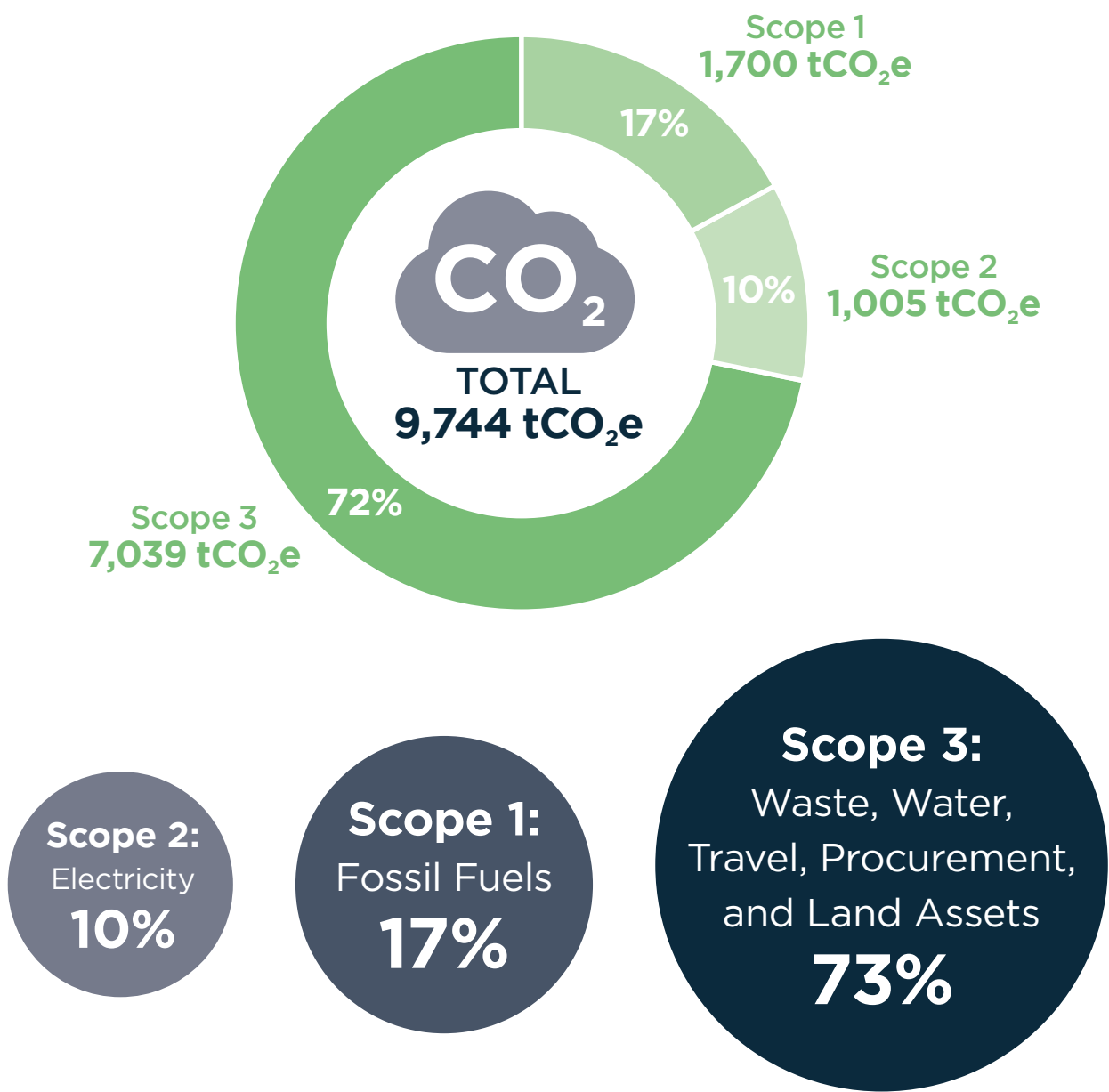


Down to Zero
is a not for profit
Community Benefit
Society established to
support community led
environmental activities
that help tackle
climate change.

THE UNIVERSITY'S CARBON FOOTPRINT (2021/22): SCOPES 1, 2 & 3

The University has calculated its overall carbon footprint using the latest available data set from the Higher Education Statistics Agency (HESA) 2021/22 return, covering Scopes 1, 2 and 3.

Scope 3 activities contribute the largest percentage of organisational emissions, however, Scope 1 and 2 representing estate and fleet are within immediate operational control for the University and represent an opportunity for shorter term action.



CARBON REDUCTION: ACTION & AMBITION

Scope 3 Emissions represent 73% of the University's total carbon emissions. In line with Welsh Government ambition, the University has set a target to reduce Scope 3 emissions by 30% by 2030.

Analysing the breakdown of Scope 3 emissions has identified the highest area of impact to be the procurement of goods and services; this area of the business will need to be the main focus when developing next steps to reduce the carbon impact.

CARDIFF METROPOLITAN UNIVERSITY PRIORITIES

In the following sections, we set out our actions to reduce carbon emissions against the following areas of impact:



SCOPE 1 AND 2: TARGET AND TRAJECTORY TO 2030

The University has a target of Net Zero by 2030. This is defined as a 90% absolute reduction in total Scope 1 and 2 carbon from its carbon emission base year.

The University’s base year is the 2018/2019 academic year; this represents the last full operational year prior to the impact of the pandemic.

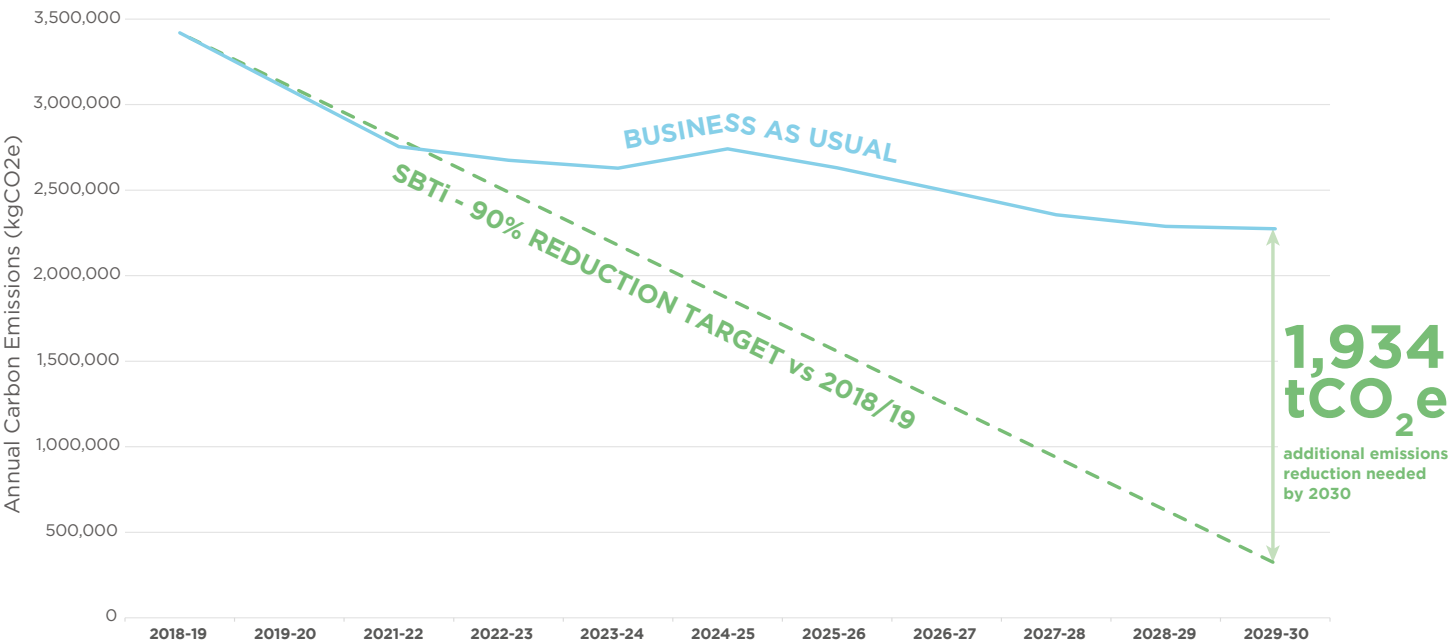
During the base year (Y2018/19 ac yr) Scope 1 & 2 carbon emissions were 3,420 tCO₂.

