



Swansea  
University  
Prifysgol  
Abertawe

Sustainability  
Cynaliadwyedd

# PATH TO ZERO – WATER MANAGEMENT

2022 - 2023



## CONTENTS



## INTRODUCTION

In October 2019, Swansea University declared a Climate Emergency and committed to being Zero Carbon by 2035.<sup>1</sup>

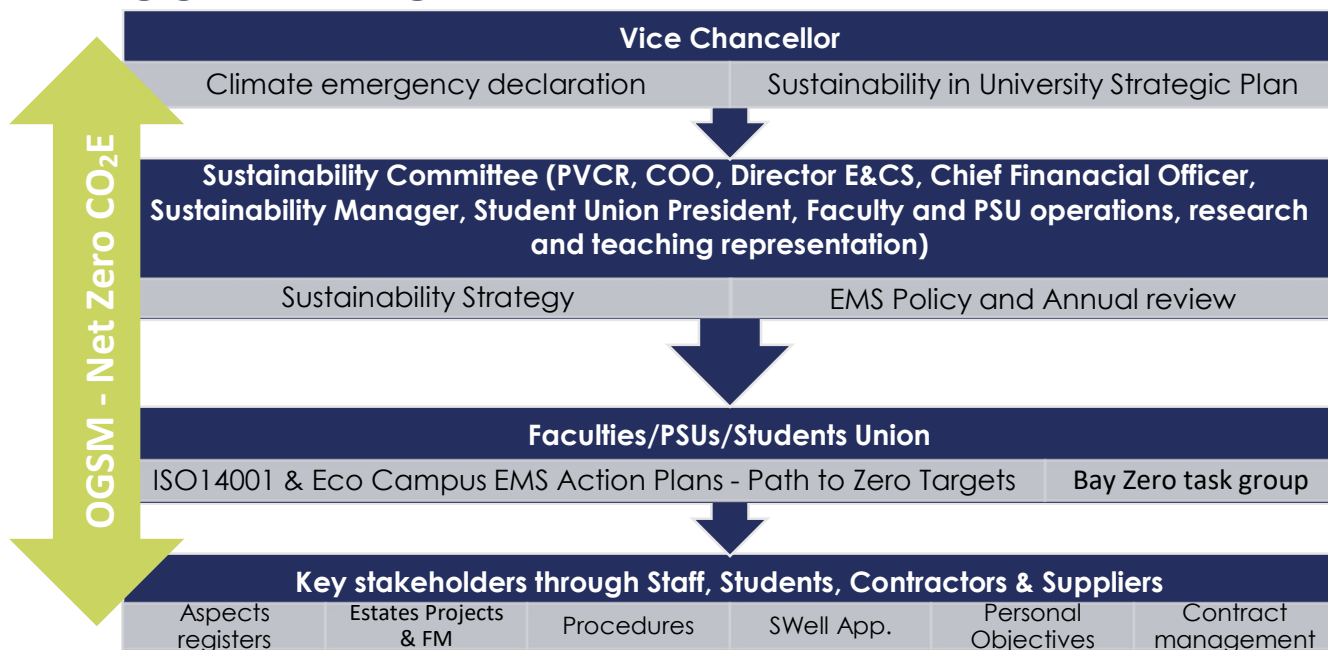
Water use and wastewater discharges are a sub emission source of our Scope 3 emissions. Aligned with our Climate Emergency targets, the University has a 50% reduction target for CO<sub>2</sub>e emissions associated with water and also for total water consumption by 2035/36.

Our [Sustainability and Climate Emergency Plan 2020 - 2025](#) clearly defines our climate emergency targets.

In June 2022 the university published a comprehensive science-based Decarbonisation Action Plan identifying interventions required on our path to zero by 2023. This report was produced in partnership with the Carbon Trust and Welsh Government Energy Service: [Decarb Action Plan Summary Report](#).

This Path to Zero annual report, provides an overview and update on our progress, outlining our emissions and performance against our decarbonisation targets and intervention plans.

## GOVERNANCE



### OGSM = OBJECTIVES, GOALS, STRATEGIES AND MEASURES

<sup>1</sup> Net Zero in scope 1 & 2 as per <https://www.sdgaccord.org/climateletter>

