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Version Number	Date of Change	Originator of Change (Title)	Description of Change
1	May 2012	Energy Manager	First publication
2	July 2022	Energy Manager	Action plan refreshed and minor clarifications made throughout
3	September 2026	Energy Manager	Full review, split into Energy and Water Policy and Energy and Water Action Plan

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Introduction

As a leading sustainable University and with our mission to advance knowledge and transform lives it is essential that we take rapid and transformative action to reduce our negative impact on the environment. The University's 'For What's Next Strategy 2026-2031' calls upon us to ensure sustainability across the institution, in our finances, reputation, services, partnerships as well as environmental performance and global contribution.

Strategy

As per the Carbon Management Plan (issue 4)[1], the University declared and achieved a target of Carbon Neutrality in scope 1, 2 and select scope 3 emissions by 2025, whereby University greenhouse gas emissions into the atmosphere are balanced by the removal of an equivalent amount from the atmosphere. By the end of the 2024 – 2025 reporting period, the University reduced emissions from scope 1 & 2 by 86% since a baseline year of 1990. The plan can be summarised under four key elements effecting carbon reduction of which energy and water use is a large part. These consist of:

1. Improving space utilisation
2. Carbon reduction projects
3. Institutional change
4. Behaviour change

Running alongside the long-term targets for Net Zero are the University's energy reduction targets. The University is targeting a gas usage reduction of 25% and electricity usage reduction of 20% by 2030 (based on 2005–06 baseline year). This strategic target is expected to support a period of transition over the coming years as the University shifts to electrically led heating and cooling for buildings.

Furthermore, the University's continual achievement of ISO 14001, PAS2060 verification and the transition to and achievement of ISO 14068 demonstrates commitment to environmental impact reduction whereby this document is a significant factor in achieving these standards and ensuring continual improvement.

Objectives

- Reduce energy consumption in support of the Carbon Management Plan and Net Zero ambitions.
- Reduce potable water consumption and improve water efficiency across the estate.
- Prioritise energy and water efficiency in new-build, refurbishment and maintenance projects.
- Promote positive behaviour change amongst staff, students and visitors.
- Monitor, report and continually improve energy and water performance.
- Implement strategies to minimise energy consumption and eliminate unnecessary energy wastage during periods when campus and accommodation buildings are vacant and regularly monitor and report on the effectiveness of these measures.
- Support compliance with ISO 14001, ISO 14068 and other relevant standards.
- Contribute to the delivery of the United Nations Sustainable Development Goals.

[1] https://www.plymouth.ac.uk/students-and-family/sustainability/policies

Links to other University documents

This document directly supports the University's 'For What's Next Strategy 2026-2031'[2], particularly in addressing the ambition to achieve resilience, sustainability and effectiveness. Other relevant plans and strategies for sustainability include:

- Energy and Water Action Plan
- Carbon Strategy
- Carbon Management Plan
- Carbon Management Action Plan
- Environmental Policy
- Estate and Facilities Campus Strategies
- ISO 14001:2015 (Environmental Management Systems)
- Green Travel Plan

Sustainable Development Goals

The objectives in this document contribute towards the United Nations Sustainable Development Goals, specifically:

- SDG 4 - Quality Education
- SDG 6 - Clean Water and Sanitation
- SDG 7 - Affordable and Clean Energy
- SDG 8 - Decent Work and Economic Growth
- SDG 11 - Sustainable Cities and Communities
- SDG 12 - Responsible Consumption and Production
- SDG 13 - Climate Action
- SDG 16 - Peace, Justice and Strong Institutions
- SDG 17 - Partnership for the Goals

Governance

The University Executive Group (UEG) has overall responsibility for the delivery of this document. Delegated responsibility for following this policy is with the Carbon Working Group reporting to the Sustainability Advisory Group (SAG). This group brings together representatives from across the University including professional services, research and teaching and learning. SAG subsequently reports to UEG and the Board of Governors.



Energy and water consumption and performance reporting is included in the annual sustainability report and also used for the Higher Education Statistics Agency (HESA) annual Estate Management Records (EMR). Annual utility consumption league tables are produced by the Energy Manager for the attention of the Estates and Facilities Senior Management Team and Director of Estates.

[2] https://www.plymouth.ac.uk/about-us/strategy

Responsibilities

Staff and students

Ensure activities comply with the requirements of this document and any relevant legislation and departmental codes of practice. To collaborate with the sustainability activity on campus, helping to take forward new initiatives and behaviour change.

Director of Estates and Facilities

Deputy chair of the Sustainability Advisory Group, overall responsibility for ensuring energy and water management is delivered throughout Estates and Facilities.

Associate Director of Built Environment

Overall responsibility for the engineering and maintenance function within Estates and Facilities, and ensuring this function incorporates the requirements of the Energy and Water Action Policy. Delegated responsibility to project managers delivering the low carbon projects. Overall responsibility for ensuring ultra-low carbon design incorporated into capital projects including that of energy and water conservation.

Head of Sustainability

Has been delegated responsibility for overseeing the management of this document. Their role is to ensure that this document is implemented and continually developed.

Energy Manager

Delegated responsibility for the day-to-day management of electricity, gas and water use and ensuring that the requirements of this document in respect of utility use is implemented.

