

USW Net Zero Carbon Strategy 2020 - 2030

Estates and Facilities

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Executive Summary

Climate change is the defining challenge of our time. As a primary educational institution in Wales, the University of South Wales (USW) embraces its responsibility to drive forward the decarbonisation of its activities and operations. Our Net Zero Strategy is closely aligned with our *USW 2030 Strategy* and serves as the definitive framework to achieve our ultimate vision of becoming a Net Zero organisation by 2040.

We operate within the context of the Welsh Government's commitment to reach 100% Net Zero by 2050. The Welsh Government has established a "collective ambition" for the Welsh Public Sector to be Net Zero by 2030. While not a statutory law for individual institutions, it acts as the primary policy driver for Welsh public bodies and universities.

While our overarching organisational target is 2040, we are accelerating estate-specific and operational reductions in accordance with Wales' public sector leadership milestones, but will maintain this target year as a more realistic timeline for the decarbonisation of all carbon scopes.

Following an initial 32% reduction in Scope 1 and 2 emissions between our 2012/13 baseline and 2018/19, we have maintained a steady downward trajectory through a five-year performance window:

- **Scopes 1 and 2:** Since 2018/19, despite shifting operational dynamics post-pandemic and evolving campus footprints, USW achieved a further 44% reduction in market-based emissions. This was driven by targeted energy efficiency improvements, fabric upgrades, the expansion of on-site solar PV installations, LED rollouts, BMS optimisation, engagement and the rapid decarbonisation of the UK electricity grid.
- **The Scope 3 Challenge:** While Scopes 1 and 2 (direct gas, fleet, and electricity) have dropped substantially, our evolving data baseline up to 2022/23 highlighted that supply chain procurement, commuting, and student international travel represent our most demanding carbon challenges.

To achieve our Net Zero vision, this strategy proposes that:

- We will establish a Sustainability Committee to oversee, resource, and drive carbon reduction initiatives across all university operations.
- We will deliver the USW Carbon Roadmap through a framework of accountability, targeted action, and transparency
- We will develop activity-specific reduction targets across every measured component of our carbon footprint.
- We will prioritise focus and implement improvements where they matter most; in our supply chain, our energy consumption and travel, which represent our largest emission sources.
- We will continue to sustain momentum and build on the 32% reduction in Scope 1 and 2 emissions achieved since our 2012/13 baseline.

- We will update and report on our carbon footprint annually to monitor progress. Data and key milestones will be presented to the Executive and Board of Governors and published publicly for full transparency.

The road to Net Zero will feature technical and financial hurdles, but we are committed at a whole-institution level to maintaining this momentum.

Introduction - Our Journey to Net Zero

As a major player in South Wales higher education, the University of South Wales (USW) spans five campuses across Cardiff, Pontypridd, and Newport. With 72 buildings and a vibrant community of 16,000 students, we recognise that our operational footprint carries a profound environmental responsibility—locally, regionally, and globally.

We have already proven our commitment, achieving a 32% reduction in carbon emissions by 2018/19 against our 2012/13 baseline. However, responding to the climate emergency demands bolder, more urgent action. To align with UK and Welsh Government legislation, we evolved our original Environmental Strategy, developed in 2015 into a refined, more focused Net Zero Carbon Strategy. This document updates the original strategy and brings into focus our key work streams and revised targets and objectives following 5 years of targeted improvements and carbon reduction.

We want to lead by example and have the ambition to achieve net zero as an organisation by 2040. Meeting this target requires a transformational shift across our entire estate. This strategy establishes the governance to drive that change, laying the foundation for a 10-Year Carbon Roadmap aligned with our USW 2030 Strategy. By targeting our highest-emission activities, this roadmap will deliver clear, feasible, and cost-effective actions across our estate, governance, teaching, and community engagement, turning our climate responsibility into measurable carbon impact.

In full alignment with the Welsh Government's mandate for a net-zero public sector and the statutory duties of the Well-being of Future Generations (Wales) Act, this document outlines how USW will reduce its carbon footprint while fostering a more resilient, responsible culture.

We recognise that our impact extends far beyond our physical estates. As an institution dedicated to preparing students for tomorrow's workforce, our path to Net Zero will serve as a "living laboratory"—embedding green skills into our curriculum, driving sustainable innovation through our research, and directly supporting the growth of the university.

Achieving Net Zero requires a transformation in how we heat our buildings, how we use and generate energy, manage our campuses, travel, and source our goods and services. It demands collective action from our entire university community - our students, our staff, and our regional partners. The challenge is huge, but the opportunity to shape a cleaner and more prosperous future for USW is greater.

About this plan

This strategy covers the period 1st August 2020 to 31st July 2030. Centred around a strict reduction-first principle, our priority is to eliminate absolute emissions across our estate before using offsetting as a final resort.

Scope & Boundary

Direct Control (Scopes 1 & 2): Reduction of onsite heating and electricity emissions.

Indirect Impact (Scope 3): Improving data maturity to establish a robust baseline and targeted action plan for our wider supply chain and operations.

In partnership with The Carbon Trust, USW established a 2018/19 carbon baseline of **28,480 tonnes**, calculated using actual data that was available at the time.

Succeeding our previous environmental strategy, this plan serves as our primary governance framework committing us to our interim targets. Progress will continue to be transparently benchmarked via annual HESA Estates Management Record (EMR) submissions.

What is meant by Net Zero?

Reaching net zero means cutting greenhouse gas emissions as close to zero as possible, and then balancing out any remaining, unavoidable emissions by removing an equal amount from the atmosphere. Achieving this for USW requires tackling three distinct categories of emissions, known as Scopes and the measurement of GHG emissions in line with a robust standard (i.e. the Greenhouse Gas Protocol), a focus on the reduction of emissions and the removal or compensation of residual emissions once we can't reduce emissions any further.

Net Zero is commonly mis-associated with achieving 'zero' emissions but this is not the case as we will continue to consume energy and carry out activities and operations that have a carbon impact to serve our current and future students and staff.

Net Zero targets are associated with the Paris Agreement which outlines the goal to "achieve a balance between anthropogenic emissions by sources and removals by sinks of GHG in the second half of the century".

USW has long term targets to achieve net zero by 2040 but for the duration of this plan up to 2030, we are focussed on reducing emissions only. We will aim to focus on the decarbonisation of our estate before we consider any offsetting schemes to remove the unavoidable residual emissions.

To achieve Net Zero, it is essential that Scope 3 emissions are included within the boundary of our operations and as such we intend to address our indirect scope 3 emissions sooner rather than later to improve our understanding of their impact, whilst improving the processes we adopt for collecting data on all sources of carbon impact.

Why is it important for USW to achieve Net Zero?

USW are committed to demonstrating a visible leadership in environmental sustainability by achieving 'net zero by 2040'. This means net zero impact on the planet, and requires a commitment to achieving excellence in environmental, social and financial sustainability whilst striving to embed sustainability in everything that we do.

As part of a local and national community working to address the challenge of climate change, we will demonstrate our commitment through our research, our teaching, and the management of our operations and investments to continually reduce our impact on the environment.

Following an extensive review of the university's emissions, this strategy identifies key drivers that require the most focus, investment and ambitious targets that will take us to 2030 to ensure we remain on track to achieve net zero by 2040 for all scopes of emissions.

Wales has legally binding targets to reduce greenhouse gas emissions and reach net zero. Universities are major organisations that consume energy, operate buildings, support travel, and purchase large amounts of goods and services. By reducing our emissions, we contribute directly to national and global efforts to limit climate change.

Who is responsible for delivering this Net Zero Strategy?

The coordination of this plan sits within the Estates and Facilities department, but delivering this strategy requires buy in at every level of USW for successful outcomes to be realised. It is the collective responsibility of all staff, students and visitors to actively demonstrate ownership of the long term goals in this plan to ensure we achieve our net zero ambitions.

It stands that based on the breadth of emissions sources we currently possess, certain departments are better placed to have a greater influence over carbon reduction such as Estates and Facilities and Procurement (supply chain). Key individuals from these departments are members of USW's Sustainability Committee, chaired by the Director of Estates and Facilities which meets three times a year ensuring governance and formalised reviews of progress against our targets.