## RELEVANT LEGISLATION

### WATER MANAGEMENT

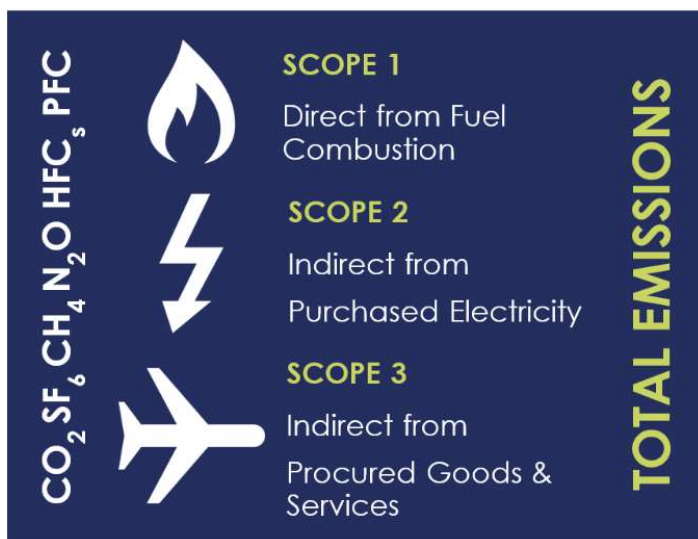
- Water Industry Act 1991 (1991 c.56)
- The Water Act 2003 (2003 c.37)
- Flood and Water Management Act 2010 (2010 c.29)
- Directive 2000/60/EC establishing a framework for the Community action in the field of water policy (Water Framework Directive)
- The Trade Effluents (Prescribed Processes and Substances) Regulations 1989 (SI 1989/1156)
- The Trade Effluents (Prescribed Processes and Substances) Regulations 1992 (SI 1992/339)
- Directive 2008/105/EC on environmental quality standards in the field of water policy
- The Designation of Features (Appeals) (Wales) Regulations 2012 (SI 2012/1819 (W. 228))
- The Urban Waste Water Treatment (England and Wales) Regulations 1994 (SI 1994/2841)
- The Water Abstraction (Transitional Provisions) Regulations 2017 (SI 2017/1047)
- The Water Resources (Control of Agricultural Pollution) (Wales) Regulations 2021 SI 2021/77 (W.20)
- Water Resources Act 1991 (1991 c.57)
- The Water Supply (Water Fittings) Regulations 1999 (SI 1999/1148)
- The Water Resources (Abstraction and Impounding) Regulations 2006 (SI 2006/641)
- Directive 2006/118/EC on the protection of groundwater against pollution and deterioration
- The Water Use (Temporary Bans) Order 2010 (SI 2010/2231)
- Reservoirs Act 1975 (1975 c.23)
- The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (SI 2017/407)
- Water Resources Act 1991 (1991 c.57), Part 2 Water Resources Management (s.19-81)
- The Water Resources (Control of Pollution) (Oil Storage) (Wales) Regulations 2016 (SI 2016/359 (W.112))
- Water Supply Licence (Application) Regulations 2005 (SI 2005/1638)

## PERFORMANCE

The **boundaries of data** capture for the calculation of water use encompass facilities where the University is sole utility procurer. The university follows GHG Protocol, HE/FE sector and Welsh Government Net Zero Public Sector guidance for scoping and reporting all emissions including scope 3. This includes: Singleton Park Campus buildings, student residences, Singleton Lodge, Bay Campus buildings excluding residences, Sketty Sports Centre and Pavilion.

In 2015 the University, previously a single campus based at Singleton Park, undertook a 65 acre expansion project opening the Bay Campus, becoming a dual campus university. The Bay campus on the East approach to Swansea City Centre, is a mixture of academic and research buildings which increased the total floor area by 51,574m<sup>2</sup>. Due to this substantial change it was agreed by Higher Education Funding Council Wales (HEFCW) and Swansea University, that **2015 – 2016 would be recognised as the institutions representative carbon management baseline year** ([HEFCW carbon management policy](#)).

## TOTAL EMISSIONS TARGETS AND PERFORMANCE



**Scope 1 and 2 target:** Zero carbon for direct emissions (scope 1 and 2) by **2035**, with at least a 70% reduction by 2030<sup>2</sup>. On average 5% reduction annually.