A 90% absolute reduction would require these emissions to reduce to 342 tCO₂ by 2030, a total reduction of 3,048 tCO₂ from the base year.

Using the latest carbon emissions data from 2021/22 (2,705 t CO₂), it can be noted that the University has made further progress against this target, with a balance of 2,363 tCO₂ now needed to be removed.

BUSINESS AS USUAL

The Business as Usual (BAU) scenario assumes no interventions and instead relies entirely on grid decarbonisation.





Buildings & Estates

Using less energy and decarbonising residual energy use across the University's estate is fundamental to facilitate the transition to Scope 1 and 2 Net Zero Carbon.

This will be achieved through a construction and refurbishment programme to provide a mix of new buildings that are sympathetic to the surroundings, alongside the repurposing and revival of our existing estate to ensure maximum sustainability.

Investment in our built environment and infrastructure will facilitate a shift in the quality of our existing and planned building stock, reducing the heat and electricity energy demand of buildings and decarbonising residual energy use with the most practical low carbon solutions; insulating, controlling and managing energy consumption will significantly reduce energy demand while also improving the quality of our internal environments and enhancing our organisational resilience.



Buildings & Estates

MAKING A START

Since FY2019 (April 2018—March 2019) base year, we've reduced Scope 1 and 2 emissions by a further 11% across our operations.

We've been able to implement many energy efficiency and low carbon initiatives including:

- comprehensive energy monitoring systems across our estate
- upgrade of buildings with insulation, double glazing and energy controls to reduce energy consumption and provide a modern, comfortable working and living environment
- engagement of students in initiatives to minimise energy consumption in residential blocks
- installation of Air Source Heat Pumps to replace gas boilers where practical

Academic/Admin Modern:
post 2000

Academic/Admin General:
1970-2000

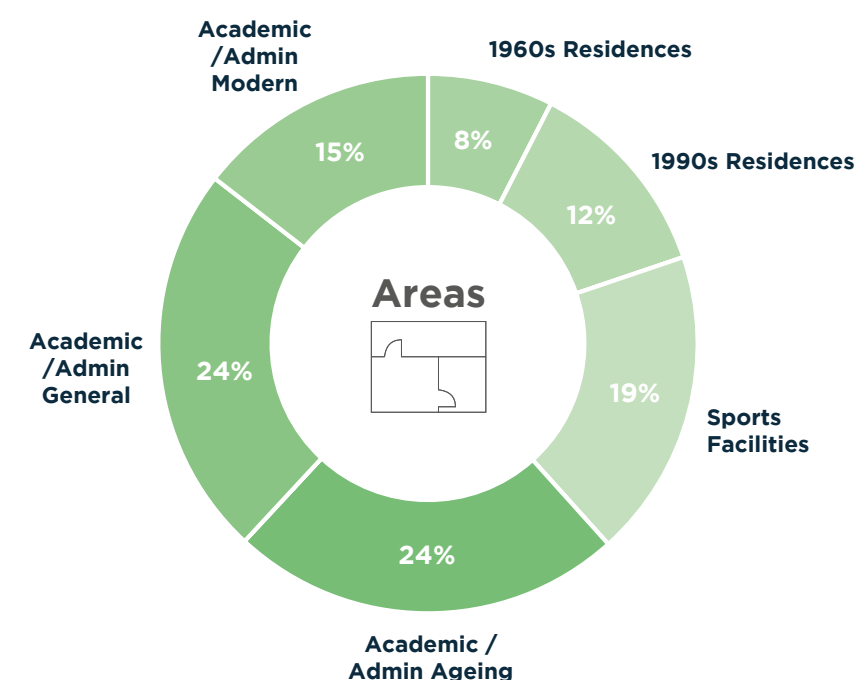
Academic/Admin Ageing:
pre 1970s

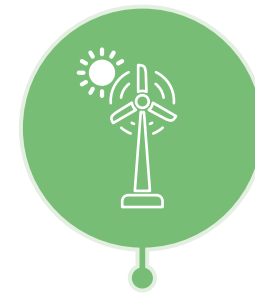
Please note: the exception to this where A and C Block at the Llandaff campus are grouped under 'Ac/Admin General' due to the significant work already undertaken to improve their thermal performance.

The University's campuses have evolved over time in response to its growth. This evolution has resulted in a diverse mix of buildings, each differing in age, fabric performance, use type and operational profile.

These varied factors significantly influence the energy demand of each building, making them critical to understanding the most effective approach to decarbonisation.

To facilitate the analysis of the estate, a set of building archetypes has been developed, categorising each building to better assess their energy performance and potential for carbon reduction.





Energy & Resilience

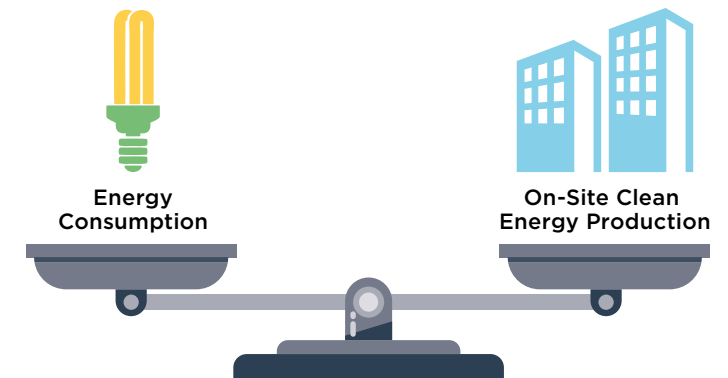
How the University uses and generates energy are some of the key elements to tackling climate change. By using energy more efficiently, we can significantly reduce demand, while at the same time powering up renewable and low carbon energy generation to replace fossil fuels including coal, oil and gas. We need to address how we heat buildings, how we use and generate electricity, and we need to do it quickly.

Balancing the cost of capital expenditure investment into the estate with ongoing operational running costs is important.

A shallow retrofit option offers more value for money in terms of investment and carbon savings, but will require more electricity to run than the University currently consumes.

This is where the installation of renewable energy such as Solar PV can help offset some of the uncertainty around future energy costs, as well as enhance energy resilience for the University.