Progress on actions is then reported to the USW Executive and Governors annually (who have ultimate accountability), ensuring they continue to support our direction of travel and hold us to account based on our actions. They are also responsible for monitoring and providing strategic guidance on USW's overall sustainability approach.

The Sustainability team is responsible for the coordination of this Net Zero Carbon Strategy and the monitoring, measurement and reporting of carbon emissions annually, for publication in the Annual Sustainability Report, Welsh Government Net Zero reporting requirements and inclusion in the Estate Management Record collated by the Higher Education Statistics Agency (HESA) among other forms of reporting.

Our Strategic Objectives to 2030

To realize our 2040 vision and align with Welsh public sector expectations, USW is committing to the following actionable goals across all three carbon scopes:

- **Decarbonising the Estate (Scopes 1 & 2):** We will actively transition away from fossil-fuel heating across our 72 buildings. We commit to a ‘no new gas policy’ for all new builds, shifting toward heat pumps, heat networks, and expanded on-site renewable generation whilst exploring opportunities for locally generated off site renewable energy via Power Purchase Agreements.
- **Supply Chain & Procurement Leadership (Scope 3):** Procurement is our largest emission source. We will ensure that all major tenders (valued over £25k) require suppliers to demonstrate a clear carbon reduction plan, directly matching the Welsh Government’s Social Value and Net Zero procurement guidelines.
- **Sustainable Travel & Commuting (Scope 3):** Capitalising on our strategic locations in Cardiff, Pontypridd, and Newport, we will implement an active travel and sustainable transport plan to reduce commuter emissions by 2030, while managing and offsetting international travel longer term.
- **Biodiversity & Living Labs:** We will enhance biodiversity across our campuses to improve species diversity and carbon sequestration. We will involve students, staff and researchers directly in local biodiversity and carbon-sink projects.

To ensure accountability, we will undertake the following:

1. **Governance:** The Sustainability Committee is fully resourced to measure, govern, and drive carbon reduction across all faculties and departments.
2. **The USW Carbon Roadmap:** All capital investments and operational changes will follow the phased timeline of the Carbon Roadmap, focusing resources on our highest-emitting activities: procurement, gas, and electricity.
3. **Transparent Reporting:** Our carbon footprint will be calculated annually using the latest Welsh Government Public Sector Net Zero reporting guidelines. Progress reports will be presented to the Executive and Board of Governors and published openly to maintain transparency for our staff, students, and the wider public.

What are our primary sources of emissions?

To understand our key carbon impacts, we categorise emissions into three distinct groups known as Scopes 1, 2, and 3. This framework was established by the Greenhouse Gas (GHG) Protocol to help organisations understand, measure, and manage their total climate impact without double-counting emissions.

The table below outlines the key activities we undertake which generate these three scopes of emissions.

Scope	Definition	USW Emissions Sources
Scope 1 – Direct Emissions	Emissions from sources owned or controlled by USW.	• Natural gas and other fuels used in boilers for heating and hot water. • University-owned vehicles and fleet operations • Refrigerant leakage from air conditioning and cooling systems
Scope 2 – Indirect Energy Emissions	Emissions associated with the generation of purchased electricity consumed by USW	• Purchased electricity for all buildings across all USW sites.
Scope 3 – Other Indirect Emissions	Emissions arising from activities across USW's value chain that are not directly owned or controlled by the university.	• Purchased goods and services • Capital projects and construction activities • Staff business travel • Staff and student commuting • Waste management and disposal • Water supply and treatment • Transportation and distribution • Homeworking • Nomination agreements (external accommodation)

Baselines

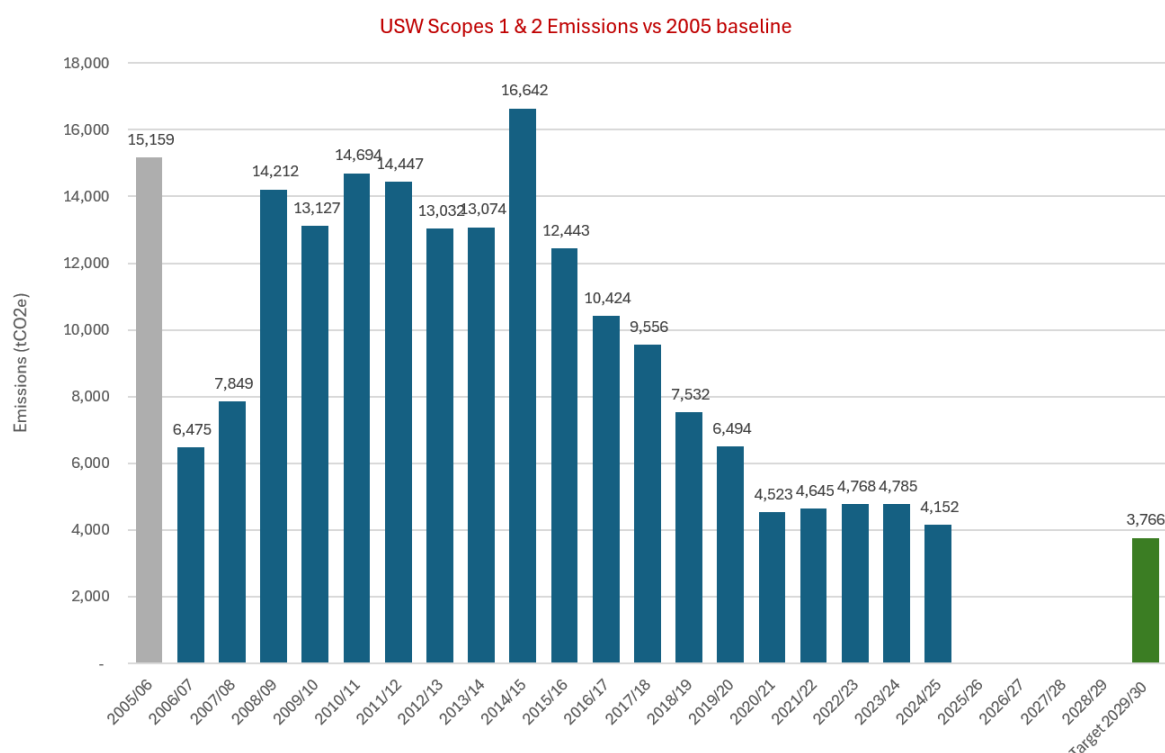
In 2020, the university's first carbon footprint was produced using 2018/19 financial year data. This calculation outlined the footprint boundary, the methodology used to capture our emissions, any omitted data and a breakdown of all measured emissions. The carbon footprint amounted to 28,480tCO₂e.

While it accurately captured the carbon footprint of Scopes 1 and 2, the full picture associated with our Scope 3 impacts were not realised at the time. However, the creation of this footprint served to highlight that some activities were not recorded (due to an absence of data) and as a result, were not included. Over the passage of time, it is now much clearer that the significance and impact of Scope 3 is huge in the context of our overall carbon footprint. And certain categories like commuting and purchased goods and services are key impact areas within this suite of emission sources.

Since the inception of the strategy, USW has remained focused on ensuring we report as openly and transparently as possible on all our emissions impacts and this includes Scope 3. We have worked hard to develop data systems that enable us to report (as accurately as possible) our Scope 3 impacts and this has evolved as data availability, quality and the process for converting this data has improved.

As a result, the baselines that we use for Scopes 1 and 2 differ to Scope 3 based on the maturity and accuracy of the data reported.

Invariably, the standardised baseline year used for measuring progress is 2005 for Higher Education institutions in Wales. However, this baseline only tracks Scopes 1 and 2 energy performance and is no longer applicable in terms of accuracy based on how the University now operates. This year was also prior to a merger that the University undertook in 2012 therefore increasing the size of the University estate. However, for the purposes of illustrating change and progress, we have included it in the graph below.