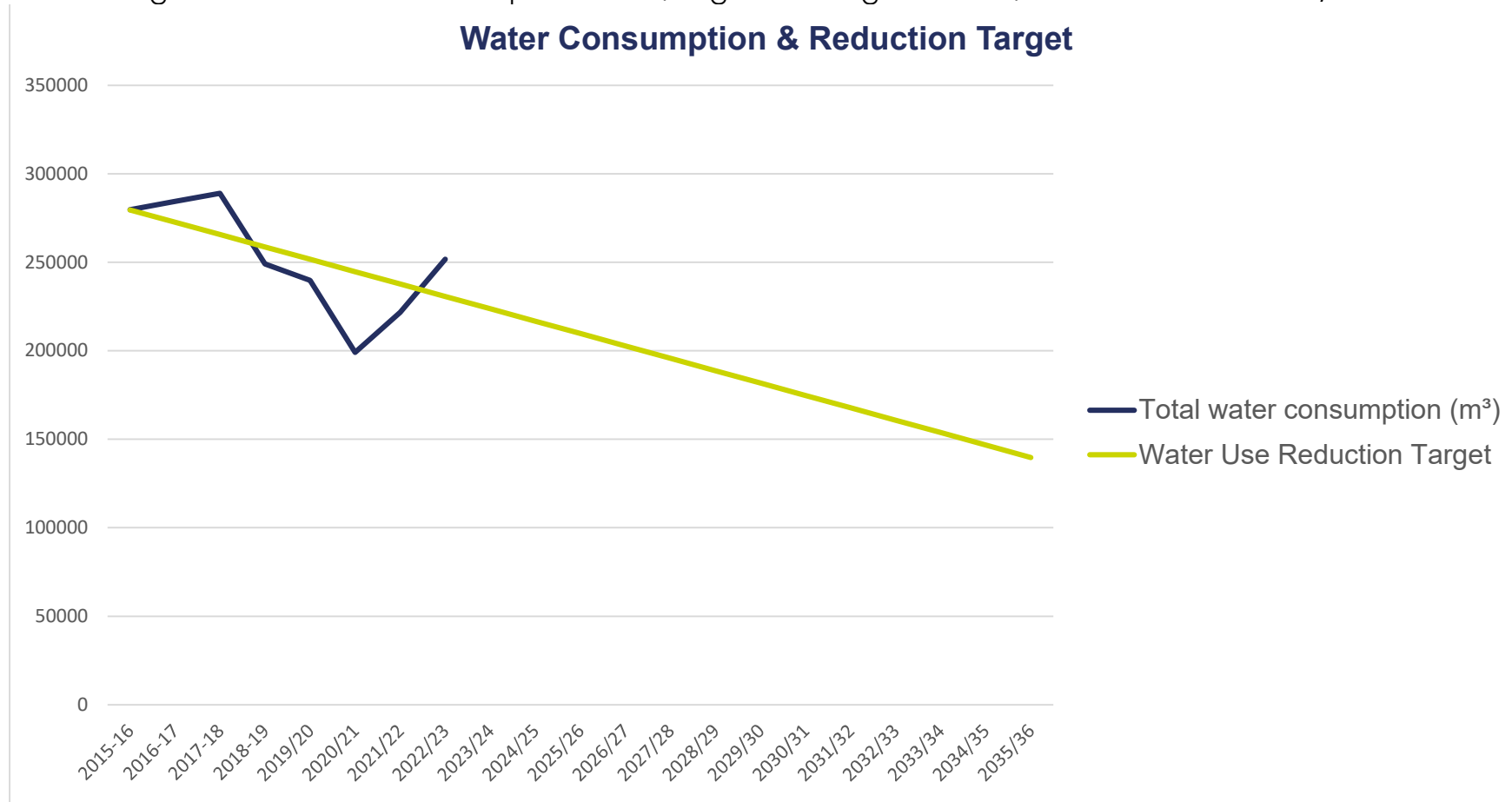
**Scope 3 target:** Achieve (on average) a 2.5% year on year reduction in scope 3 emissions, 50% by **2035** (35% by 2030)<sup>2</sup>. On average 2.5% reduction annually.

**Annual decarbonisation budget:** £3m, Estates and Campus Services, Net Zero budget reviewed and set annually and subject to financial Sustainability and external funding sources.

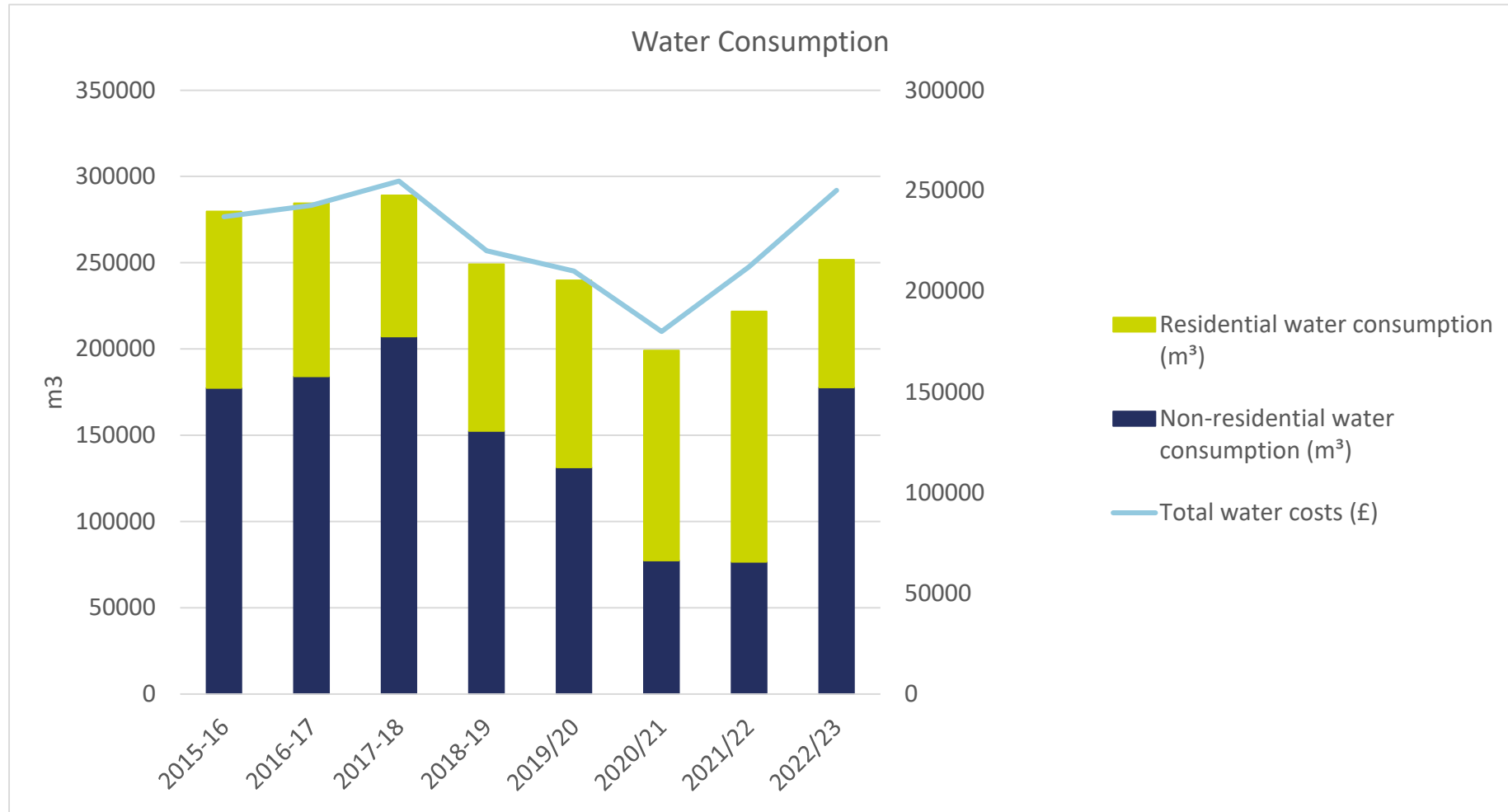
<sup>2</sup> Emissions are tracked against targets from [our HEFCW agreed 2015/16 baseline year](#).