Executive Dean, Faculty of Science and Engineering

Chair of the SAG and has delegated senior responsibility for the delivery of this document and leadership for this strategy across the University.

Director of Sustainable Earth Institute

Overall responsibility for creating a collaborative, interdisciplinary and innovative research environment and culture around energy and water savings and supporting knowledge exchange and research impact with the wider world.

Centre for Sustainable Futures Lead

Distributed leadership responsibility for encouraging across the Sustainability Education community of practice, the integration of energy and water use change consideration within the curriculum and pedagogy of undergraduate and master's programmes of study.

Heads of School

Cooperate and collaborate with the SAG and any responsible persons to enable this document to be delivered. Ensure that operational activities comply and deliver against the Energy and Water Policy and to engage with collaboration on process change.

Scope

The scope of this document is inclusive of all University owned buildings and assets where the University and its subsidiaries are occupying space, in addition to buildings leased. This does exclude consumption associated with tenants of the University where utility data is recharged accordingly.

Performance to date

Electricity, gas and water data are collected through a multitude of meters and sub meters across the estate. Alongside room temperatures, humidity and lighting levels we have over 1,000 data points within our Monitoring and Targeting (M&T) platform. This enables us to analyse and understand consumption trends, deviations and resolve issues promptly.

Gas

Compared to the 2005-06 baseline the University has reduced gas use by 51.2% by the 2024-25 reporting period and has a year-on-year decrease of 19%. This can be attributed to increased electrification of heating, reduced use of the Combined Heat and Power Engine (CHP) due to reliability and an overall warmer year compared to previous years.

The below graph shows historic consumption in comparison to the University's floor area. In 2013–14 gas consumption was 84 kWh/m^2 and in 2024-25 gas has reduced to approximately 65 kWh/m^2. Even though electrification of heating has increased across Campus the University has added buildings with intense gas use to its portfolio resulting in similar consumption levels when considered by area.

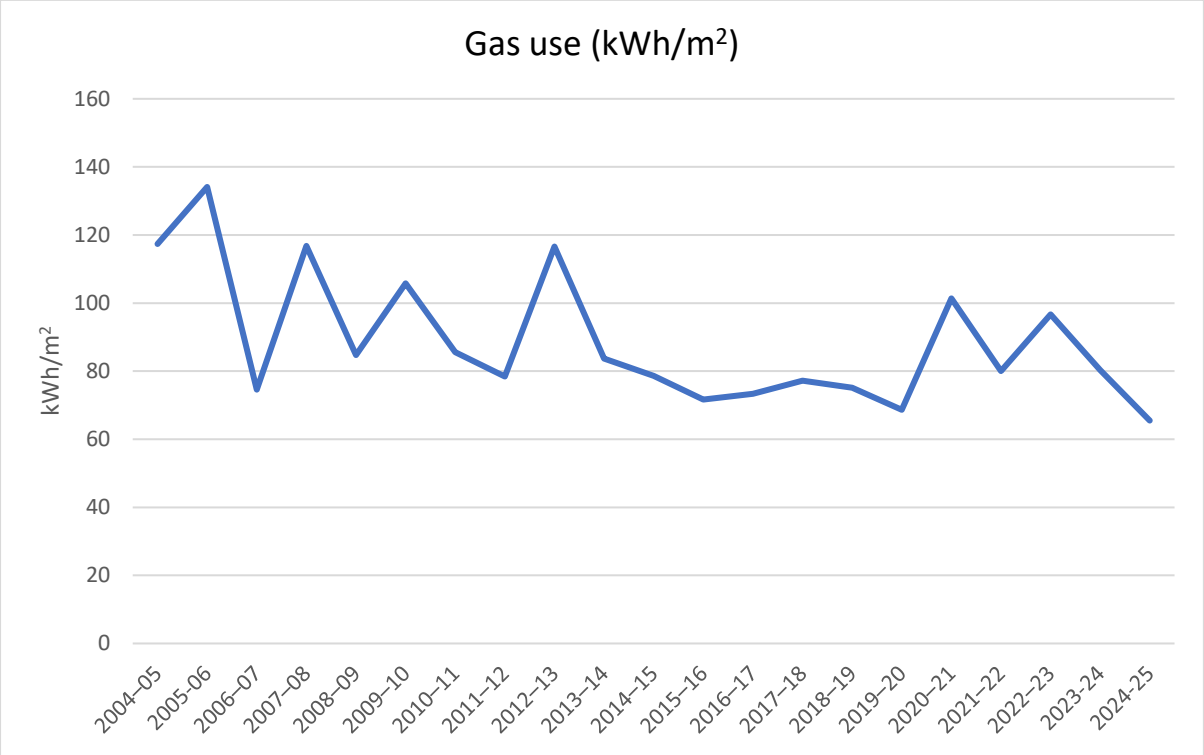


Figure 1: Gas consumption (kWh/m²) since 2004/05

Electricity

Compared to the 2005–06 baseline the University has reduced electricity use by 16% by the 2024-25 reporting period. This equates to 83 kWh/m^2 in 2024-25 compared to 98 kWh/m^2 in 2013-14 As the University completed further heating decarbonisation projects electricity use increased in the last couple of years, coupled with a reduction in CHP generation. The University is continuing to instal solar PV on multiple rooftops and smart LEDs in refurbished areas to help mitigate the increased electricity use.