Our carbon footprint is calculated annually adopting the methodology within the Greenhouse Gas Protocol, upon which the EAUC's Standardised Carbon Emissions Framework (SCEF) is based. We adopt an 'operational model' of emissions reporting based on the activities and processes undertaken across our sites and this covers our financial year 1st August – 31st July annually. USW's emissions are reported in tonnes of carbon dioxide equivalent (tCO₂e) and for Scopes 1 and 2 and most of Scope 3, these are calculated using the relevant conversion factors from the Government's Department for Energy Security and Net Zero. The purchase of goods and services are calculated using the Government's conversion factors by SIC code 2022 as the most recent published version for this reporting category.

The baseline values below incorporate emissions from across our entire operation and will be used for tracking progress against our targets. We continue to improve our carbon accounting

methodology in accordance with best practice and to ensure our inventory accurately reflects any organisational changes and is honest and transparent based on our available data.

For the reporting year 1st August 2023 – 31 July 2024, our carbon emissions footprint is outlined below.

Scopes 1 and 2 (tCO₂e)

Scope	Baseline year: 2018-19	Reporting year: 2023-24	Change %	Target year
Scope 1				
Gas consumption	3,093	2,569	-18.4%	2040
Fugitive emissions	0	199	+100%	2040
Fleet	54	7	-87%	2040
Scope 2				
Purchased electricity	4,385	2,215	-50%	2040
Total emissions:	7,532	4,784	-36%	

Scope 3 Emissions (tCO₂e)

Source (tCO ₂ e)	Baseline year: 2022-23	Reporting year: 2023-24	Change %	Target year
Business travel	611	759	24%	2040
Staff commuting	859	600	-30%	2040
Home working	772	772	0%	2040
Student inter-term commuting	407	121	-70%	2040
Student start & end of term commuting	16,468	9,743	-41%	2040
Waste generated in operations	16	4	-75%	2040
Water supply and treatment	40	44	10%	2040
Purchased goods and services (including transportation and distribution)	17,604	15,686	-11%	2040
Fuel and energy emissions	1,114	1,119	0%	2040
Land based emissions	27	27	0%	2040
Land based emissions	-46	-46	0%	2040
Nominations Agreements		432	100%	2040
Hotel Stays		51	100%	2040
Total	37,650	29,312	-22%	
Change compared to baseline 2022-23		-28%		

We previously adopted a baseline year for Scope 3 aligned to 2018-19, however following significant improvements in data capture and reporting for additional categories within recent years, we updated the baseline year to 2022-23 as this is more representative of the

true impacts associated with our sites and makes future comparisons and reporting more reliable.

Our Scope 3 emissions are by far the largest contributor to our overall carbon footprint. They currently comprise 86% of our total footprint and represent all the emissions sources we are indirectly responsible for such as business and commuting travel, emissions from the supply and treatment of water, the processing of waste and the purchased goods and services we consume across the University.

However, this category is dominated by student commuting to and from our campuses together with purchased goods and services with these two categories alone contributing to 87% of the total Scope 3 value. As a result, they will form the primary focus of our attention in future years.

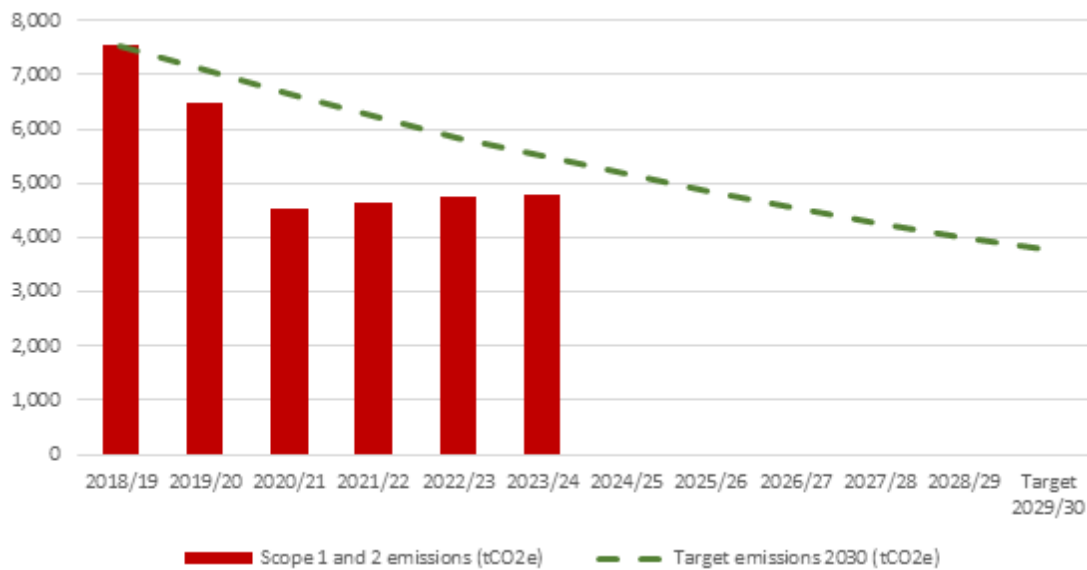
Progress in reducing emissions

USW has made significant strides in reducing its indirect emissions through investment in renewables (Solar PV), heat decarbonisation and space rationalisation projects as well as energy efficiency improvements across the campuses. This has resulted in a reduction of 44% in Scopes 1 and 2 emissions since the baseline year of 2018/19.

Reducing energy demand and improving the efficiency of our buildings will remain central to reducing carbon emissions on our journey towards Net Zero by 2040. We are embarking on the more significant transition we need to make across our estate through the decarbonisation of our gas heating systems with heat pumps being integrated into our Accommodation blocks and more planned installations in subsequent academic years, and through our Estates Strategy we are continuing to install low carbon solutions into all refurbishments and new buildings.

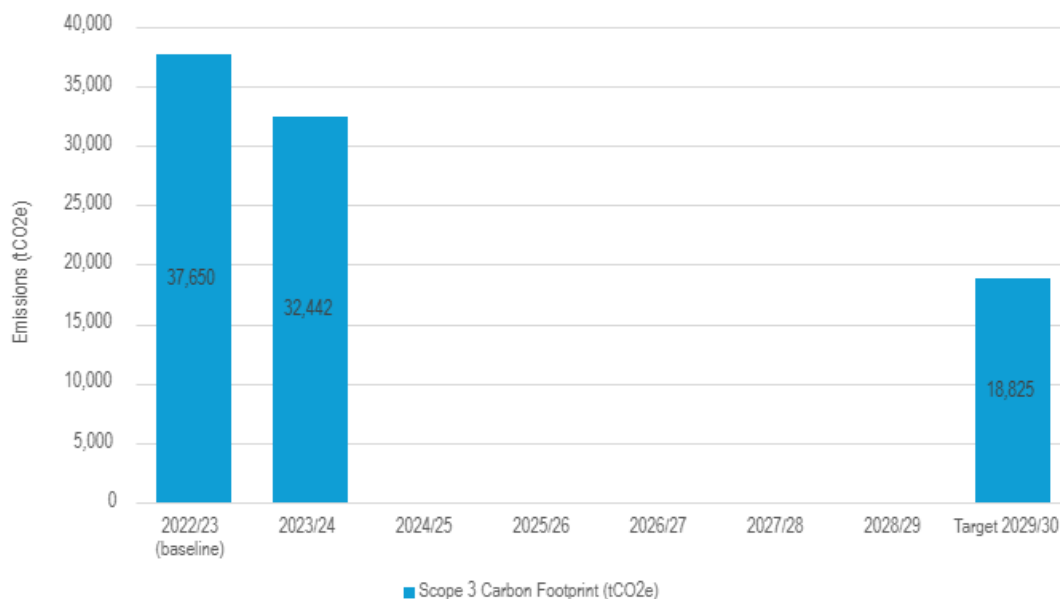
We are also working actively with project managers and external contractors to ensure new build projects, such as Calon and the New Welsh Chiropractic Institute feature as many energy saving and generation technologies as is feasible. We are also exploring the potential for connecting into large scale external renewable energy schemes such as local wind farms and district heating schemes for our Cardiff and Newport campuses to support this energy transitions whilst mitigating rising energy costs.