## WATER MANAGEMENT

University water consumption targets are aligned with the scope 3 emissions targets of a 50% reduction by 2035 from a 2015 baseline year. In 2022/23 although the University was ahead of the CO<sub>2</sub>e emissions target for water use, it was behind target for total water consumption at -10% against a target of -17.5% reduction since 2015/16.



## WATER CONSUMPTION & COSTS





### SCOPE 3

#### Summary of 2025 – 2023 performance.

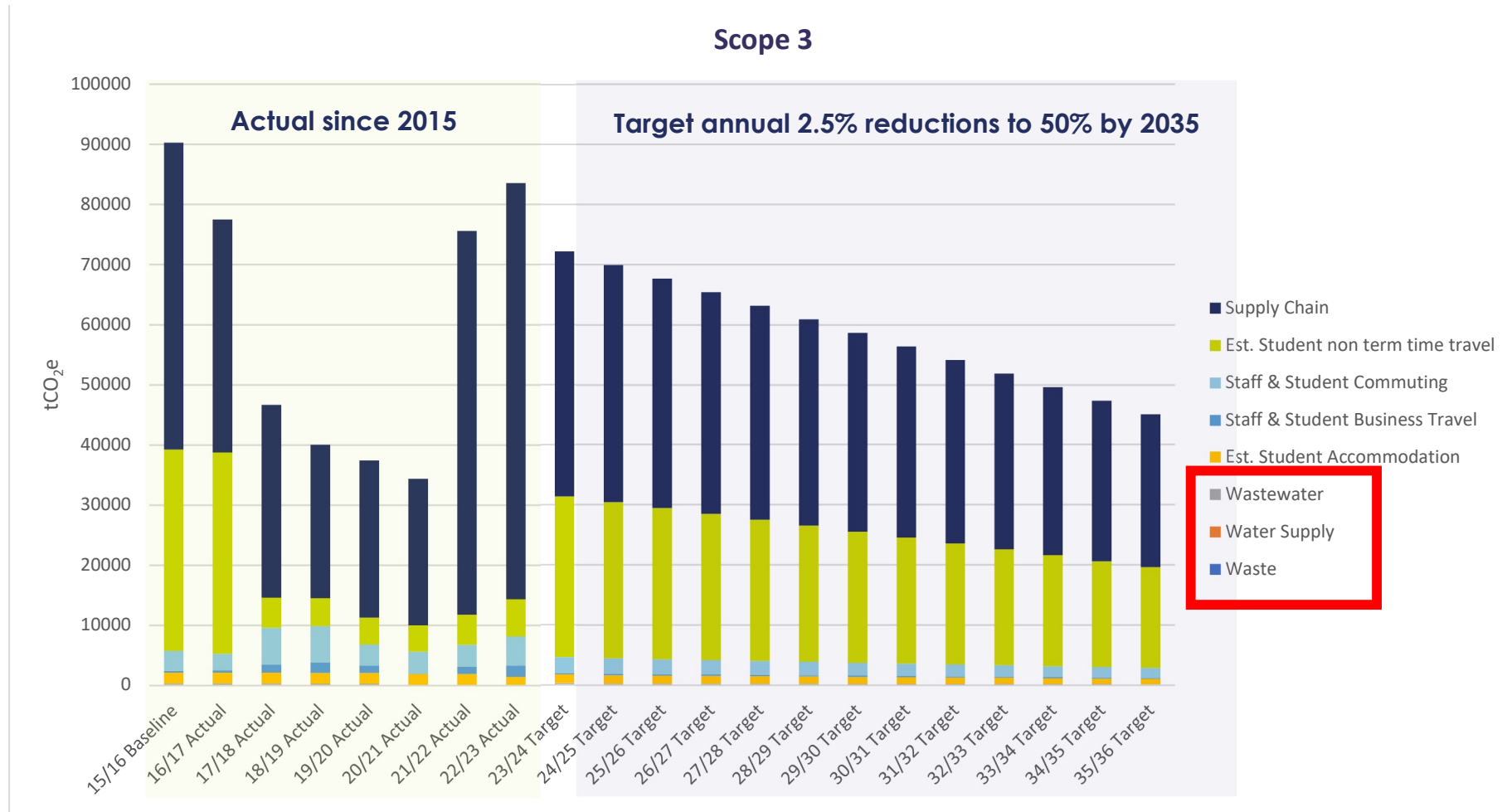
Scope 3 emissions increased by 11% in 2022/23 versus the previous year, and maintained a decreased of 7% since the 2015/16 baseline year. This is behind the 2022 – 2023 planned reduction target of 17.5%.