The Zero Net Energy Balance



ELECTRICITY CAPACITY

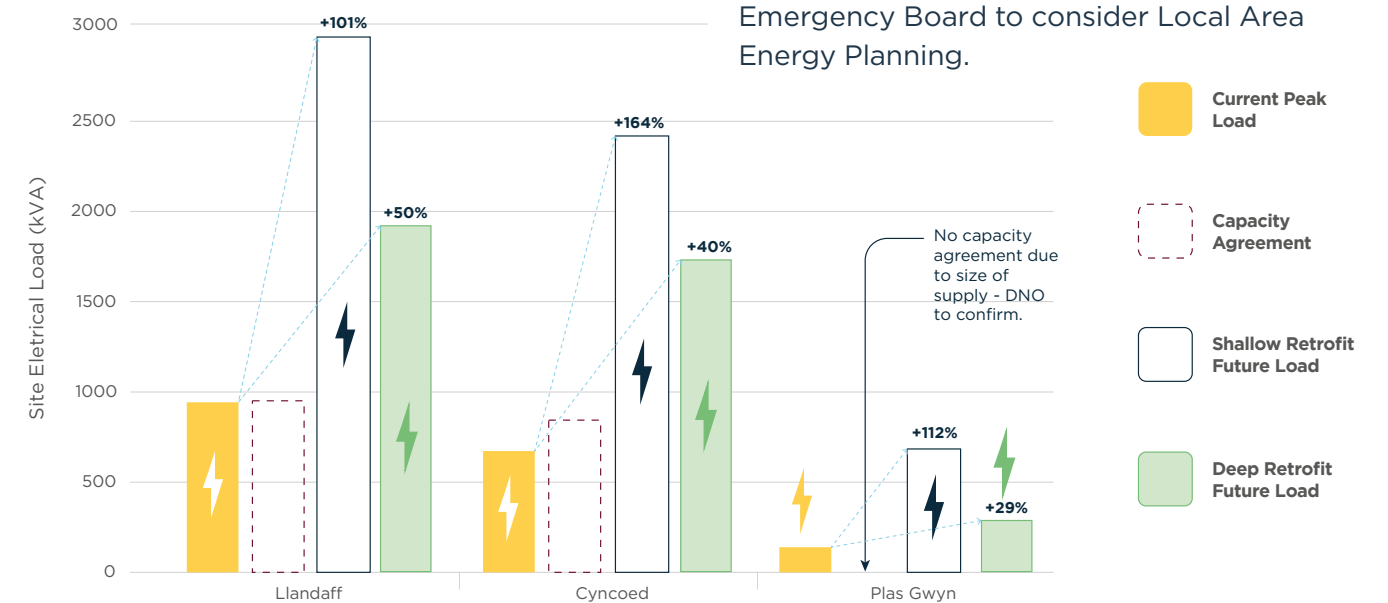
One of the key challenges for Cardiff Met to deliver a retrofit option is the current electricity capacity at each of the sites.

The diagram below illustrates the additional electricity capacity required to deliver shallow and deep retrofit solutions.

The additional cost and negligible carbon benefit of a deep retrofit solution facilitates the adoption of a shallow retrofit solution, particularly as the grid is rapidly decarbonising (a 2035 electricity grid decarbonisation target). However, deep retrofit solutions offer a lower ongoing cost and so it's important to find the right balance of delivery solutions.

The potential cost of achieving the additional electricity capacity is a major factor to delivery and grid upgrade costs have been sought from National Grid.

This links directly to the addition and use of renewable energy across the estate, as well as opportunity to work with Cardiff Climate Emergency Board to consider Local Area Energy Planning.



POWER GENERATION

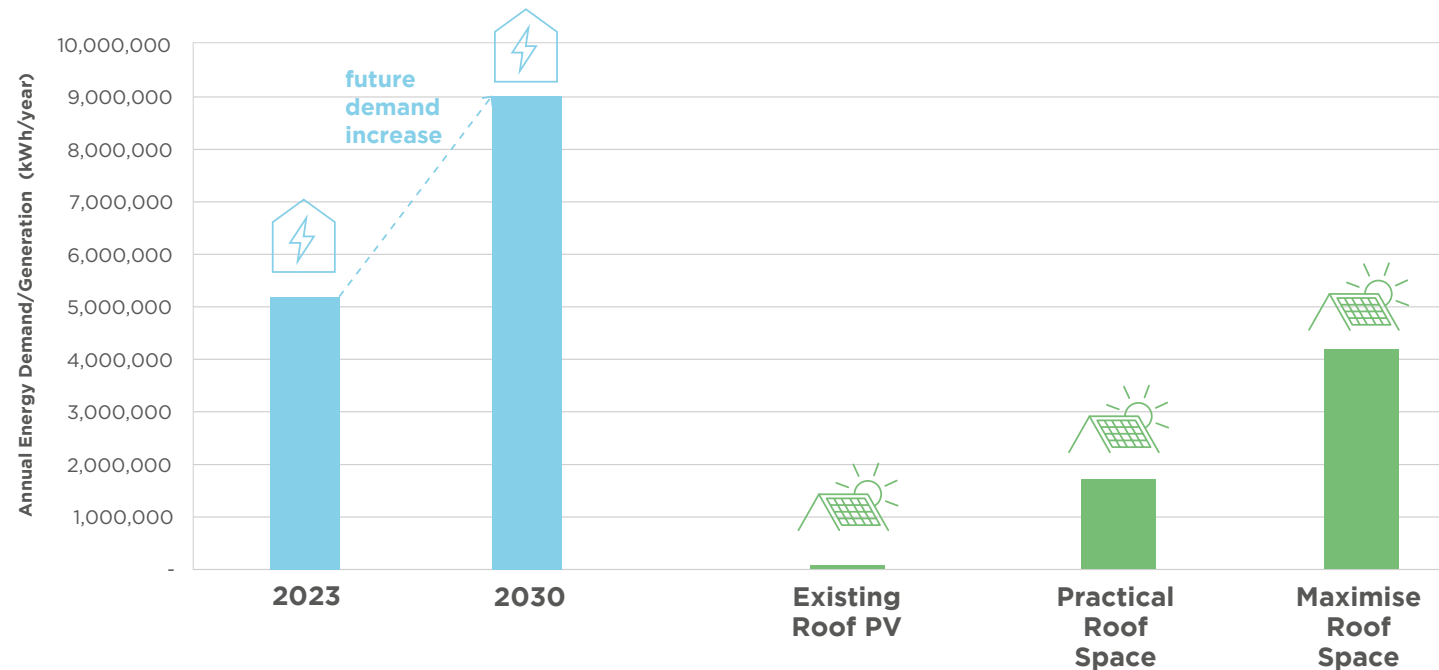
With the ongoing decarbonisation of the UK's power grid, National Grid's 'Leading the Way' scenario suggests the possibility of a zero-emission grid by 2032 with adequate investment.

However, this still leaves the challenge of current grid capacity to deliver adequate levels of electricity to site to facilitate decarbonisation plans.

Integrating on-site renewable energy sources such as solar photovoltaic (PV) systems is a key

strategy for Cardiff Met to reduce utility costs. With increasing electrical demand anticipated from heat pump deployment, solar PV installations can offer payback periods of 5-10 years.

Although their relative carbon savings may diminish as the grid becomes greener, PV systems remain an integral part of Cardiff Met's decarbonisation strategy and provide energy resilience to market forces.



Two primary options for PV installations on campus roofs have been explored:

1: Practical Roof PV:

- Focuses on optimal roofs for solar generation – south-facing, minimal shading, good access, and structural suitability.
- Potential to install a 2.4 MWp array, generating approximately 2,105,000 kWh of zero carbon electricity annually (about 30% of current electricity consumption).
- Estimated cost: £2.5 million, viable for financing through various loan schemes.