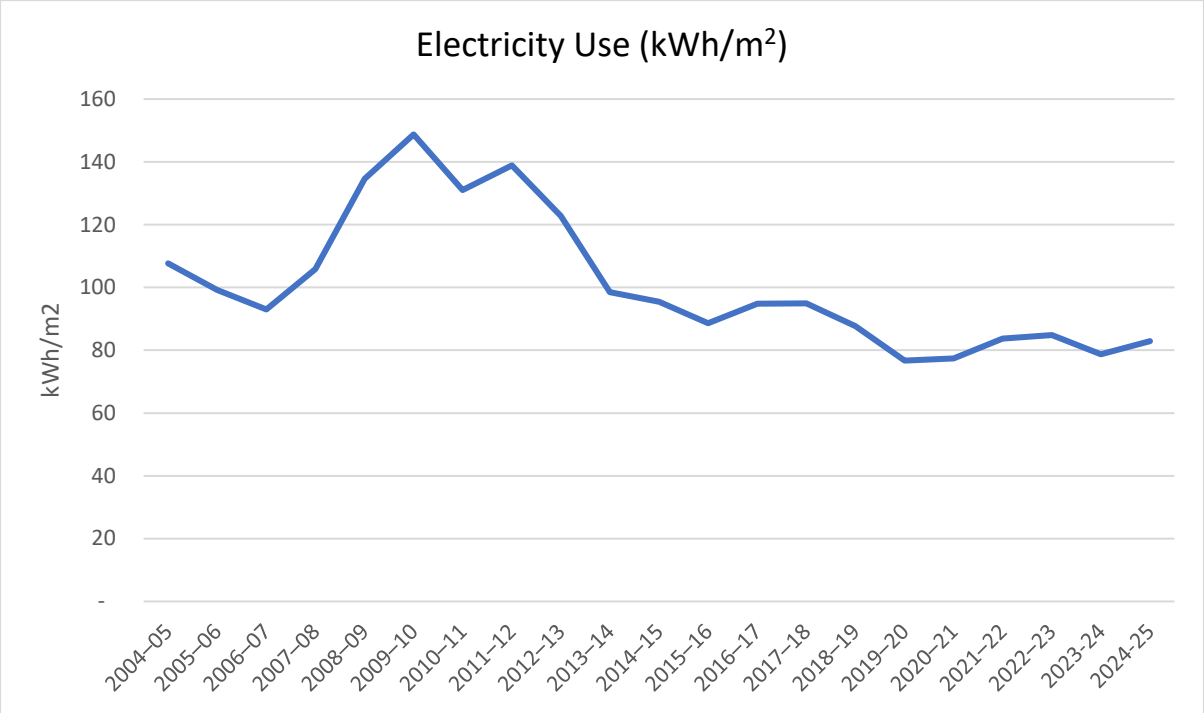


Figure 2: Electricity consumption (kWh/m²) since 2004/05

Water

As global climate changes, water is an increasingly important commodity and as part of our global commitment to marine conservation it is important that we reduce our water consumption. We have already made significant reductions in water use but strive for continual improvement. Since 2005–06 the University has reduced water use by 48%. Since 2005–06 water use has reduced from 0.71 m^3/m^2 to 0.37 m^3/m^2, as shown in Figure 3.

Figure 4 shows that since 2007–08 water use has reduced from 7.3 m^3 per student to 3.87m^3 per student in 2024-25. This is due to a combination of reducing water use overall as well as a reduction in student numbers.