Improvements to methods used to calculate supply chain ([Higher Education supply chain emissions tool \(HESCET\)](#))<sup>1</sup> increased expenditure and travel emissions all contributed to the 22/23 rise.

Supply chain, business travel and commuting emissions are currently behind the reduction targets for 2022/23.

Student non-termtime travel, external student accommodation, waste, water and wastewater emissions continue to be ahead of targeted reductions.

Emissions tCO2e	Scope 3 tCO2e								Total Scope 3 tCO2e	Reduction %
	Waste	Water Supply	Wastewater	Supply Chain	Staff & Student Business Travel	Staff & Student Commuting	Est. Student non term time travel	Est. student external accommodation		
15/16 Baseline	41	96	192	51,024	291	3,312	33,478	1,825	90,260	
16/17 Actual	27	98	191	38,770	372	2,753	33,478	1,825	77,514	-14.1%
17/18 Actual	27	99	195	32,063	1,342	6,104	5,014	1,825	46,669	-48.3%
18/19 Actual	24	86	168	25,500	1,780	5,994	4,642	1,825	40,019	-55.7%
19/20 Actual	21	82	161	26,120	1,200	3,552	4,470	1,825	37,433	-58.5%
20/21 Actual	12	30	52	24,352	82	3,635	4,376	1,825	34,364	-61.9%
21/22 Actual	17	33	57	63,826	1,199	3,658	4,979	1,825	75,595	-16.2%
22/23 Actual	29	45	48	69,208	1,880	4,859	6,189	1,296	83,554	-7.4%
22/23 Target	34	79	159	42,094	240	2,733	27,619	1,506	74,464	-17.5%
23/24 Target	33	77	154	40,819	233	2,650	26,782	1,460	72,208	-20.0%
24/25 Target	32	75	149	39,543	226	2,567	25,945	1,415	69,951	-22.5%
25/26 Target	31	72	144	38,268	218	2,484	25,108	1,369	67,695	-25.0%
26/27 Target	30	70	139	36,992	211	2,401	24,272	1,323	65,438	-27.5%
27/28 Target	29	67	135	35,716	204	2,319	23,435	1,278	63,182	-30.0%
28/29 Target	28	65	130	34,441	196	2,236	22,598	1,232	60,925	-32.5%
29/30 Target	27	63	125	33,165	189	2,153	21,761	1,186	58,669	-35.0%
30/31 Target	26	60	120	31,890	182	2,070	20,924	1,141	56,412	-37.5%
31/32 Target	25	58	115	30,614	175	1,987	20,087	1,095	54,156	-40.0%
32/33 Target	24	55	111	29,339	167	1,905	19,250	1,050	51,899	-42.5%
33/34 Target	23	53	106	28,063	160	1,822	18,413	1,004	49,643	-45.0%
34/35 Target	22	50	101	26,787	153	1,739	17,576	958	47,386	-47.5%
35/36 Target	21	48	96	25,512	146	1,656	16,739	913	45,130	-50.0%
Performance										
22/23 Actual vs Target	-5	-35	-110	27,113	1,640	2,127	-21,430	-210	9,090	12%
Change Since prev. yr	12	12	-9	5,382	681	1,201	1,210	-529	7,959	11%
Change Since 2015:	-12	-52	-144	18,184	1,589	1,547	-27,289	-529	-6,706	-7%