2: Maximum Roof PV

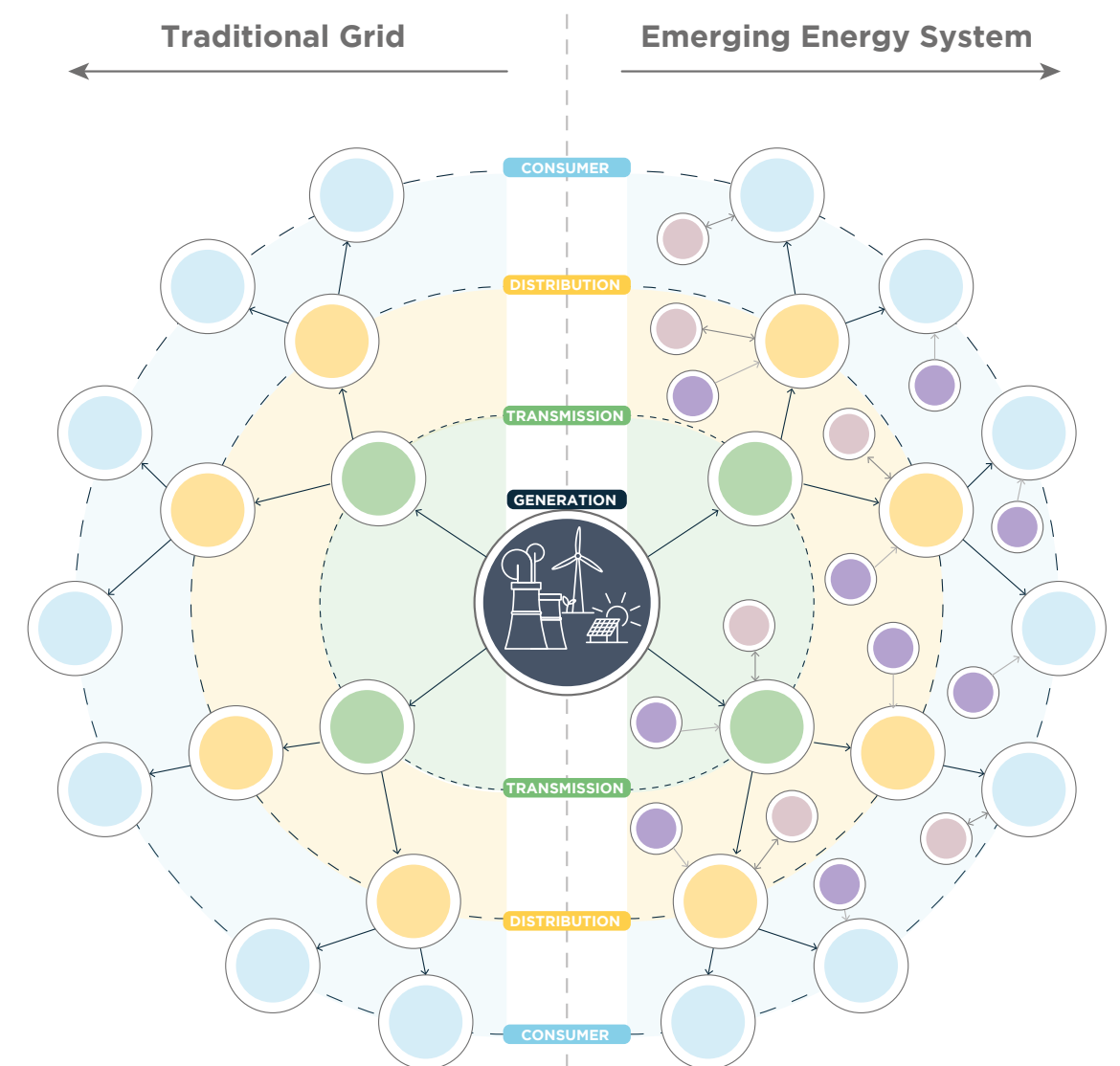
- Aims to maximise PV coverage on all feasible roofs, potentially extending the payback period but offering greater long-term benefits, especially when paired with battery storage.
- Potential to install a 4.1 MWp array, capable of covering roughly 61% of current electricity demand.
- Estimated cost: £4.15 million.

POWER MANAGEMENT: SMART ENERGY SYSTEMS

Historically, the flow of energy has been primarily 'one way' – from the large, industrial-scale coal- and gas-fired power plants on the transmission network, through the distribution networks, to consumers. As we move towards more renewable sources and storage solutions at the consumer level, the system is shifting towards a bidirectional flow.

Smart Grids embody a paradigm shift in energy management, operating as self-contained power ecosystems at a smaller scale. They integrate distributed energy resources (DERs) like solar panels and batteries to balance local energy production and consumption. They offer a cleaner, more sustainable energy alternative by generating power close to where it's used.

The University already has the cable infrastructure in place to support a Smart Grid solution, a smart grid approach will be explored for our campuses.



SCOPE 3 TARGET AND TRAJECTORY TO 2030

Understanding and analysing the University’s Scope 3 footprint is essential to developing a targeted action plan. Again, this has been calculated with the Welsh Government Public Sector Guidance Tool using the 2021/22 academic year data set.

The following activities are included within the University’s Scope 3 boundary:

- **Purchased Goods and Services:** Based on annual Spend Data
- **Business Travel:** Based on annual mileage claimed
- **Staff Commuting:** Based on staff commuting mileage capture in an annual survey.

- **Waste:** Based on tonnes of waste produced annually
 - **Land Assets:** Based on Hectares of owned land
- University Scope 3 CO₂ footprint has been based on procurement spend data. This data has been mapped to align with SIC codes to facilitate CO₂ conversion in line with Welsh Government and industry carbon reporting standards.

METHODOLOGY

Understanding the methodology for calculating Scope 3 emissions is essential to developing a Scope 3 reduction programme.