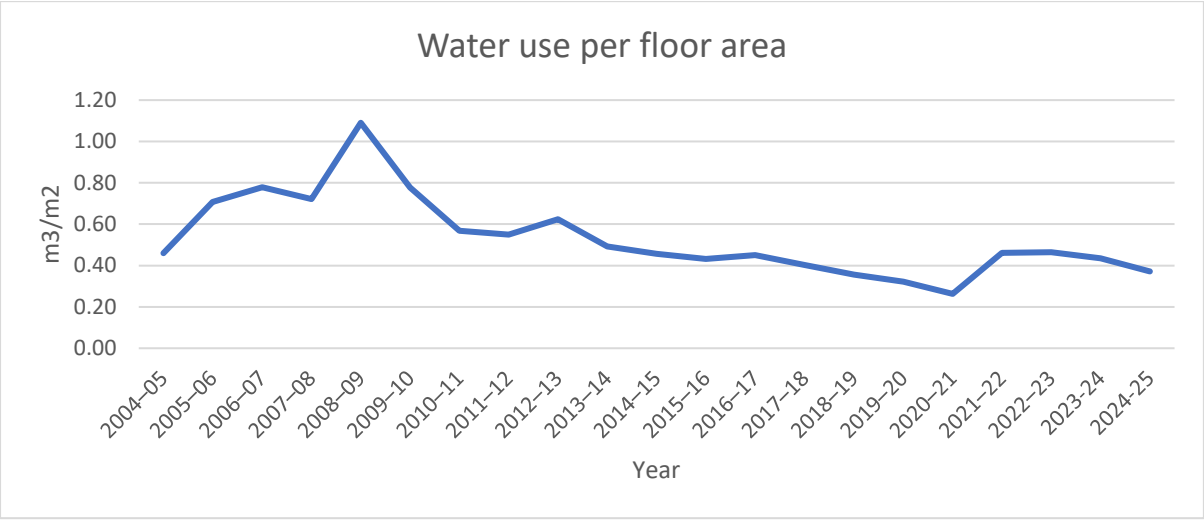


Figure 3: Graph showing historic water consumption in m^3 per floor area

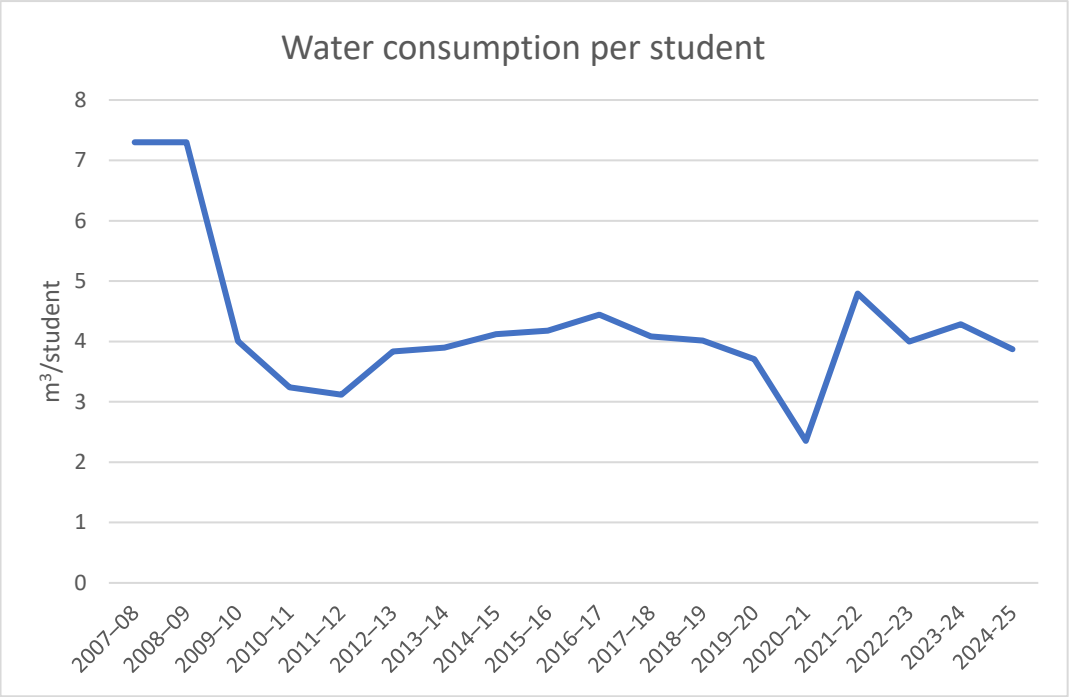


Figure 4: Graph showing historic water consumption as m^3 per student.

Sector Comparison

Using the most recent HESA EMR returns, for the 2024-25 academic year, and looking across the sector to benchmark performance, the University is amongst the lowest for energy consumption per floor area. The following graph shows how the University of Plymouth ranks against other University's by total energy consumption per floor area. Extreme outliers have been removed to not distort the charts. For 2024-25 we are in the top performing 17% of universities, and amongst Large Teaching universities we are in the top 11% for energy use per floor area.