Scopes 1 and 2 carbon emissions: Projected vs Actual



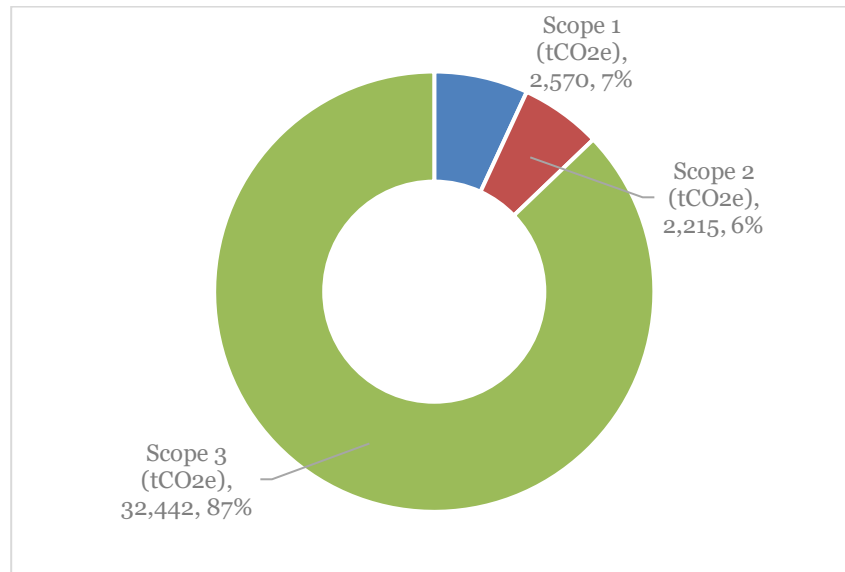
With the ongoing decarbonisation of our energy supplies and the continued investment in renewable energy technologies, we project that Scopes 1 and 2 carbon emissions will decrease to 3,765tCO₂e by 2030.

Scope 3 carbon emissions: Projected vs Actual



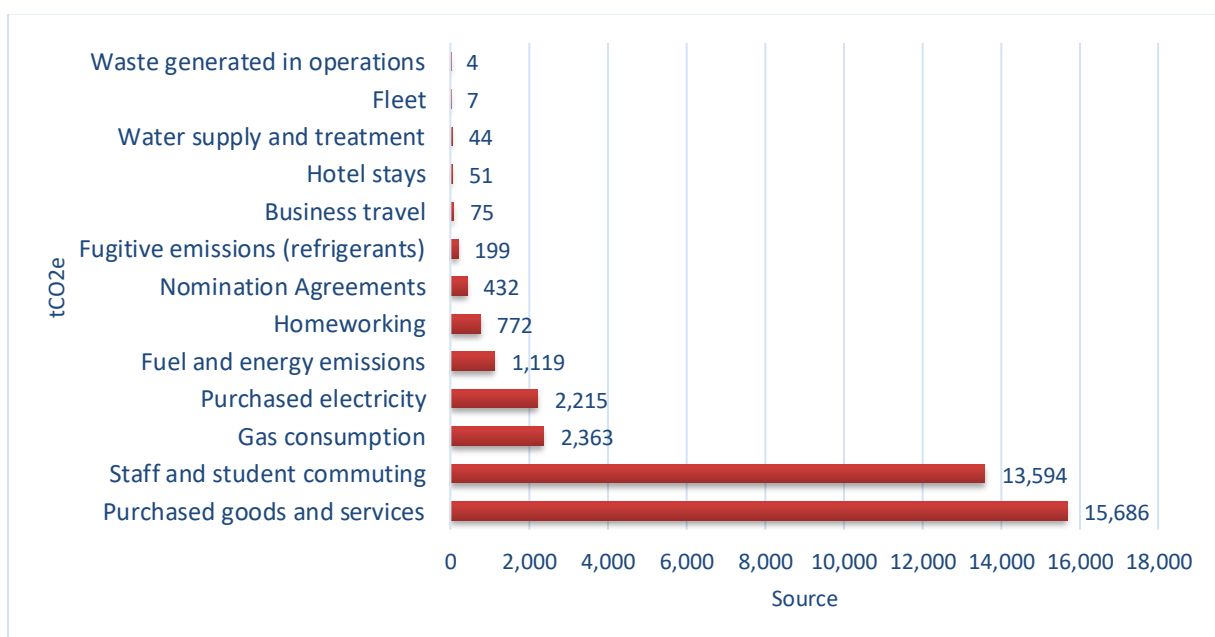
Scope 3 emissions are much more difficult to decarbonise and for some sources, require more intervention from partner organisations and industry that will be required to achieve the longer term goals. By their nature, we have less control over some of the sources that fall within Scope 3 and many are integral to the way we do business. Therefore, we need to focus on those high impact areas first that we can influence more easily before tackling the more challenging impacts such as air travel.

Total Carbon Emissions by Scope – 2023-24



The picture is very clear as to where the majority of our emissions originate. Of the 87% attributable to Scope 3, almost 80% of USW's total carbon footprint sits within just two Scope 3 categories (Purchased Goods & Services and Commuting). While Scopes 1 and 2 are under USW's direct operational control and will be targeted for rapid, absolute reduction, achieving a true Net Zero state will depend heavily on our capacity to influence and decarbonise our Scope 3 supply chain and commuter behaviours. However, we will not lose sight of the influence we have over Scopes 1 and 2 and the opportunity to decarbonise our energy supply.

Emissions by Source (tCO₂e)



The graph above puts the current split of Scope 3 emissions into context. It clearly illustrates that the vast majority of environmental impact is driven by just two categories. Purchased goods and services is the single largest contributor at 15,686tCO₂e closely followed by staff and student commuting, which accounts for 13,594tCO₂e. Together, these two sources completely overshadow all other activities. The remaining eight sources including homeworking, nomination agreements, and business travel individually contribute fewer than 1,000tCO₂e with operational waste generation registering the lowest footprint at just 4tCO₂e.

Legislative Drivers

The Welsh Government introduced the Environment Act 2016 with the intention to position Wales as a low carbon, green economy, ready to adapt to the impacts of climate change. Part 2 of this legislation focuses on climate change and carbon budgets and includes a statutory emission reduction target. The Welsh Government has accepted a 95% reduction in greenhouse gas emissions by 2050 relative to 1990 emission levels but wants to go further and achieve net zero by 2050, in line with the UK Government's Climate Change Act 2008 commitment. Furthermore, the Welsh Government has communicated its ambition for all public sector organisations to achieve net zero by 2030 and is therefore looking at this sector to drive Wales into a low carbon future.

The Welsh Government has established ***The Well-being of Future Generations (Wales) Act 2015***, a piece of legislation that legally requires public bodies, and heavily influences the higher education sector, to consider the long-term impact of their decisions. It includes the Seven Well-being Goals and to align with Welsh law, institutions must actively contribute to goals like creating "A Resilient Wales" and "A Globally Responsible Wales."

Alongside the Environment Act, the Wellbeing of Future Generations Act 2015 and the Welsh Government's "Prosperity for All: A Low Carbon Wales" guidance sets out their approach to cut emissions and increase efficiency to maximise wider benefits for Wales, ensuring a fairer and healthier society by improving the social, economic, environmental and cultural well-being of Wales. The guidance includes over 100 policies and proposals that directly reduce emissions and support the growth of the low carbon economy.

The university supports the Welsh and UK Government Acts and the carbon management activities needed to decarbonise are embedded within our core values: to be professional, responsive, inspiring, creative and collaborative. Furthermore, our USW 2030 Strategy focuses on adding value to lives, communities and the economy, which aligns itself with the Welsh Governments proposals and the UN Sustainable Development Goals.

Governance and Roles

USW recognises that robust engagement with stakeholders from across the university will be crucial for successful climate action implementation. The Board of Governors holds ultimate responsibility for the university's carbon footprint. The Director of Estates & Facilities and Head of Sustainability and Energy will report on the carbon footprint and associated

environmental performance to the Board annually. The delivery of this strategy will be led by the Sustainability team.