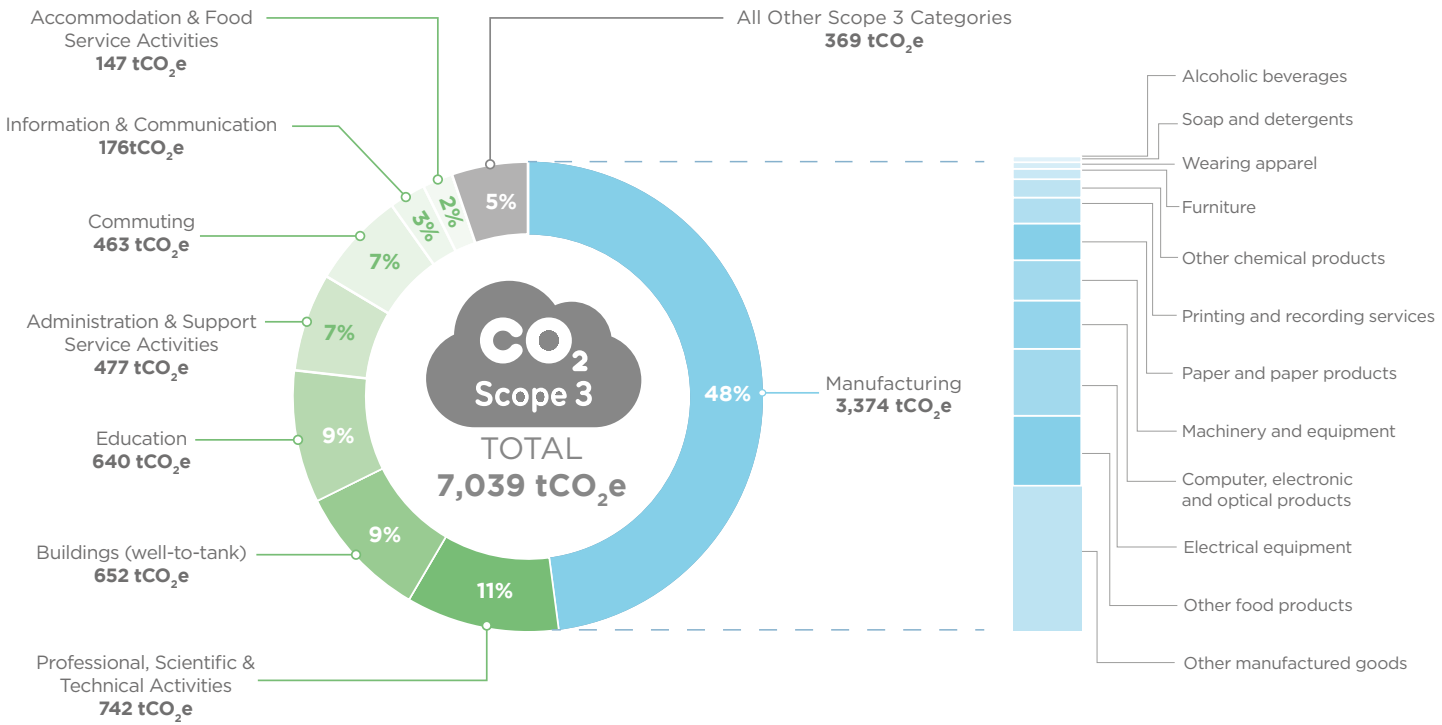
The majority of the Scope 3 CO₂ footprint is comprised of procurement activities.

Within the Welsh Government Reporting Guidance, there are three tiers for capturing procurement value chain data:

Tier	Type	Calculation	Position
Tier 1	Industry Specific Emissions Factor	£1 = x KGCO ₂ e	Currently used
Tier 2	Supplier Specific Emissions Factor	£1 = x KGCO ₂ e	Partially used
Tier 3	Product Specific Emissions Factor	£1 Product = x KGCO ₂ e or £x = x KGCO ₂ e	Not yet used or commonly available

While Tier 1 is a good methodology to begin to understand the scale of Scope 3 emissions, to really understand the impact of procurement decisions in the value chain we need to move to Tier 2 and Tier 3 methodologies.

This will require engagement with the University suppliers to gather more accurate CO₂ data on product and process emissions.



Scope 3 Baselines and Targets - Scope 3 - 30% Carbon emission reduction by 2030

Area	Baseline (tCO ₂ e)	Baseline Year	Target	Target Year
Wastewater treatment E3CEWWTT	19.040	2021/22	10% reduction in tCO ₂ e	2030
Water Supply (inc residential) E3CEWST	10.979	2021/22	10% reduction in tCO ₂ e	2030
Waste (inc construction & residential) E3CEWT	13.150	2021/22	Zero waste to land fill and recycle 70% of waste. 5% reduction in tCO ₂ e	2030
Business Travel - staff & students	66.13	2021/22	Reduction of 5% in carbon emissions tCO ₂ e	2030
Staff Commuting	66.13	2021/22	Reduce staff single occupancy car journeys to Cardiff Met and the dependency on vehicles to support its activity by 5%	2030
Student Commuting	1532.40	2021/22	Reduction of 5% in carbon emissions tCO ₂ e	2030
Procurement (supply chain)	17196.70	2021/22	Reduction of 5% in carbon emissions tCo ₂ e associated with purchased goods and services	2030
Student travel from Home to University (outside of scope for Welsh Government reporting)	4,438	2018-19	Reduction of 5% in carbon emissions tCO ₂ e	2030

SCOPE 3

DATA ANALYSIS

Most of the Scope 3 CO₂ footprint is based on procurement spend data.

An exercise is undertaken annually as part of HESA data reporting to map Agresso codes to SIC codes to facilitate CO₂ conversion in line with Welsh Government and industry carbon reporting standards.

An example of a further breakdown of categories (based on SIC code data for other Manufactured Goods) includes:

- Office equipment
- General materials
- Stationery
- Kitchen items
- Prizes

Commuting includes: Business travel 62.7 tCO₂ and Staff commuting to Cyncoed and Llandaff campus 463.57 tCO₂

Data Evolution

- Scope 3 data collection and analysis is constantly evolving, and improving the quality of data is a key first step in a Scope 3 programme.
 - Good data underpins sound decision making on where to target effort.
- We plan to evolve to more material data based on supplier activities and product footprints.
 - This requires development of a programme of engagement with targeted suppliers.
- First pass data (Tier 1 Spend based data) helps target suppliers/ products for direct engagement to provide more accurate product or process data.

Action	Consideration
Internal Data Management & Target	• Standardise a procedure and automate annual collection of all Scope 3 data
Governance & programme	• Organisational responsibility • Reporting structure and timeline • Finance and redelivery • Level of support to be offered to suppliers • Leading on Collaboration
Defining suppliers and products for engagement	• Identify Scope 3 'hot-spots'. Consider: CO₂ impact of product or service > Opportunity to engage > Supplier experience
Gather more accurate supplier data	• Be clear on Cardiff Met targets and expectations for suppliers, ensure value chain part empowered > Know how to start reporting their emissions > Feel supported through the process

SCOPE 3

MAKING A START

The University has been working across 'Scope 3' areas to tackle emissions for a number of years, and now has a baseline and structure to allow better monitoring and planning to help capture impact.

BUSINESS MILES

COVID-19 had an obvious impact on business mileage, but following a return to normal 'business', the University will closely monitor the impact of travel, update its business travel policy to reflect CO₂ impact and consider alternative options when appraising the requirement for business travel.

STAFF COMMUTING AND HOMEWORKING

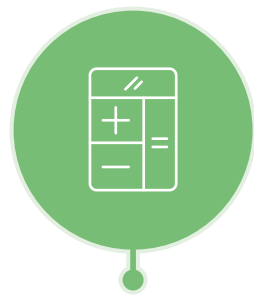
The impact of staff commuting has been captured for a number of years and used to inform initiatives such as the subsidy of sustainable travel options for students and staff, and there is a policy in place at the Llandaff campus to prioritise local active travel by limiting only those staff travelling in from outside a two mile radius to park on campus.

• **Waste generated** on site and how it's managed has been part of the University's EMS targets for a number of years, working towards the Welsh Government targets of 70% of all waste being recycled by 2025 and zero waste by 2050.

Initiatives to date include; Obsolete library books are donated to Better World Books for resale or forwarding to third world countries, and the Library Service provides a bookcase for swapping of all books; Recycling streams around site include, paper, cardboard, plastic, toner/ink cartridges, glass, cans, wood, scrap, electrical equipment, batteries, stamps and clothing.

Reusable items are advertised in house firstly and then externally to local schools and organisations when surplus, including furniture, clothing, printers, PCs and books. Cardiff Met is working with Keep Wales Tidy as a pilot site in Cardiff for the recycling of coffee cups on campus.