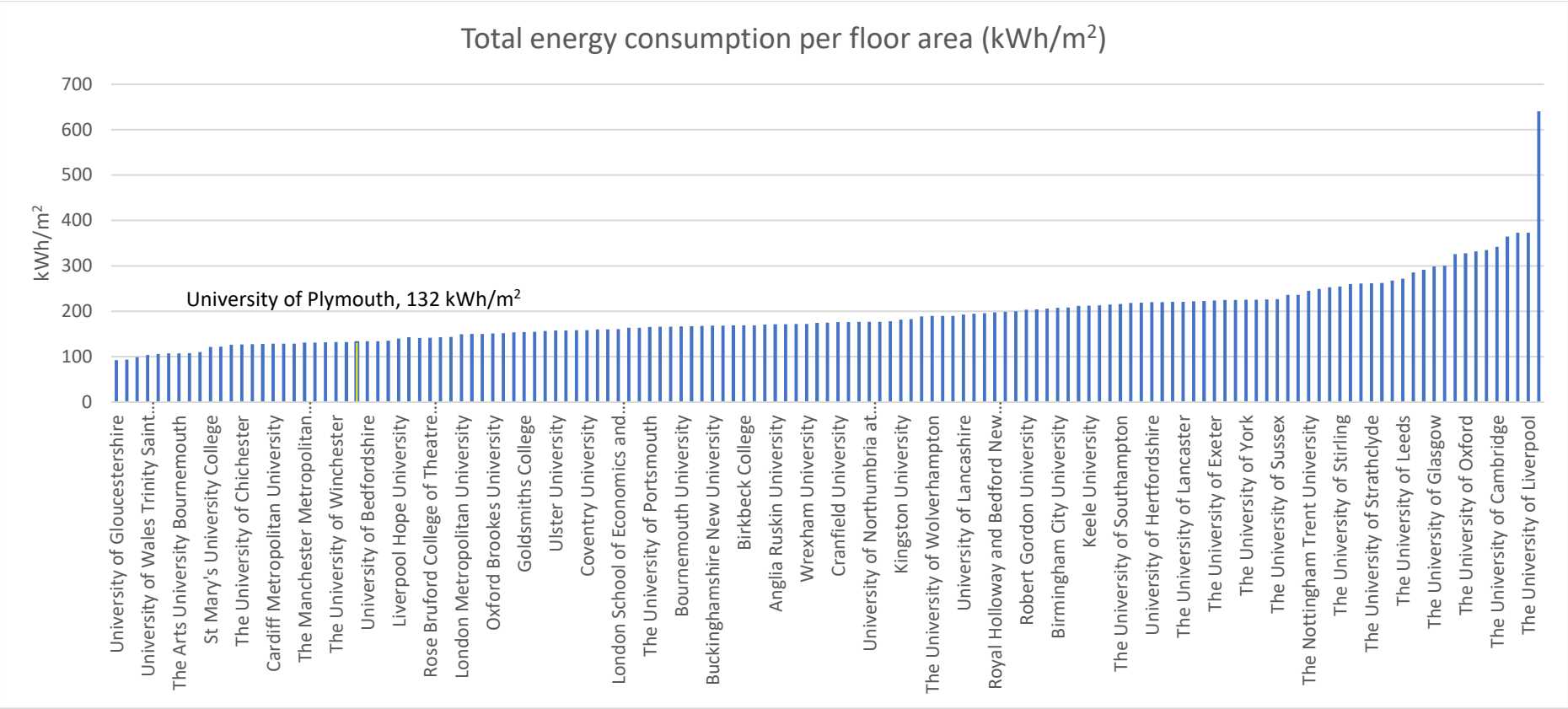


Figure 5: Energy use kWh (combination of electricity and gas) per m² for the sector. (Source: HESA).

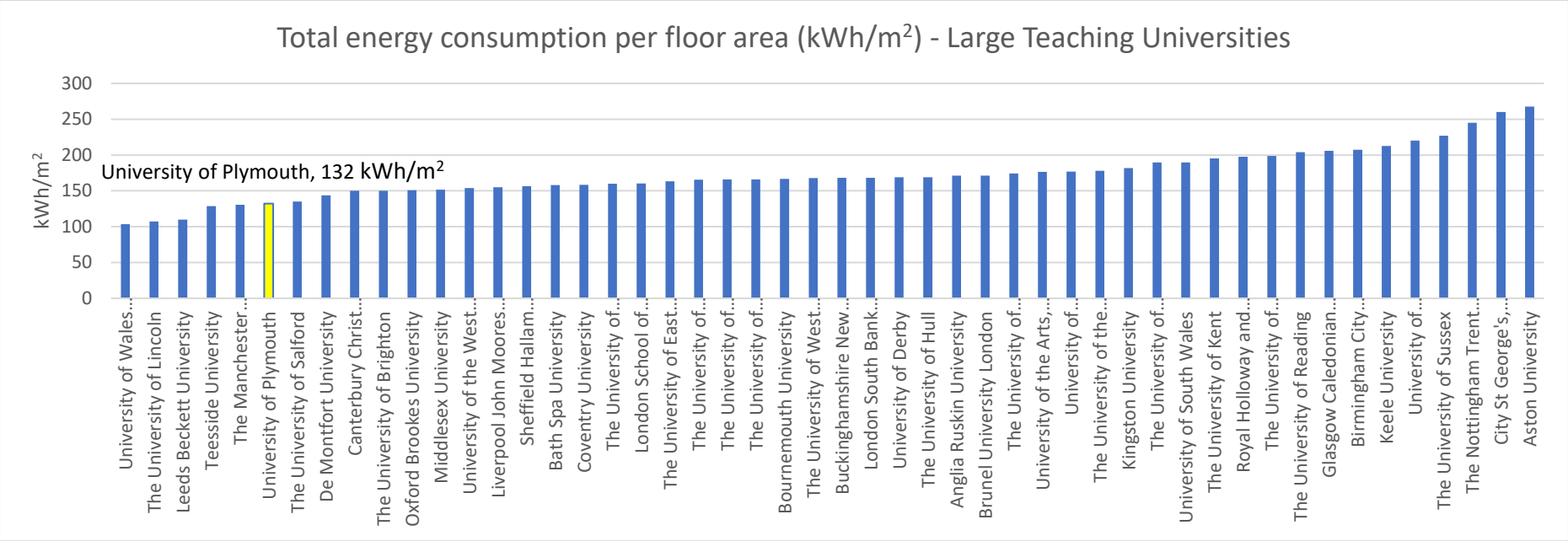


Figure 6: Energy use kWh (combination of electricity and gas) per m² for large teaching universities. (Source: HESA).

The following graph also shows that the University is amongst the lowest users of water per student population. This also demonstrates that the target of 3m^3 of water per student is achievable with significant investment, as universities of a similar nature have achieved this. For 2024-25 we are in the top performing 19% of universities.