A Sustainability Committee has been established comprised of key university stakeholders. The Sustainability Committee along with all Faculties and Departments will be responsible for engaging in and promoting sustainable and energy efficient behaviours for the strategy to be successful. Internal and external resources will be engaged where relevant and as identified, to assist in delivering our targets.

Progress against this strategy will be formally presented at least annually to the Sustainability Committee and to USW's Executive to brief them on key achievements and the direction of travel. Annual Sustainability Reports will also be produced summarising our successes, progress and emissions trends.

Fig 1: The Governance and Reporting Structure for Net Zero Carbon 2040 is shown below.



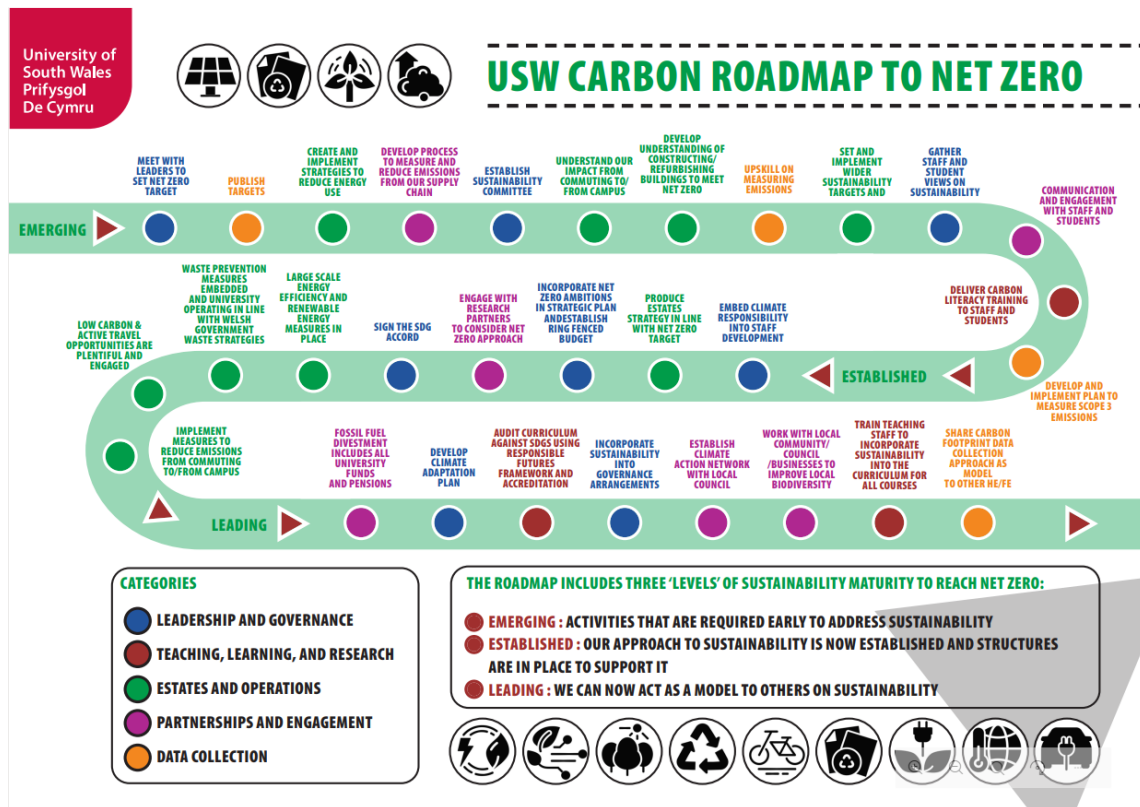
USW's Carbon Emissions Projection (2018/19 – 2030)

This strategy takes us up to 2030, by which time and with the help of the targets proposed, we will have reduced our carbon emissions by a minimum of 50% for Scopes 1, 2 and 3. This will then ensure we remain on track to remove the remaining 50% of our emissions over the course of the next 10 years to 2040.

Based on existing data, a simple decarbonisation pathway is outlined below for all emissions sources up to 2030. This interim target provides us with a near term goal and a means of tracking progress. This does not include any form of offsetting and relies primarily on reducing emissions year on year. Our primary 2040 carbon reduction target will remain as an “absolute” target and will not be relative to such metrics as FTE, Gross Internal Area or turnover. Although we will use these metrics to monitor and evaluate progress as they are useful indicators of energy and carbon performance.

We recognise that further along the road we will need to develop more detailed ‘bottom up’ modelling as we continue the journey to Net Zero 2040 which will include a consideration of offsetting requirements particularly for those residual emissions such as air travel that are difficult to abate.

To achieve the annual reductions required, we will follow a phased implementation programme of decarbonisation initiatives up to 2030 in accordance with the USW Road Map that will facilitate the delivery of the emissions reductions required.



It is accepted that achieving continued reductions will become more challenging as we progress through the plan and we will undertake periodic reviews of progress to help inform future investment opportunities to remain on track.

Objectives and Targets

USW's overarching 2040 net zero target was developed and informed through the review of the 2018-19 baseline year data available at the time, alongside a review of sector best practice and Welsh Government goals and targets for the Welsh Public Sector. However, we also undertook a practical stance on the level of opportunity, the challenges we face across a diverse estate and the investment required to decide on what we considered to be a reasonable, challenging but ultimately achievable net zero target year.

Based on the challenges of sourcing accurate Scope 3 data (particularly for purchased goods and services and commuting), and the level of influence we currently have in these areas, we are content that our target year (2040) provides enough time to develop and refine our strategies for reducing these key impact areas to avoid large scale offsetting costs in the later years of the strategy. Supply chain emissions reporting continues to evolve and therefore we will seek to maintain pace with industry developments, engage with key suppliers to ensure continual improvement and consider the opportunity that AI can offer to support this.

To achieve our goal, USW has set itself challenging targets for reducing its carbon emissions. These targets include emissions reductions from all Scopes – 1, 2 and 3 and supporting secondary targets within targeted areas based on our assessment of carbon impact.

The university aims to achieve the following headline carbon reduction targets:

- achieving net zero carbon emissions from scope 1 and 2 sources by 2040
- achieving net zero carbon emissions from scope 3 emissions by 2040

In order for USW to ensure continued progress towards net zero, we have adopted interim carbon reduction targets to reduce our carbon emissions.

These interim targets are as follows:

- reduce Scopes 1 and 2 emissions by 50% by 2030 based on 2018-19 baseline
- reduce scope 3 emissions by 50% by 2030 based on 2022/23 baseline.

To facilitate and ensure targeted reductions in emissions for our key impact areas, we have developed the following targets and KPIs to track progress:

Energy and Decarbonisation

- Reduce Scope 1 and 2 carbon emissions by 50% by 2030.
- Reduce Scope 3 carbon emissions by 50% by 2030.

Water Management

- Reduce total water consumption by 10% by July 2027.

Biodiversity and Land Use

- Achieve 10% biodiversity net gain across the estate by 2028.

- Achieve Green Flag certification for Treforest campus by end of 2028.
- Increase wildflower/pollinator habitats by 15% and install 25 nesting boxes by 2027/2028.
- Complete a 100% Biodiversity Baseline Habitat Audit by December 2026.
- Eradicate/manage invasive non-native species across all campuses by 2030

Travel & Transport

- Increase use of alternatives to single-occupancy vehicles by 15% by 2030.
- Reduce staff and student commuting emissions by 3% per annum (from 2022/23 baseline) by 2030.
- Transition 100% of university-owned fleet to zero-emission by end of 2029.
- Provide at least 4 Dr Bike workshops a year to encourage active travel use.

Waste & Circular Economy

- Achieve Zero Waste by 2040.
- Maintain Zero Waste to Landfill status.
- Achieve a 75% recycling rate by 2030 (aligned with Welsh Government targets).