- **Water** Grey water is harvested from one of our newer buildings along with running competitions between blocks of residences on campus by publishing the weekly consumption gas, electricity and water figures of each to generate a competition between students., with the aim of driving down consumption and raising awareness.
- **Purchased goods and services** We've worked for a number of years to consider the environmental impact of our procurement decisions and have switched to recycled paper, and work with Bridgend furniture to refurbish office furniture. However, we know more needs to be done to tackle our value chain emissions.
- **Green Infrastructure** A new biodiversity action plan will be developed and will include tree planting to enhance sequestration, biodiversity and shading.



Value Chain

SCOPE 3 VALUE CHAIN

The Value Chain covers indirect 'upstream and downstream' activities that create emissions associated with Cardiff Met operations.

Identified by the GHG Protocol as 'Scope 3' emissions, 'indirect' emissions are harder to manage and mitigate, but are of huge significance in the overall action we take for maximum impact on the journey to Net Zero.

Included in the scope of what we are aiming to measure and manage are:

Business Miles outside of our core, direct fleet activities such as private car journeys, and use of public transport.

Staff Commuting and Homeworking

Waste generated on site and how it's managed

Water use in operations

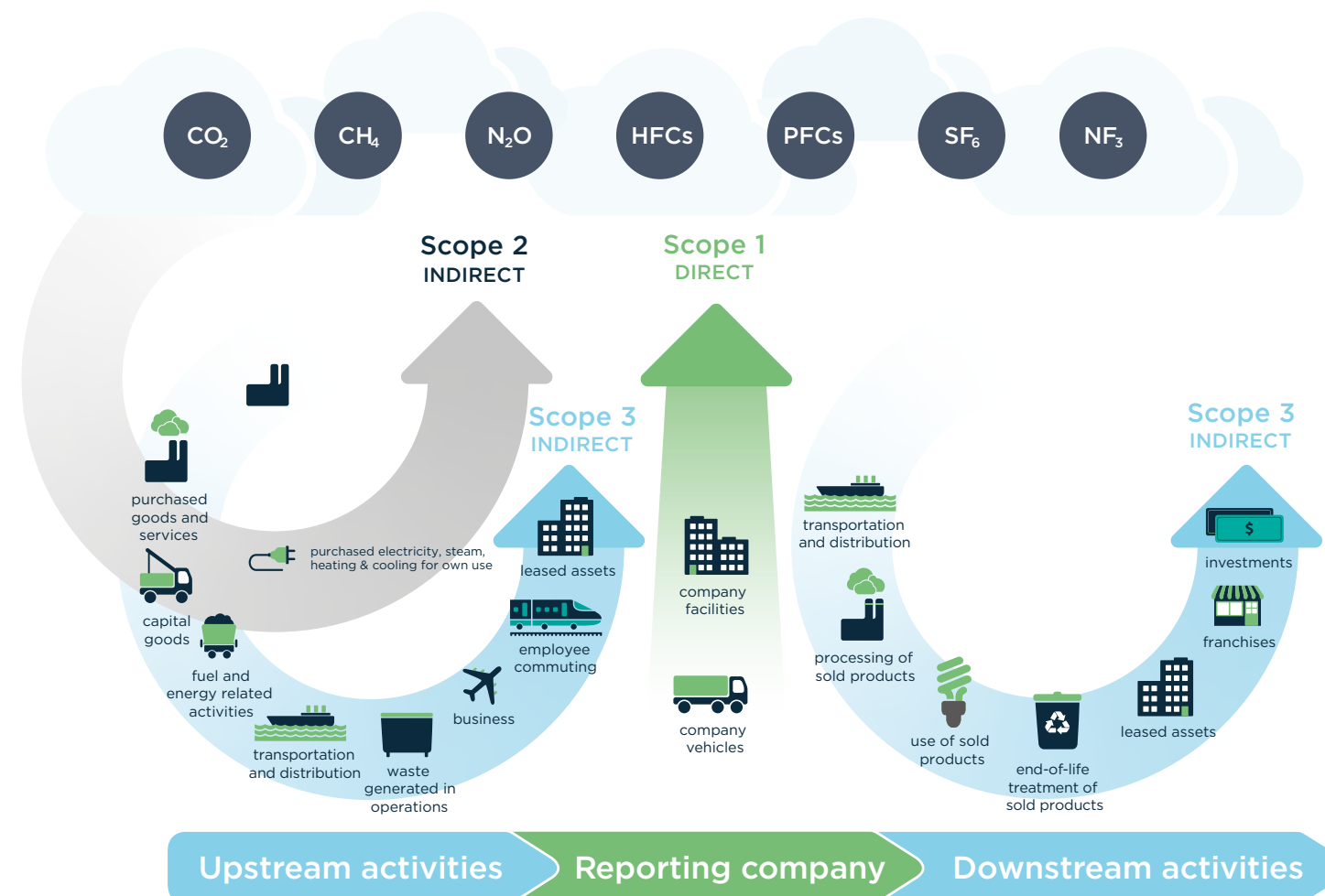
Procurement is the biggest contributor to emissions across all of our activities.

Emissions sequestered across our estate based on our land use and management practices.

SEQUESTRATION:

A natural or artificial process by which carbon dioxide is removed from the atmosphere and held in solid or liquid form.

The uptake of atmospheric carbon by plants and the growth of wood or increase of peat volume are examples of biological sequestration.



The public sector in Wales procures **£6 billion of goods and services annually**, much of which creates revenue for Welsh businesses.

The public sector can use procurement rules positively to help drive emissions reductions in a number of areas including ultra-low-emission vehicles and low carbon products.

Success in changing our procurement approaches can not only drive down emissions in Wales by sending appropriate signals, it also has the ability to prepare the Welsh supply chain for the wider low carbon markets of the future.



Transport & Travel

Cardiff Met University cater for around 12,000 staff and students across three campuses spread across the city of Cardiff.

There has been a concerted effort to introduce sustainable travel options for all stakeholders working collaboratively with city wide stakeholders including Cardiff Bus and Cardiff Council.

Cardiff Met students can access the 'Met Rider' pass which provides heavily subsidised travel across the city and between campuses on dedicated buses and the wider bus network.

Student and staff travel and commuting habits are monitored annually via a travel survey, which facilitates an agile response to changing travel patterns.

MAKING A START

Met Rider: Extensive collaboration and partnership work with Cardiff Bus and Cardiff Council has enabled provision of a subsidised student travel scheme across Cardiff and between campuses.

Travel to Work Policy: Staff living within two miles of Llandaff campus are not eligible for a parking pass on campus.

Monthly Cycle MOT workshops: Cardiff Met funds a free monthly bike MOT services provided by Cycle Training Wales, which is well used by staff and students.

NEXT BIKE SCHEME

Cardiff Met supported the roll out of the Next Bike Scheme across Cardiff providing land for siting of both ULEV and regular bikes with around 50 stands across the estate.

In 2022/23 usage was very high with around 6000 journey's per month recorded by Cardiff Met students and staff. Cardiff Met also donated £20,000 to subsidise passes for students. This reduced the annual membership fee from £100 to £15, and allowed journeys of up to 30 minute for free.



Green Infrastructure & Biodiversity

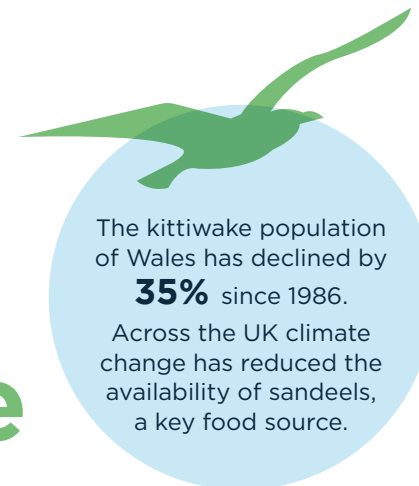
We've made a start to improve biodiversity on site with the introduction of our own apiaries, and hedgehog friendly campus status! We organise regular litter picks as a Keep Wales Tidy Hub and have been planting trees across campuses.