## ACTION PLAN – UPDATE

MEASURE	PERIOD	OWNER	SCOPE	TARGET REDUCTION	RESOURCE	COST £
<b>WASTE</b>						
Zero Waste to Landfill Carbon Trust Accreditation	Complete 2022/23	Waste & Recycling Officer, Sustainability, E&CS	3	Supply chain, Waste & Fuel	Sustainability & Campus Operations	£2,000
Implement Sustainable Furniture Supplier Agreement (Leasing, remanufacturing services)	Complete 2023/24	Procurement & Waste & Recycling Officer				Staff
WARP-IT	Ongoing					£2,000
Creation of central Recycling Hub at Singleton Campus (to improve efficiency of material management & reduce vehicle movements/collections/emissions)	Ongoing	E&CS Projects & Waste & Recycling Officer				TBC
Our Working Environment Strategy - Waste & Recycling commitments	2021 - 25	Waste & Recycling Officer, Sustainability, E&CS				
<b>WATER &amp; WASTEWATER</b>						
Sports village water supply repairs & efficiency improvements	Complete 2023/24	E&CS Energy & Carbon Manager	1, 2 & 3	Heating, Electric, Water & Wastewater	E&CS	£1,000
Develop Water Efficiency Action Plan	2024 - 25	E&CS Energy & Carbon Manager			E&CS	Staff
Develop & deliver water efficiency awareness & engagement campaign with Dwr Cymru & SOS.	2024 - 25	E&CS Energy & Carbon Manager & Sustainability			Sustainability	£1,284
<b>PROCUREMENT</b>						
Update printing & paper policy to deliver efficiencies	Complete 2023/24	Procurement, ISS, E&CS & Sustainability	2 & 3	Electricity, Waste & supply chain	NA	
Update business travel policy to reduce CO2e	2024/25	Procurement, ISS, E&CS & Sustainability	1 & 3	Travel	NA	
LEAF accredited laboratories (Increase No. YoY)	Ongoing	Sustainability & Faculties (Environment Officers)	1, 2 & 3	All	Sustainability	
Sustainability in key tender & contract requirements		Procurement & Sustainability Officers	1, 2 & 3		Various	
Net Positive Futures Supplier Engagement Tool		Procurement & Sustainability Officers	3		HEFCW - HEPCW	
<b>ENGAGEMENT</b>						
Green Impact - Launch	Complete 2023/24	E&CS Sustainability Officer	1, 2 & 3	All	Sustainability	
SOS SWITCH OFF – Residences engagement	Ongoing					£5,850
SWell – Staff & Student engagement support	Ongoing					£30,000
<b>OFFSETING</b>						
Offsetting trial - FSE Biosciences	2023 - 24	FSE Prof. & E&CS Sustainability Manager	All	All	Sustainability	TBC
Our Natural Environment strategy - Biodiversity Commitments	Ongoing	E&CS Biodiversity Officer Sustainability				
<b>SUBTOTAL</b>						<b>£42,134</b>
<b>GRANDTOTAL</b>						<b>£9,895,634</b>

# SUSTAINABILITY STRATEGY 2021 – 2025

## OUR CLIMATE EMERGENCY SUCCESSES AND COMMITMENTS

### OUR KEY SUCCESSES (2016-2020)



#### STRATEGIC

We declared a Climate Emergency in 2019 and signed the **Global Universities and Colleges Climate Letter**

Responding to the Climate Emergency – in our operations, teaching, research and Civic Mission - is now a core commitment of the University's **Strategic Vision and Purpose**

**Divestment** of our endowments from all fossil fuel holdings and associated activities in 2019

#### CARBON MANAGEMENT

Negotiations (with regulators) to adopt an **emissions baseline of 2015/16** compared to most institutions' use of 2005 or 2010 – meaning our targets are more ambitious

A publicly available **Carbon Management Plan** for scope 1, 2 and 3 emissions has been published since 2016

Achieved a 100% score for Carbon Management in the 2019 Guardian-published **People and Planet University League**

Developed the **"Path to Zero"** concept and approach for stakeholder engagement around the Climate Emergency

Developed new **corporate procedures** as part of the EMS around key climate impacts including F-gases, waste, business travel and printing

Reduced total University carbon emissions by **9,276 tonnes of carbon dioxide equivalent (CO<sub>2</sub>e)** since baselining (scope 1, 2 and 3), against a backdrop of a growing university (FTE staff and student headcount and teaching space)

Reduced building, utility and fleet, scope 1 and 2 carbon emissions by **2,432 tonnes of CO<sub>2</sub>e** since baselining, against a backdrop of a growing teaching space

#### INFRASTRUCTURE

**16% drop** in CO<sub>2</sub>e from electricity consumption since 2015/16 on target for zero carbon by 2035

All three new buildings in 18/19 achieved BREEAM

Excellent – **The College, Computational Foundry and Engineering North**

**CHP electricity power output** increased from 1.3MWh to 1.7MWh and heat output increased from 0.5MW to 1.5MW

**£1M** investment in small and medium scale energy efficiency projects, including LED lighting, heating controls and utility metering

All individual buildings sub-metered for recording utility use and **consumption dashboards** developed within the Building Management System

Building Energy Performance Rating (DEC Score) improved from **85 in 2016** to **78 in 2020**

Solar PV installed capacity increased from 50KW to 490KW with **2,670,052 kWh of renewable energy generated since 2015/16**, avoiding 376 tonnes CO<sub>2</sub>e and saving £330,000 of imported grid electricity