Sustainable Procurement

- Convert at least 10% of supply chain spend data to carbon values using product/service-level emissions factors (Tier 3) by 2030.
- Ensure 80% of top 50 suppliers (by spend) have a carbon footprint on Net Positives by end of 2028.
- 100% of new contracts valued at over £25k per annum to include Sustainability Risk Assessment (SRA) and Social Value criteria.
- Reduce emissions from purchased goods and services by 5% per year by 2030.

Construction & Refurbishment

- Ensure all new buildings meet RIBA 2030 Climate Challenge targets.
- 100% of capital and refurbishment projects must include sustainability/climate considerations.
- Prioritise low-carbon, all-electric building services; heat pumps as standard for new builds.
- Generate an average of at least 25% of building load from on-site renewables for all new builds.
- Aim to achieve a DEC rating of D or above for all campus buildings by 2030.

Sustainable Food & Catering

- Retain SRA 3-star Food Made Good rating for all catering outlets.
- Increase vegan meal sales to 10% and plant-based milk sales to 15% by 2030.
- 100% certified tea, coffee, sugar (Fairtrade/Rainforest Alliance or other) and RSPO palm oil by Dec 2027.
- Implement traffic-light carbon labelling on 50% of menus by January 2028.
- Increase non-disposable (reusable) hot drink purchases to 20% by end of 2027.

Education for Sustainable Development

- Aim to embed sustainability into teaching, learning, and research across all course curriculum by 2030.
- Require a "Sustainability Impact" assessment for all new course proposals by Jan 2027 (demonstrating alignment with at least two UN SDGs).
- Deliver carbon literacy training to at least 50 students/staff per academic year.
- Facilitate 5 student-led sustainability projects annually using the campus/community as a testbed by end 2027.

Community Engagement

- Facilitate 1,000 hours of student volunteering annually toward local communities by 2027/28.
- Conduct a minimum of 12 community litter picks per year.
- Aim for 10% of Turn USW Green members to participate in community or volunteering activities.
- Build and support active sustainability partnerships with local community groups.

Emissions & Discharges

- Establish a baseline value for total fugitive emissions from HVAC and refrigeration systems by July 2027.
- Prevent pollution from F-gas leakages and ensure zero harmful discharges.
- Ensure 100% of new heat pump and cooling installations use refrigerants with a Global Warming Potential (GWP) of less than 150.
- Ensure all new construction projects include SUDS in the design and construction to reduce runoff via green/blue roofs, permeable paving, or attenuation tanks.

Each of the above targets has a number of supporting actions that can be found in our [USW Sustainability SMART Action Plan](#) which is reviewed bi-annually by the Sustainability Committee.

External factors impacting our targets

There are a number of factors that may accelerate or hinder our progress towards net zero. These are listed below, particularly referencing the context in Wales as well as across the wider UK.

- Decarbonising older, historic campus buildings requires significant upfront capital.
- Financial sustainability across the sector due to volatile international student recruitment and stagnant domestic tuition fees
- Competing Capital Priorities, funding and investment opportunity

- Reliance and the appetite for Welsh Government grants or loan schemes to finance improvement projects
- Grid carbon intensity - the rate of decarbonisation of the grid
- Local grid capacity and constraints for new renewables connections
- Slow or lack of decarbonisation of supply chain.
- Challenges around moving away from single occupancy car use due to regional infrastructure and geographic location in South Wales.
- Reputational risk associated with failing to achieve reduction targets
- Rate of technological development and ROI based on costs

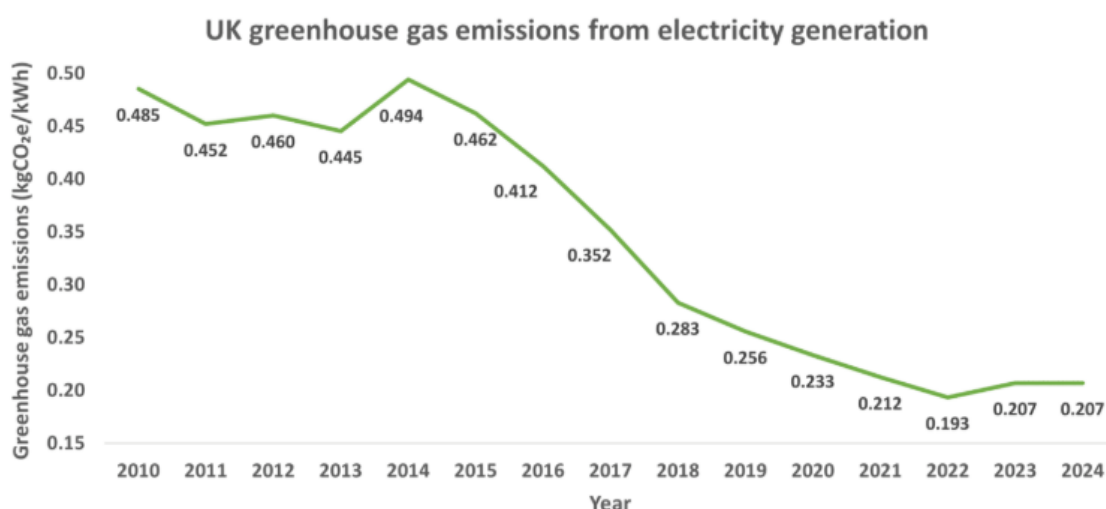
Grid Decarbonisation

The UK electricity grid has decarbonised by around 75% in the last 15 years, with emissions intensity set to fall towards zero as the 2035 target for a clean power system approaches. This transformation is due to the reduction in coal-fired generation and the successful deployment of large-scale renewable sources, particularly offshore wind and solar, making the UK's energy mix one of the cleanest in Europe. Alongside this, improved product efficiency and building standards have significantly reduced overall power demand.

This accelerating trend supports the reduction in carbon emissions associated with USW's electricity consumption, and in particular our transition from traditional fossil fuel based heating and hot water systems to electrically powered technologies. Therefore, our projections will continue to include for this as we progress on our journey to net zero.

The UK Government has committed to fully decarbonise the electricity system by 2035 and this will be factored into all future strategy reviews.

UK Grid Emissions Intensity 2010-2024



Source: UK Department for Energy Security and Net Zero (Desnz)

Investing in our estate

As part of USW’s 2030 Estates Masterplan, we are rationalising our estate to align with our Net Zero commitments. This includes consolidating our footprint by decommissioning inefficient spaces and introducing highly efficient new facilities on our Treforest campus, including:

- Part 2 of the Chiropractic Building
- CALON Computing and Engineering Building

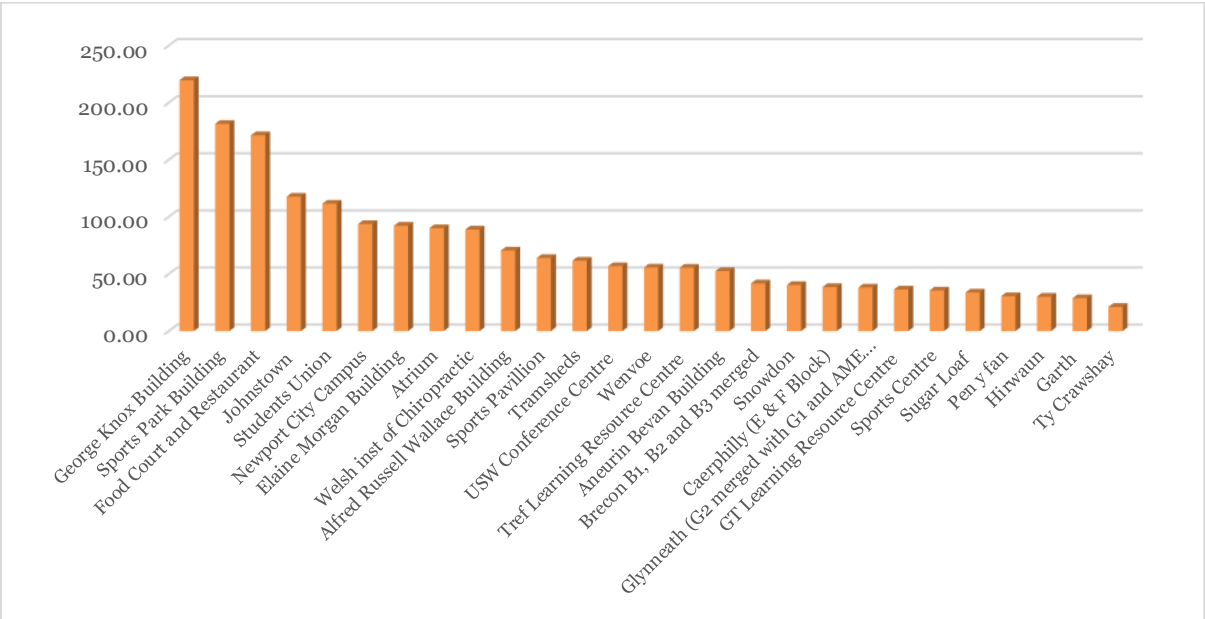
Parallel to these new developments, we are undertaking a progressive refurbishment programme across our Treforest Student Accommodation to optimise energy efficiency, thermal comfort, and fabric performance.