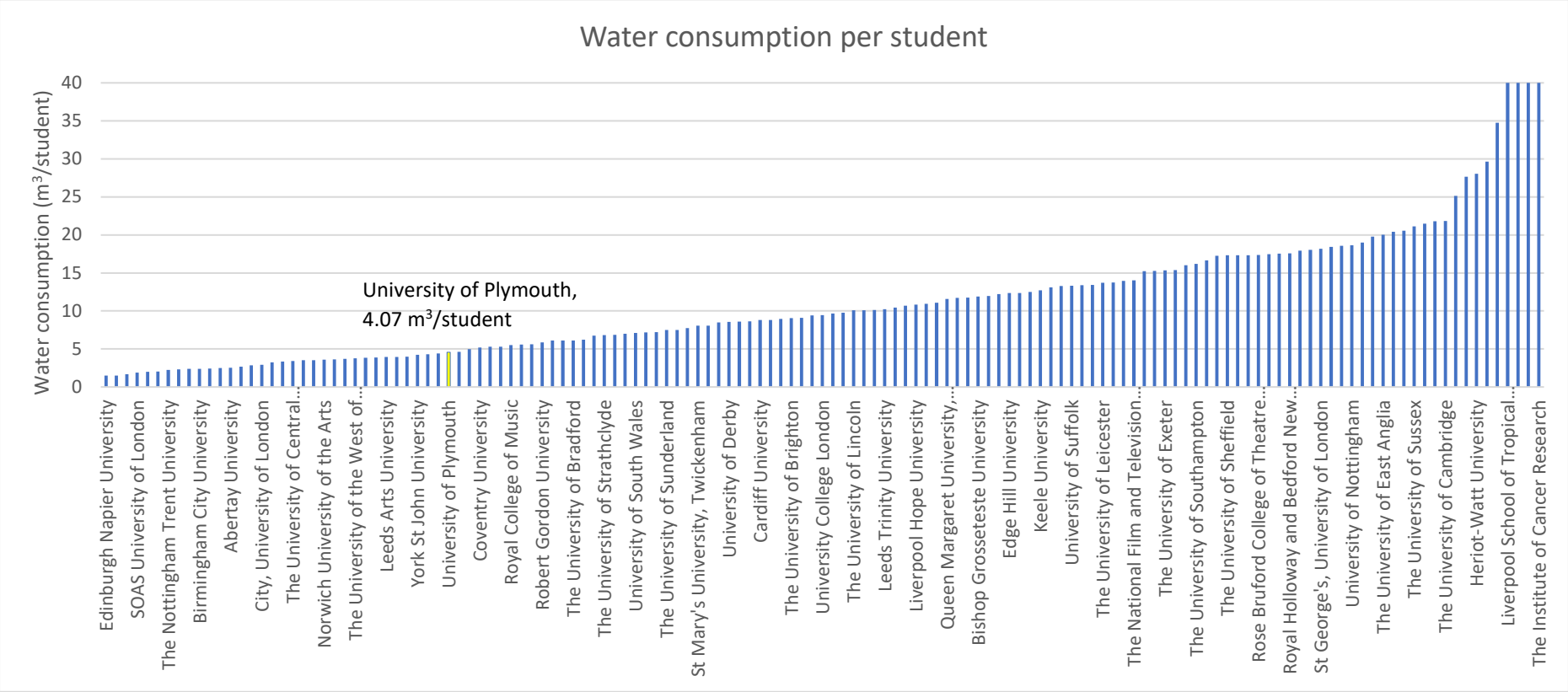


Figure 7: Comparison of water consumption per student for the sector. (Source HESA).

Amongst Large Teaching universities we are in the top 31% for water use per student.