However, we recognise we need to do more both to manage our land to enhance the opportunity for carbon sequestration, biodiversity and increase our resilience to flooding and high temperatures.

We're developing a new biodiversity action plan that aims to establish a defined set of improvements for future biodiversity enhancements to be measured.

We've started to appraise our current estate land assets to develop actions, including establishing a biodiversity working group to deliver actions such as;

- Native planting to develop suitable habitats for native wildlife
- Include biodiversity within decisions regarding investment, procurement, planning and design, new construction, servicing and maintenance
- Create new green space and ensure ecological connectivity, expanding wildflower coverage and trailing reduced-mowing regimes
- Monitoring biodiversity of the estate through species and habitat surveys.



The kittiwake population of Wales has declined by **35%** since 1986.

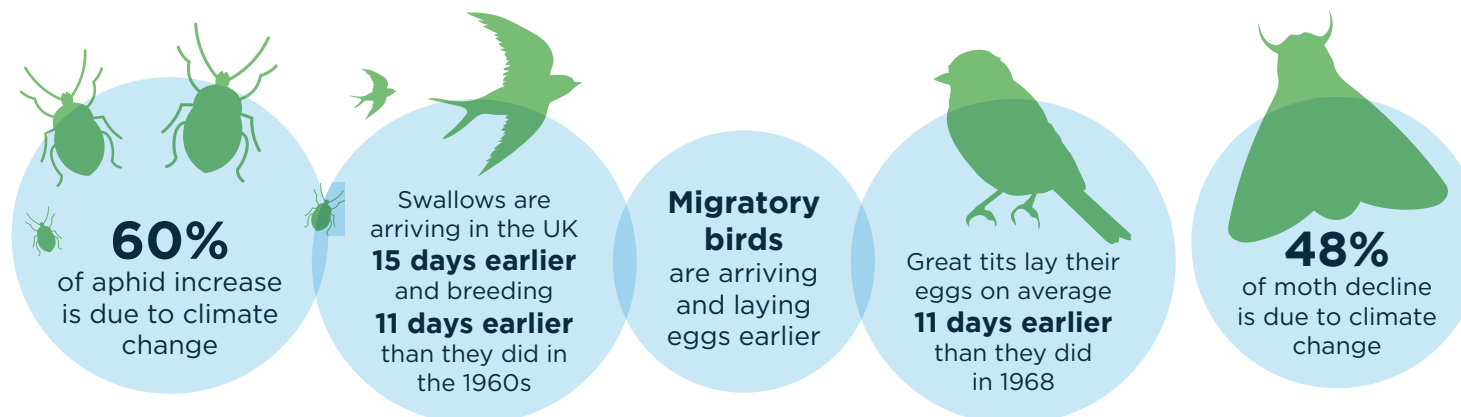
Across the UK climate change has reduced the availability of sandeels, a key food source.

SUSTAINABLE FOOD

The UK food system affects not only our health, but also that of the natural environment it relies on. Right now it's undermining both – including the stability of the climate, as food accounts for more than a fifth of our domestic emissions and over 30% of our global climate impact. At a global level the food and agriculture system drives 60% of nature loss.

(Ref: WWF Creating a Sustainable Food System creating a sustainable food system.pdf (wwf.org.uk)).

Within our Environmental Management System, we have targets to consider the impact of food and packaging served across our campuses and have already implemented initiatives that have gained us Sustainable Restaurant Association accreditation.





Organisation & People

Engaging all stakeholders in a climate change transition is fundamental to achieving Net Zero goals. This includes direct employees, partner organisations and crucially, the communities we work in.

As a University, we are at the cutting edge of innovation and change, with the opportunity to both shape our own campus and operations, but also contribute to future endeavours to solve climate change challenges.

We have a wealth of experience across our operational and academic departments which are actively working on carbon and climate change initiatives.

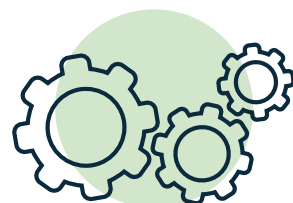
We recognise the need to position climate change at the heart of our corporate decision making, considering risks and opportunities that will shape our future operations and delivery.

MAKING A START

We have an active Sustainability Engagement Strategy that sets out our vision to develop a culture of environmental stewardship amongst our staff, students, contractors, suppliers and local community through three pillars:



Inform



Engage



Inspire

Some of our initiatives to date include;

- In 2022, 18 students were trained as Environmental Auditors for ISO 14001
- We've run events throughout the year, including green workshops, community days, repair workshops, go green week, guest lectures, student lectures and litter picks
- We've maintained our Environmental Management System and continual improvement plans with renewed certification to ISO14001
- We were recognised as the UK's top university in the People & Planet league.

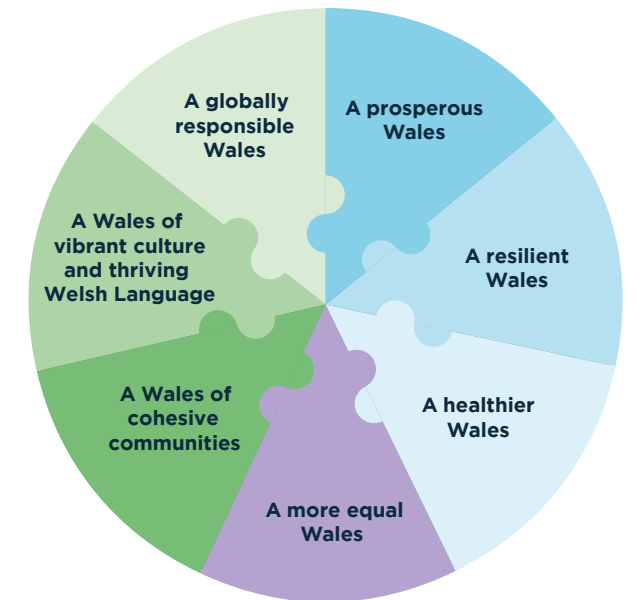
Wellbeing Goals

What are we aiming for?

WELLBEING OF FUTURE GENERATIONS ACT

Whilst we are a public body we are not directly mandated to comply with the formative Welsh Sustainability Legislation; the Wellbeing of Future Generation Act (2015).

However, the principles of the act underpin our sustainability approach across the University.



Sustainable Development Principle

How we will deliver



Long Term



Prevention



Integration



Collaboration



Involvement



RESOURCE & COLLABORATION

Internal and external collaboration is key for delivering our ambitious targets.

Through our immediate stakeholders, we have potential to extend our reach beyond organisational operations to address climate change.

We can influence a wide variety of stakeholders from students whom we are responsible for teaching, shaping and influencing, to our value chain partners with whom we collaborate and procure services.

Our academic operations are at the forefront of innovation in building design and management, circular economy and decarbonisation initiatives.

Our operational team has a wealth of experience in low carbon solutions and - crucially - delivery. Supported by a robust governance structure and our modelled decarbonisation plan, we are working quickly and decisively to deliver projects.