To ensure future capital works adhere to the highest sustainability standards, we are implementing a Sustainable Design Guide. This framework will enforce an agreed environmental specification from inception through construction—minimising both embodied carbon during build phases and operational emissions over each building's lifecycle.

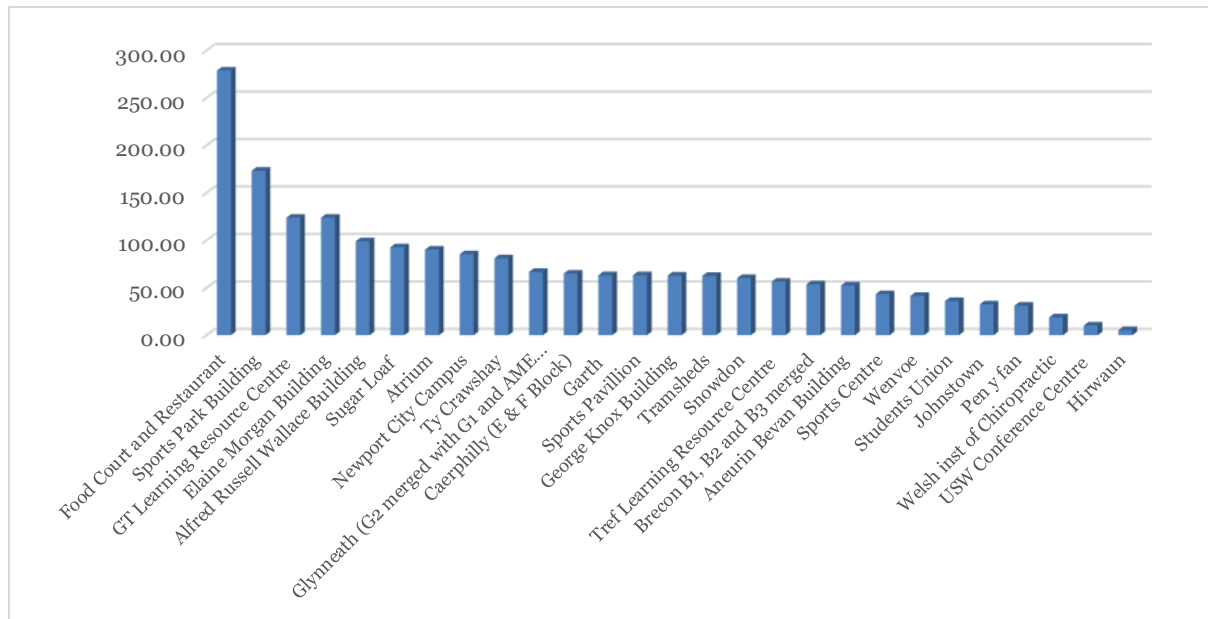
Improving energy efficiency

Our estate spans a diverse mix of historic and modern assets, including listed buildings such as the Alfred Russell Wallace building. There are a number of opportunities that still exist to improve the operational efficiency and energy performance across our portfolio including building management system controls in our accommodation blocks and targeted engagement of our staff and students to improve awareness and to develop positive climate behaviours in their everyday work.

Electricity consumption per m2 (2024-25)



Gas consumption per m2 (2024-25)



Decarbonising our energy supplies remains a key priority for USW as we aim to reduce absolute scope 1 and 2 carbon emissions by 50% by 2030. We will achieve this through a combination of energy efficiency measures, heat electrification or low-carbon fuel feasibility studies, low-carbon heating in new builds and/or integration into regional district heating systems, onsite and offsite renewables, and enhanced monitoring to minimise waste. We will prioritise our most energy hungry buildings first to ensure we achieve the greatest gains but also consider investing in the easy wins that are still present in other blocks.

Since 2017, the University has purchased 100% REGO-certified renewable electricity for its entire estate and will continue to do so. To support the Welsh economy and minimise network distribution losses, we will explore opportunities to source electricity from local generators. Additionally, USW will investigate Power Purchase Agreements (PPAs) to buy electricity directly from offsite zero-carbon renewable generators in South Wales. This strategy secures price certainty, funds new regional renewable capacity, and could accelerate our zero-carbon timeline (for Scope 2) if a single local solar and/or wind source is secured.

Renewable Energy

In 2018/19, the University generated just 0.1% of its annual electricity demand from 60kWp of rooftop solar panels. This capacity has since expanded to over 500kWp, which generates a contribution to approximately 4% of total demand.

However, even if utilising all available roof space becomes financially viable, rooftop solar alone cannot fulfil USW's energy requirements. To maximise this technology's impact, we will pursue further expansion of onsite solar PV—including solar installations on all new builds as standard and exploring ground based solar canopies on our car parks in our Treforest Campus. We will also undertake further feasibility studies into the potential for solar PV onto

existing assets, retrofit inverters to provide better performance data where existing inverters are reaching end of life, improved mapping and visibility of installed solar panels, and implement improved monitoring and maintenance to ensure maximised generation capacity at all times. Ultimately, solar must be combined with other renewable sources in the energy mix, alongside a consideration of battery storage options in the longer term if they prove financially viable and there is sufficient supply.

Heat Decarbonisation

The vast majority of buildings across the USW estate are currently heated using gas-fired boilers. The Welsh Government has identified achieving net zero heat for Wales as one of the primary challenges on the road to net zero by 2050 for all sectors and has developed a [Heat Strategy for Wales](#), alongside financial support to accelerate the transition to electric heating.

To align with this, we are actively exploring options for campus electrification, which includes having already installed heat pumps in some of our accommodation blocks. Moving forward, we will consider installing heat pumps when existing boilers reach their end of life and if it is financially viable, while remaining keen to trial other emerging new technologies.

We are also exploring localised solutions, such as a onsite mini district heating networks, as well as working with local councils to investigate connecting into wider local district heat networks. However, this transition presents notable hurdles; we must carefully navigate the increased operational costs of electric heating, alongside significant electrical demand challenges related to both the regional grid and our own onsite infrastructure capacity.

Procurement and supply chain

Our procurement activities represent one of our largest sources of carbon emissions, driven by a considerable spend on goods and services. We have recently improved the way we process and analyse our supply chain data to enable us to identify our highest-emitting contracts and we will focus on these top-emitting categories first to drive future reductions. As we move toward 2030, the University commits to engaging our supply chain to help them improve their own reporting, recognizing that their scope 1 and 2 emissions effectively become our scope 3 footprint. However, supply chain carbon accounting remains a rapidly evolving space in which much work needs to be done. To progress, we must move away from top-down Tier 1 reporting (which relies on proxy financial SIC codes) toward Tier 3 reporting, which utilises precise product- and service-level carbon factors.

Capturing this product and service-level reporting is currently difficult and not that well established, so we will focus heavily on IT initially as one of the more advanced sectors in this reporting space, and as one of our biggest impact areas to improve product-level data capture. To accelerate these efforts and as an alternative option, we are also exploring the potential for AI interventions to analyse and optimise supply chain emissions data.