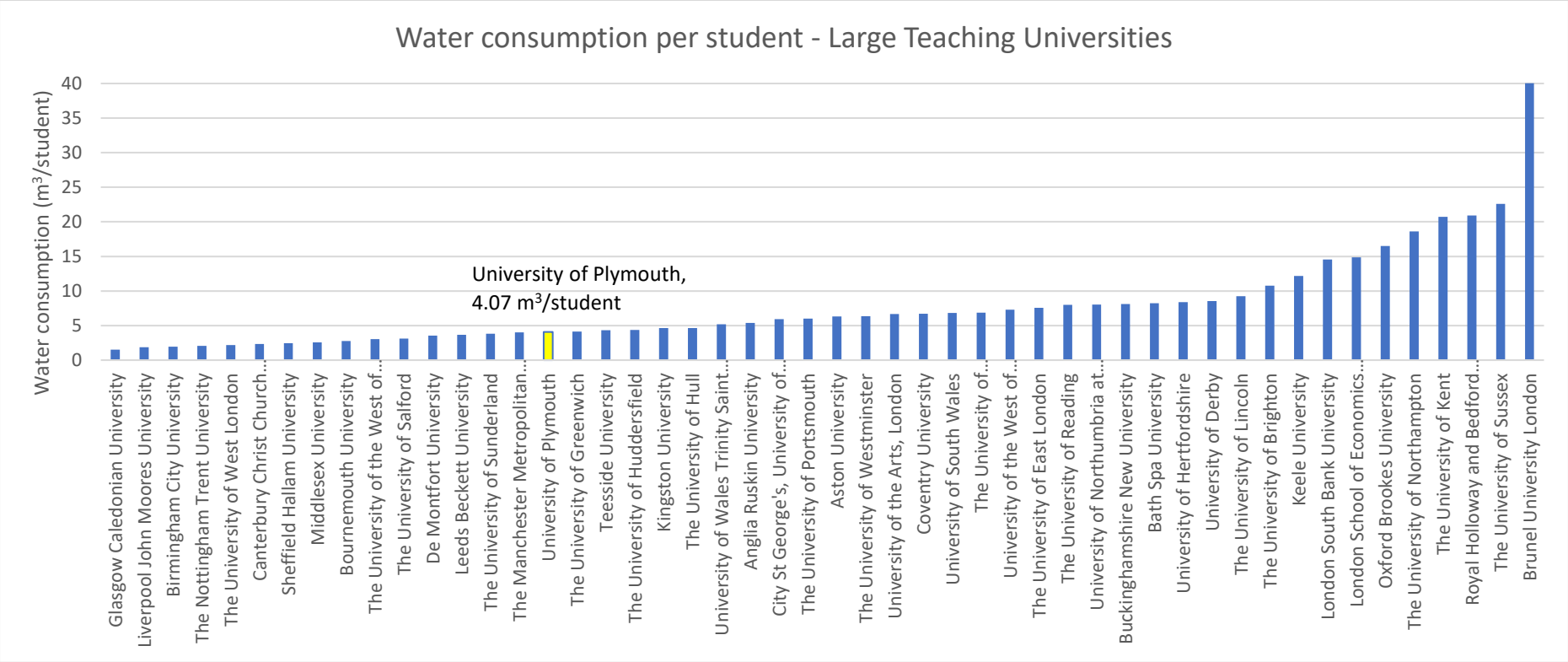


Figure 8: Comparison of water consumption per student for large teaching universities. (Source HESA).

Energy and water projections

Gas

Grid supplied gas is a significant cause of carbon dioxide and other harmful greenhouse gases. Unlike grid supplied electricity the carbon intensity of grid supplied gas is more difficult to improve, and national infrastructure for green gas is limited and expensive. It is therefore of significant importance to migrate away from gas use and look to install other sources of heating and hot water, such as heat pumps and utilising heat recovery, as well as improving thermal efficiency such as building fabric.

The University has currently surpassed the gas reduction target, though both general optimisation of heating plant and schedules as well as several large key buildings now having electrically powered heating systems. Due to the difficulty in improving carbon factors of grid supplied gas as well as the inherent cost of utilising a renewable gas tariff the recommendation is to continue to move away from gas use and maintain the trajectory of reductions already achieved. An annual 5% reduction in gas is forecast for decarbonisation.

Electricity

Global demand for electricity is increasing and UK electricity market reform is causing increases in non-commodity costs, making electricity use important to manage. The University is expecting an increase in electricity consumption as a result of migrating away from natural gas used for heating. Therefore, it is important to reduce existing electricity consumption where possible. Looking at Figure 9 it is forecasted that the University will experience an increase in electricity consumption as buildings begin to transition from gas led to electrically led heating. PV installations will help offset this increase, but further electricity reduction projects are needed to be identified going forward.

While the University is currently showing a 16.5% reduction against the 2005-06 benchmark it is projected that consumption will increase with the move towards heating electrification, and is modelled by a 5% annual increase in electrical consumption.