#### ENGAGEMENT

First university in Wales to actively engage students in **The Student Energy Project (TSEP)** at our Singleton halls, which challenged and educated student residents to reduce energy, carbon emissions and costs. TSEP recorded an annual 4% reduction in electricity consumption, equating to **60,000 kWh and £6k of savings**

**Switch off campaign** run every year with up to 7.5% energy reduction. Since 2015/16 we have engaged over 200 staff and student volunteers in an energy waste hunt, returning to buildings after dark to check and challenge staff and student energy conservation efforts

Visualised management of energy through **Energy Dashboards** to provide staff with information on utility use within buildings

Through the bespoke, award-winning **SWell engagement app**, we engaged over 50% of staff and have nudged behaviours towards lowering our individual and collective carbon footprints, with over 400,000 positive actions completed including: using energy hungry appliances efficiently, reporting equipment faults and leaks, choosing sustainable and active travel methods, avoiding waste and purchasing less

Through the annual **Energy Week** campaign, we have collaborated with the Students' Union to raise awareness on practical ways to save money and reduce carbon footprints, facilitating student-led campus workshops, pop-up games and stalls



Through the **HEAR recognised Sustainability Award**, Week of Work, Go Wales and SPIN placements, we have provided employability skills for over 900 students. This has supported extracurricular engagements in reducing climate impacts through a range of projects including tree planting, water conservation, recycling, avoiding single use plastics, energy conservation and renewable energy generation

## OUR KEY COMMITMENTS (2021-2025)



### CARBON MANAGEMENT

- CE 1. **Scope 1 and 2:** Be **zero carbon** for direct emissions (scope 1 and 2) by 2035, with at least a 70% reduction by 2030 (from 2015/16)
- CE 2. Implement the **Path to Zero** local engagement programme of work to achieve (on average) a 5% year on year reduction in scope 1 and 2 emissions including allocating and setting out clearly how Faculties, PSUs and stakeholders can contribute to emissions reduction
- CE 3. **Scope 3:** Achieve (on average) a 2.5% year on year reduction in scope 3 emissions, 50% by 2035 (35% by 2030)
- CE 4. Develop a programme of work for defining and achieving **scope 3 sub-targets and monitoring programmes** including: business travel, staff and student commuting, waste, water, food and drink, and procurement
- CE 5. Shift **cultural working norms** to increase sharing of offices, hot desking, home and remote working, where practicable and in line with business needs, and adoption of digital platforms to allow optimum use of available space

### INFRASTRUCTURE

- CE 6. 1 MW of **renewable wind** electricity capacity installed at Bay Campus subject to planning, funding and other considerations
- CE 7. A further 300KW of **renewable Solar PV** electricity capacity installed at Bay Campus
- CE 8. A further 1MW of **renewable Solar PV** electricity capacity installed at Singleton Campus
- CE 9. 2MW of low carbon **Power & Heat** capacity installed at Singleton Campus

CE 10. Work with **Welsh Government Energy Service (WGES)** in developing our infrastructure planning to reduce carbon emissions

CE 11. Adopt a minimum requirement for achievement of **BREEAM Refurbishment and Fit Out (RFO)** standard or **RICS SKA rating** associated with university projects

### ADAPTATION

CE 12. A scheme will be developed to enable offsetting of our **unavoidable scope 3** emissions, considering potential verification standards (including but not limited to Gold Standard (GS), ISO 14064 and GHGP)

## CROSS-CUTTING ACTIVITIES – COMMITMENTS

### GOVERNANCE, MANAGEMENT, DECISION-MAKING



- CE 13. We will develop a simple but comprehensive corporate **Sustainability and Climate Emergency Impact Assessment** by which the University is able to consider whole life costs and the "**climate proofing**" of strategies and policies, investments, grant applications, new projects and initiatives
- CE 14. We will facilitate a **Climate Emergency Working Group** (staff and students) to discuss and plan the introduction and delivery of low carbon operations on our campuses
- CE 15. Develop a **budget profile and programme** for scope 1 and 2 zero carbon from 2035 by the end of 2021 (our detailed transition plan)
- CE 16. **Explore funding** with university partners to enable a sequence of investments that decarbonise the energy we use (both small and large scale interventions) and enhance how we run the campus as a smart, integrated, local energy system to enable us to meet our targets
- CE 17. Develop Faculty and PSU based scope 1, 2 and 3 targets as part of their **Sustainability Action Plans (SAPs)** that are reviewed quarterly and reported through an annual management review
- CE 18. Continually improve carbon data reporting and agree **SMART targets** for reducing specific

scope 3 carbon emissions with relevant supply chain contractors and service providers

- CE 19. We will become **explicit and transparent** about areas of our operations and work that have a high carbon impact and ensure these areas make a net contribution towards meeting carbon targets and the UN SDGs.