Along with other public sector bodies, we're members of the One Planet Cardiff steering group and can build on our relations to capitalise on city wide plans for decarbonisation of energy systems.



Crucially, we are harnessing the wealth of expertise and enthusiasm across our stakeholder network to deliver.

GOVERNANCE & FINANCE

Accountability is essential for the successful delivery of our ambitions.

As an organisation, we already work within the boundary of a certified (ISO14001) Environmental Management System.

Building on this, we've established robust internal governance arrangements to ensure appropriate accountability and assist effective leadership internally and with wider stakeholders to deliver our Carbon Management Plan.

The public sector across the UK is facing severe constraints on budgets and available finance, in most cases there are significant budget deficits that need to be addressed. However, we recognise the opportunity to ensure long term resilience and improved operational efficiency by investing in energy efficiency measures and our commitment to Net Zero goals.

We are currently costing Net Zero programmes and will be using internal funds as seed funding available from national grant and loan programmes to deliver our ambition.

We are always thinking innovatively about how we can accelerate initiatives by working collaboratively to source resource and finance.

We recognise key requirements to access finance for delivery include:

- Preparation
- Projects at scale
- Ability to react quickly with ready to go projects
- Framework procurement

EXAMPLE FUNDING OPTIONS

While we're working to access funding from some of the following available sources, we're constantly reviewing opportunity for innovative funding, collaboration and partnership to facilitate our decarbonisation targets.

• SALIX Funding Loans

The Wales funding programme allows public sector bodies to apply for interest-free loans for up to one hundred percent of the costs of energy saving or renewable energy projects with a payback of less than eight years.

• SALIX FTC

Salix will also administer a new HE Financial Transaction Capital fund that will be a low interest scheme for longer term infrastructure investment to be launched in 2024.

• RE-FIT Cymru

RE:FIT Cymru enables the Welsh public sector to secure guaranteed savings and reduce carbon impacts by accessing Energy Performance Contracts (EPCs)

• Private Investment

Private investors are looking for projects at scale including the UK Infrastructure bank, seeking applications from Universities for ambitious retrofit projects

• Ad-Hoc innovation funding streams

For example, AI for decarbonisation and other calls for innovative projects where we have opportunity to harness our academic expertise.



SUPPORTIVE POLICY

Setting and delivering Net Zero targets is supported by a range of policy in Wales and the UK, including 2050 Net Zero targets enshrined in the Climate Change Act UK 2008 and Environment (Wales) Act 2016, underpinned by the International Paris Accord 2015 which seeks to keep global temperature increases below 1.5 degrees.

Welsh Government has also set an ambitious ministerial ambition for the public sector in Wales to achieve Net Zero for Scopes 1, 2 and 3 by 2030.

Key Welsh policy documents include Net Zero Wales Carbon Budget 2 which sets out a plan to deliver a second carbon budget for Wales (2021-2025) supported by the public sector route map, which communicates a strategic plan for a Net Zero public sector by 2030.

Currently Local Area Energy Plans are being developed for the 22 Local Authority Areas in Wales, including Cardiff to feed into National Energy Plan for Wales.

The Local Area Energy Plans will identify the best way of generating low or zero-carbon energy and heat at a county level by using a range of technologies which harness energy from the sun, wind, tides, rivers and hydrogen as well as identifying ways of minimising or decreasing energy use and carbon emissions as much as possible from the built environment, transport, industry, and commerce.

Cardiff Metropolitan is engaged in the development of the plan for the Cardiff area and part of the Cardiff Public Service Board delivering ambitious targets for Cardiff to become Net Zero set out in One Planet Cardiff Strategy.

WELLBEING OF FUTURE GENERATION ACT

Whilst not directly obligated by the WFGA, Cardiff Met strives to comply with the principles that underpin this piece of Welsh Legislation and in particular, the following goals are supported by action on Scope 3 emissions.



CROSS CUTTING THEMES

Collaboration	• Collaboration is at the heart of our organisation, to deliver innovation and engage our stakeholders • We have to work in partnership to achieve our climate goals with internal and external stakeholders
Engagement and Climate Justice	• Build on existing relationships to help our students, staff and partners access services that can help improve their quality of life and enhance their resilience and wellbeing • Recognise climate change impacts different groups in different ways • Above all, listen to the concerns and ideas of all stakeholders we engage with
Governance	• Prioritise and embed climate impact thinking across all of our operations and services • Policy integration to maximise co-benefits
Behaviour Change	• We have to fundamentally consider the design and service offering to respond and prepare for climate change and delivery of our carbon management plan • We need to upskill teams to understand how they can act
IT and Digital	• Technology is key to ensuring resilience operations and underpins our ability to deliver in the most effective and efficient way • It allows us to measure and manage the impact of our activities from a carbon perspective
Regulation and Policy	• Ensure carbon management is embedded across all organisational strategies and policies • Ensure we respond to key policy decisions at a national and local level
Finance	• Sourcing capital finance to implement our measures and objectives is key • Invest to save and whole life cost analysis is a crucial element for delivery • Working in partnership with stakeholders to procure efficiently
Economic Development	• Through low carbon focused procurement decisions we have the opportunity to support growth in the local economy

NEXT STEPS:

We’re focused on delivery and are prioritising the following actions for 2024/25.

Areas of focus	Key Actions	Timeframe
Governance and Strategy	Appoint senior lead for Sustainability and Carbon Reduction Develop delivery structure and governance Delivery membership to include academic staff who can support monitoring and delivery and students to strengthen breadth and depth of delivery and monitoring	2024
Funding and Resource	Optimizing opportunities to enable early delivery through working in conjunction with Welsh Government Energy Service, to prepare compliant bids for finance or grants Funding bids submission for forthcoming Welsh Government Salix FTC and deep retrofit decarbonation loans schemes Secured grant funding for EV charging infrastructure at both Llandaff and Cyncoed campuses.	2024
Buildings and Estates	Detailed assessment of current energy consumption and infrastructure to inform Net Zero roadmap. Identified three key building refurbishment projects that have potential to contribute c50% reduction in CO2 emissions	2024
	Initial funding bid for decarbonisation of NIAC to Welsh Government Heat Decarbonisation funding	2024
	NIAC decarbonisation project delivery	2025
Energy and Resilience	Commit to REGO certified Electricity procurement – 100% from renewable sources £3M programme for LED lighting and floodlights, upgraded motors and pumps and PV installation scoped and Salix funding application submitted. Develop future 2025/26 delivery programme	2024/2025
	Continuous improvements in Building Management Systems and investment in CAFM systems to improve ability to monitor and control energy usage	2025
Transport and Travel	Develop a new travel plan to support a transition to ULEV and active travel campuses. EV Charging installed at both Cyncoed and Llandaff campuses	2024
Green Infrastructure and Biodiversity	Refresh biodiversity strategy and consider opportunity to enhance sequestration across the estate as well as alleviate the impacts of climate change through green infrastructure management	2025
Scope 3 Value Chain	Develop and resource a scope 3 programme to tackle value chain emissions. Work with peers and collaborators to develop a standardised approach to engagement with high impact suppliers	2024 - 2025
Climate Change Response	Develop Climate Change adaptation plan and risk register to mitigate the short–long term impacts of climate change to direct operations and future service delivery	2024 - 2025
Collaboration	Work with external partners to deliver a low carbon transition. Collaborate with Cardiff Climate Emergency Board and University sector peers to unlock accelerated mitigation action and additional public sector funding opportunities	2024





Cardiff
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University

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