Furthermore, we will work closely with the Welsh Government to support their reporting ambitions for supply chain, ensuring our methodology evolves in tandem with the updated Net Zero Carbon Reporting Guide for public bodies. Although UK Government SIC codes

have been updated to the 2022 version and accuracy has improved to better reflect the true decarbonisation of manufacturing, transport, and the electrical grid across our network, they still lag behind other reporting metrics. Therefore it's in our best interests to report at a more localised level where possible for the things we buy to provide a more operationally accurate reflection of our carbon emissions impact.

Water consumption in buildings

Water emissions comprise one of the smallest contributions to our carbon footprint, in part due to a significant downward adjustment to the water carbon conversion factor in 2022 resulting from grid and pumping efficiencies.

However, despite this minor proportional carbon impact, water remains a highly valuable natural resource. Furthermore, the increasing cost of water is placing more pressure on our institutional budgets and finances, therefore we are under increasing pressure to ensure we consume less. To address these resource and financial strains, we will target areas for improvement to reduce our water consumption by 10% by 2027. We will drive this reduction through an improved focus on leak detection and resolution, improved metering and monitoring of buildings across our estate to ensure leaks are identified and resolved promptly, and comprehensive water audits across our buildings to identify areas for improvement.

Additionally, we will mandate the installation of water-saving appliances as standard in all new builds, while implementing strict design specifications for all new and retrofitted sanitary wear to ensure we consistently achieve minimum flow rate efficiency without compromising performance.

Emissions from waste

Similar to water, relative carbon emissions from waste generate a small proportion of our overall footprint. However, year on year we are improving the quality and accuracy of our data and this is providing a clearer picture of our actual carbon impacts.

Although carbon gains from waste volume reductions are limited, minimising environmental impact and reducing costs remains a priority. Moving forward, we will align our practices with the Welsh Government's [Towards Zero Waste strategy](#) and Circular Economy timeline, which aims to achieve a 75% recycling rate by 2030 and Zero Waste by 2040 whilst maintaining zero waste to landfill. To achieve this, we will transition waste away from energy recovery toward dedicated recycling facilities.

Operationally, the rollout of segregated waste bins across campuses is now complete, and we will place a heavy focus on improving recycling and reducing waste specifically within our accommodation blocks. We will prioritise buying less to curb waste at the source, digitising processes to reduce paper use, and building reuse and recycled content requirements directly into procurement contracts, such as for IT products.

To minimise overall waste arising, we will actively promote the reuse and redistribution of assets across our estates via platforms like Warp It, e-cycle, and other distribution schemes. Furthermore, we will support these efforts through university-wide behavioural change campaigns, targeted student and staff engagement programs, and robust sustainable food policies across our catering outlets to tackle organic waste.

Low carbon travel

As demonstrated by the data in the graphs above, staff and student commuting has now emerged as one of our single biggest carbon impacts, though calculating these emissions still relies on a number of assumptions derived from travel surveys and other data we can access to inform travel behaviours. Addressing this is challenging due to the geographical dispersion of our campuses; some more remote sites, such as Treforest, are well-served by public transport options to and from some areas but car use still dominates. Furthermore, student start and end of term commuting emissions are high due to our diverse international intake, which remains vital to the growth and long-term prosperity of the University.

To manage this footprint, a comprehensive travel plan will be developed to promote sustainable modes of transport, supported by travel surveys issued every two years to refine our data. We will also improve on-campus cycling and active travel facilities and actively engage students and staff on sustainable travel alternatives.

While the increased use of Microsoft Teams for meetings has successfully reduced overall travel emissions, business travel remains key to the University's global aims. International flights are essential but highly carbon-intensive; for these, we are largely reliant on the aviation industry to assist with decarbonisation, exploring the use of greener fuels (eg hydrogen) making it the hardest area to improve with little to no direct institutional influence. However, our internal travel policy actively discourages air travel within the UK and promotes public transport where travel is required.

To streamline our processes and enforce these standards, we will move to an easier, simpler way to book travel through a single provider. This system will display carbon data for hotels at the point of booking and only provide options for staff to travel via economy class for both flights and trains to ensure emissions are minimised wherever travel is necessary.

Engagement and behaviour change

Communication and engagement across the university will be essential to ensuring our success. All of our policy objectives rely upon positive engagement with our staff student and visitor communities, and many will require direct action to be taken by staff and students themselves. To drive this, a dedicated engagement programme has been established alongside a communication action plan developed in collaboration with our University communications team and other key stakeholders.

To embed environmental responsibility into our University culture, carbon literacy training will be rolled out across the university, either via our certified facilitators to deliver the

courses to both staff and students or targeted online courses. We will also deliver sustainability talks, attend targeted events and guest lectures, and provide comprehensive sustainability information within welcome packs for all new students.

To maintain momentum and track behavioural shifts, league tables will be developed to foster positive competition. Operational progress will be driven from the ground up by a combination of a sustainability champions group and targeted sustainability action groups focused on our key carbon impact areas. This entire framework and its ongoing progress will be directly overseen by the University's sustainability committee to ensure accountability and strategic alignment.

Carbon Offsetting

Our primary focus up until 2030 is to maximise direct carbon reductions across the estate, and carbon offsetting will not be considered until the latter part of the strategy. For Carbon Budget 3 (2026–2030), the Welsh Government has set a 0% limit on international carbon offset credits, requiring Wales to meet its targets through direct domestic reduction.

To achieve net-zero by 2040, USW will only offset the residual emissions we cannot eliminate. Deferring offsets allows time for technologies to develop and for offsetting schemes to become more robust, credible, and standardised over time. While options range from nature-based solutions to Direct Air Capture (DAC), market credibility varies significantly, and prices—currently £25–£200 per tonne—are projected to rise sharply as demand spikes toward 2030. Relying on offsets presents a major financial and reputational risk; therefore, a formal offsetting strategy will eventually be developed to ensure our residual elements are neutralised in a robust, ethical, and transparent manner.

Implementation and monitoring

Achieving net zero requires a whole-institution approach. We are embedding decarbonisation across every area of our operations and integrating sustainable practices into our estate, governance, teaching, and broader community engagement.

To turn ambition into action, we have established a Carbon Roadmap that outlines the critical milestones, workstreams, and timelines necessary to meet our strategic targets.

We are committed to a robust framework of continuous review through a range of reporting as follows:

- Annual Sustainability Reports
- Welsh Government Public Sector Net Zero Reporting
- USW Annual Statement of Accounts
- Higher Education Statistics Agency Reporting (HESA)
- Sustainability Committee annual carbon footprint
- Annual Progress Reports to the USW Executive and Governors
- Annual Benchmarking via the People and Planet University League

Ultimate executive accountability for meeting our net zero milestones rests with the Vice-Chancellor.

Funding and Resources

As an environmentally responsible institution, USW supports its decarbonisation goals through a dedicated, recurring revenue budget allocated directly to the Sustainability Team, of £107k per year. These funds strictly prioritise carbon mitigation and sustainability improvement, driving initiatives such as LED lighting, BMS upgrades, solar PV installations, EV charging points, utility sub-metering and improved cycling infrastructure. We also benefit from annual capital expenditure budgets and MEDR funding allocations that help to accelerate our progress towards net zero. Over the last four years, the University has committed over £7.8m toward net-zero orientated projects, both via capital budgets and allocated MEDR funding that closely aligns with our sustainability targets.

While some initiatives in our 2020–2030 Action Plan already have capital allocated, projects without identified funding will look to secure external mechanisms. We will continue to leverage Welsh Government grant programs and match-funding through funding streams that can support large-scale heat network decarbonisation and other energy efficiency projects. Furthermore, where practical, USW may consider the use of public sector financing like interest-free SALIX loans—which are cost-neutral as they are repaid directly through energy savings—to accelerate our transition to net zero.

Appendices

[USW Sustainability strategies and policies](#)

[USW 2030 Carbon Roadmap](#)

[USW Carbon Footprint Report 2018/19](#)

[USW Sustainability Smart targets & Action Plan](#)