## LEARNING, CAPACITY, SKILLS



- CE 20. Develop a **carbon literacy toolkit**, to enable staff and students to reduce impact from their activities, research and the spaces they use on campus
- CE 21. Support and **develop opportunities to educate, upskill and train** members of the staff and student population and the wider community in relation to carbon management and reducing our individual and collective carbon footprint
- CE 22. Explore opportunities available to develop climate emergency **training packages** as an online resource
- CE 23. Integrate climate emergency and carbon management commitments and aspirations into the **Student Sustainability Award**
- CE 24. Develop a series of learning modules as part of a university-wide **climate emergency outreach programme**, aimed at local feeder primary and secondary schools, colleges and community groups, supported by Discovery and other partners

## COMMUNICATION, ENGAGEMENT, INVOLVEMENT



- CE 25. Draw on **teaching and research** to help find solutions and inspire behavioural change for our university, wider community and beyond
- CE 26. Continue to be an active steering group member of **Low Carbon Swansea Bay**, working in partnership to help deliver a climate emergency response for the Swansea Bay area

- CE 27. Deliver a student and staff engagement programme for carbon reduction and wellbeing that will achieve a **10% reduction in carbon emissions** and be aligned with the University Wellbeing Strategy

- CE 28. Support **Students' Union** societies' extracurricular efforts in this area (e.g. Environment and Ethics, Conservation and Ecology, Tree and People and Planet)

- CE 29. Integrate requirements for climate emergency and carbon management responsibilities and reporting requirements into **job descriptions** for relevant roles across the University

- CE 30. Pursue the inclusion of a **sustainability and climate emergency induction** as a key requirement for all new and returning students

## OUR CONTRIBUTION TO OTHER GOALS

### WELLBEING AND HUMAN HEALTH



- CE 31. Maximise the co-benefits of reducing carbon emissions, climate change adaptation and improving human wellbeing in our work to achieve the Public Health Wales **Corporate Health Standard Gold and Platinum** award and to support the University Wellbeing Strategy

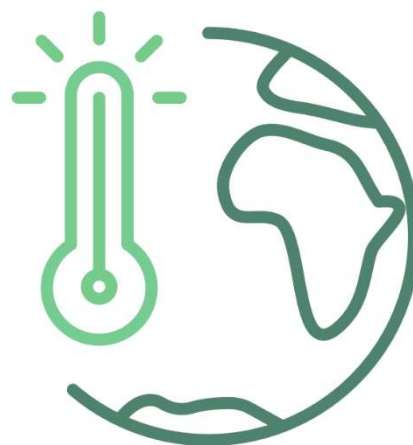
### WELLBEING OF FUTURE GENERATIONS



- NI 4. Levels of nitrogen dioxide (NO<sub>2</sub>) pollution in the air
- NI 11. Percentage of businesses which are innovation-active
- NI 12. Capacity (in MW) of renewable energy equipment installed
- NI 13. Concentration of carbon and organic matter in soil
- NI 14. The Ecological Footprint of Wales



- NI 15. Amount of waste generated that is not recycled, per person
- NI 29. Mean mental wellbeing score for people
- NI 32. Number of properties (homes and businesses) at medium or high risk of flooding from rivers and the sea
- NI 41. Emissions of greenhouse gases within Wales
- NI 42. Emissions of greenhouse gases attributed to the consumption of global goods and services in Wales
- NI 46. The Social Return On Investment (SROI) of Welsh partnerships within Wales and outside of the UK that are working towards the United Nations Sustainable Development Goals



**UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS**

<p><b>3</b> GOOD HEALTH AND WELL-BEING</p>	<p><b>7</b> AFFORDABLE AND CLEAN ENERGY</p>	<p><b>8</b> DECENT WORK AND ECONOMIC GROWTH</p>
<p><b>9</b> INDUSTRY, INNOVATION AND INFRASTRUCTURE</p>	<p><b>11</b> SUSTAINABLE CITIES AND COMMUNITIES</p>	<p><b>12</b> RESPONSIBLE CONSUMPTION AND PRODUCTION</p>
<p><b>13</b> CLIMATE ACTION</p>	<p><b>17</b> PARTNERSHIPS FOR THE GOALS</p>	

**FULL ANNUAL CARBON EMISSIONS DATA REPORTED  
ON HESA EMR: [HTTPS://WWW.HESA.AC.UK/DATA-  
AND-ANALYSIS/ESTATES](https://www.hesa.ac.uk/data-and-analysis/estates)**

**GET INVOLVED:**

**[HTTPS://WWW.SWANSEA.AC.UK/SUSTAINABILITY/GET-  
INVOLVED/](https://www.swansea.ac.uk/sustainability/get-involved/)**

**CONTACT THE SUSTAINABILITY TEAM:**

**[HTTPS://WWW.SWANSEA.AC.UK/SUSTAINABILITY/CO  
NTACT-US/](https://www.swansea.ac.uk/sustainability/contact-us/)**

**SWANSEA UNIVERSITY SUSTAINABILITY STRATEGY:**

**[HTTPS://ONLINE.FLIPPINGBOOK.COM/VIEW/8981576  
23/](https://online.flippingbook.com/view/898157623/)**

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