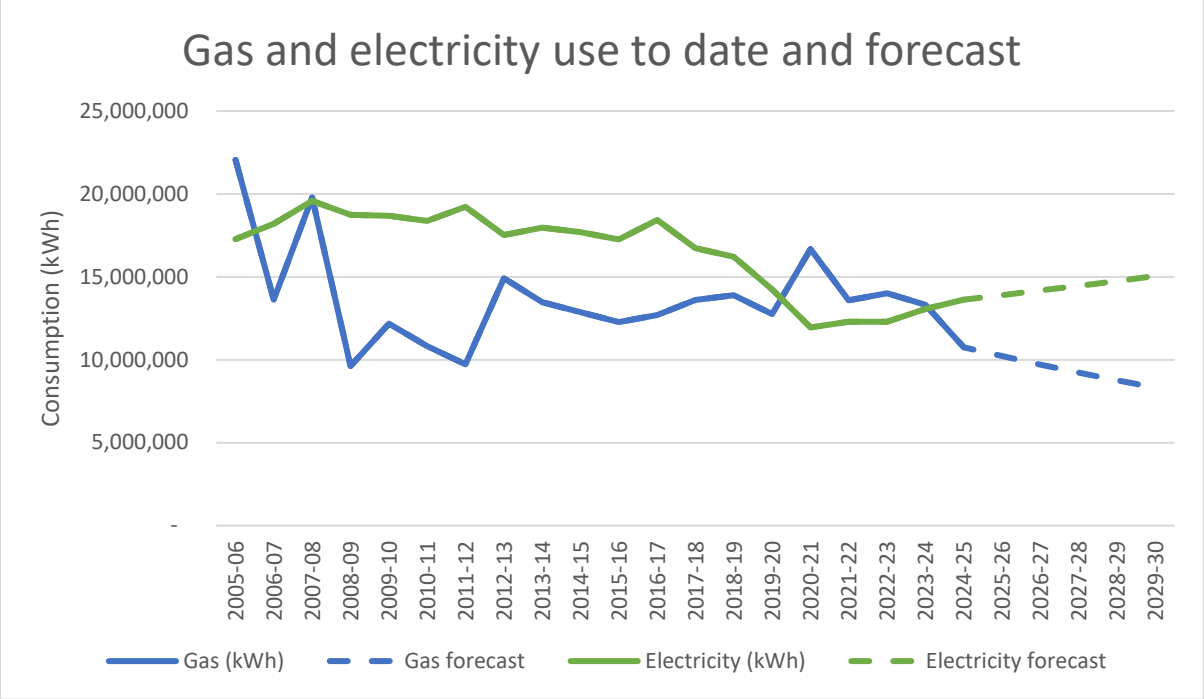


Figure 9: Annual gas and electricity use with forecast values

Water

Water reduction measures are part of our new construction and building refurbishment projects, ensuring that demand for water can be reduced as our estate develops. The University currently has a number of water saving initiatives including rainwater harvesting technology installed in Roland Levinsky Building, Nancy Astor, Marine Building and The House. In addition to this, we have half-hourly water meters throughout campus enabling M&T as well as leak detection. We also have water butts to maintain Skardon Gardens, our greenhouse research facility. Going forward further investigation for increased provision of rainwater harvesting and grey water systems is needed.

In order to reach targets with current student levels a reduction of water consumption of 59% against the 2005-06 baseline is required. This assumes static student numbers and would deliver 3m^3 of consumption per student. Current reductions are at 47% for the 2024-25 reporting period, showing that while we are closing on the target there are still further reductions that must be made.

Pricing

The University monitors pricing of commodity and non-commodity elements of utility supplies. The University will seek to reduce its exposure to utility price volatility through appropriate procurement strategies while prioritising demand reduction, energy efficiency and water conservation as the most effective means of controlling long-term utility costs and environmental impacts.

Future impact of building portfolio

The University's building portfolio is expected to change in size in the future following refurbishments, the ending of tenancy agreements and any newly built or leased buildings. Current plans for the University estate do not predict any large changes in floor area from the current figures.

The graph below shows historic and future consumption per m^2 of floor area. It is worth noting that water is not included in the below as this is monitored through m^3 per student numbers.

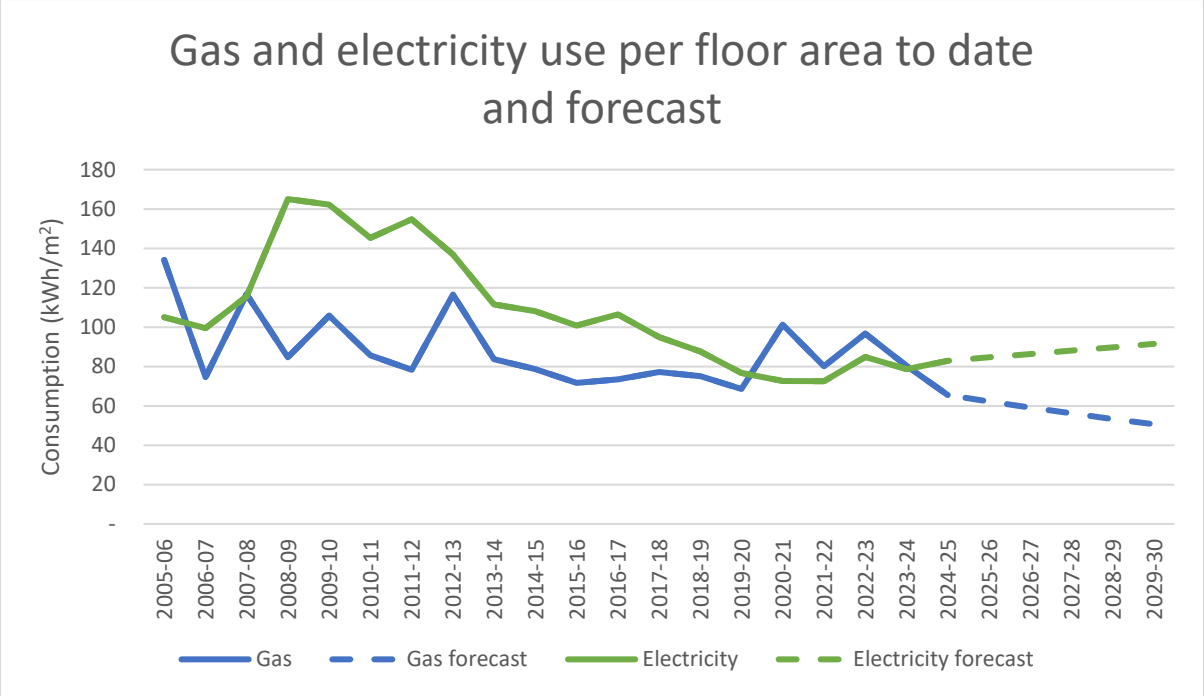


Figure 10: Annual gas and electricity use with forecast values measured against floor area