

Emissions breakdown compared with baseline and last year (tCO₂)

Emissions Source	2008-09	2020-21	2021-22	% change since last year	% change since baseline
Electricity (generation)	17,764	4,603	5,031	9 % ↑	72 % ↓
Electricity (transmission)	1,381	396	445	12 % ↑	68 % ↓
Natural gas*	12,937	9,548	9,342	2 % ↓	28 % ↓
Burning Oil*	1,544	371	491	32 % ↑	68 % ↓
Business travel ⁺	5,174	185	755	408% ↑	85 % ↓
Radiative forcing	4,045	26	445	1605% ↑	89 % ↓
Refrigerants [∞]	207	94	154	65 % ↑	26 % ↓
Waste [#]	220	14	20	44 % ↑	91 % ↓
Water [^]	711	286	104	62 % ↓	85 % ↓
Total	43,984	15,494	17,024	10 % ↑	61 % ↓

The impact of Covid-19 is evident above. As we moved back toward normal operation emissions in 2021/22 increased in most categories compared to the year before. The changes in emissions from the baseline year remained greater than they would have been without the responses to Covid-19.

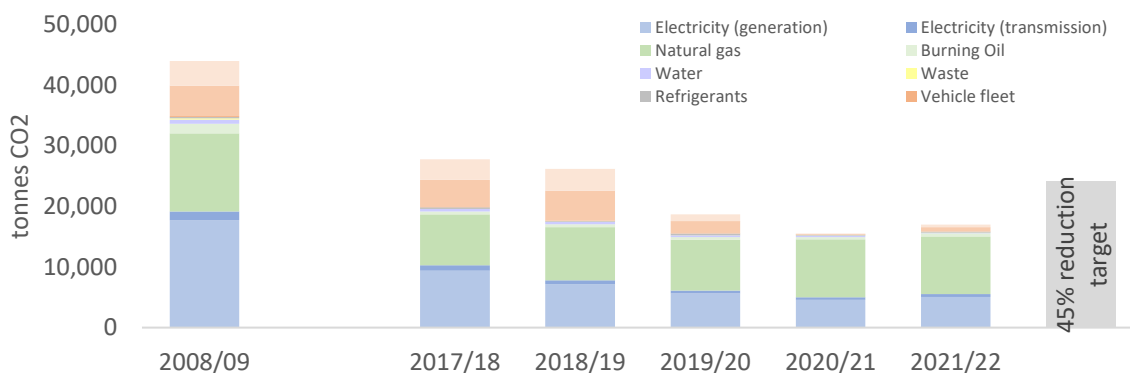
* Emissions for gas and oil have been degree day adjusted to enable comparison across different financial years

⁺ Business travel includes vehicle fleet

[∞] Emission level tends to be more variable year to year.

[#] Emissions from construction waste are not included, due to their wide annual variability and small impact. Analysis indicates construction waste emissions over the last 5 years range between 1.9 tCO₂ and 15.5 tCO₂/annum.

[^]BEIS carbon emission factor for water revised for 2021/22 and is significantly lower than in previous years.



Energy breakdown compared with baseline and last year (kWh)

Delivered Energy (including self-generation)

Energy Source	2008-09	Average 2018-20	2021-22	% change vs average 2018-20	% change since baseline
Electricity	35,809,409	28,416,300	27,740,803	3 % ↓	23 % ↓
Natural gas*	70,324,727	46,780,162	52,123,496	11 % ↑	26 % ↓
Burning Oil*	5,584,336	1,811,811	1,988,162	10 % ↑	64 % ↓

* Consumption for gas and oil have been degree day adjusted to enable comparison across different financial years. The response to COVID-19 had significant impacts, reducing electricity use in 2021-22 compared to the average of the 2 years 2018-20 but increasing gas and oil use because of alterations in ventilation strategy in, and re-opening of, many buildings.

Primary Energy

Electricity, oil and gas have a variety of impacts and efficiency and transmission losses, meaning it is not logical to simply add kWh consumption of these different utilities together. We therefore use Primary Energy Factors to convert supplies to the equivalent energy required at source, therefore accounting for inefficiencies and transmission losses.

To track continual progress in energy consumption, we then normalise this consumption against weather (heating degree days), and against floor area (m²), and compare this to the average of the previous 2 years. Figure 1 illustrates our primary energy consumption has fallen continuously since 2010/11 (when we first published our carbon management plan), and fell by 1% in 2021/22.

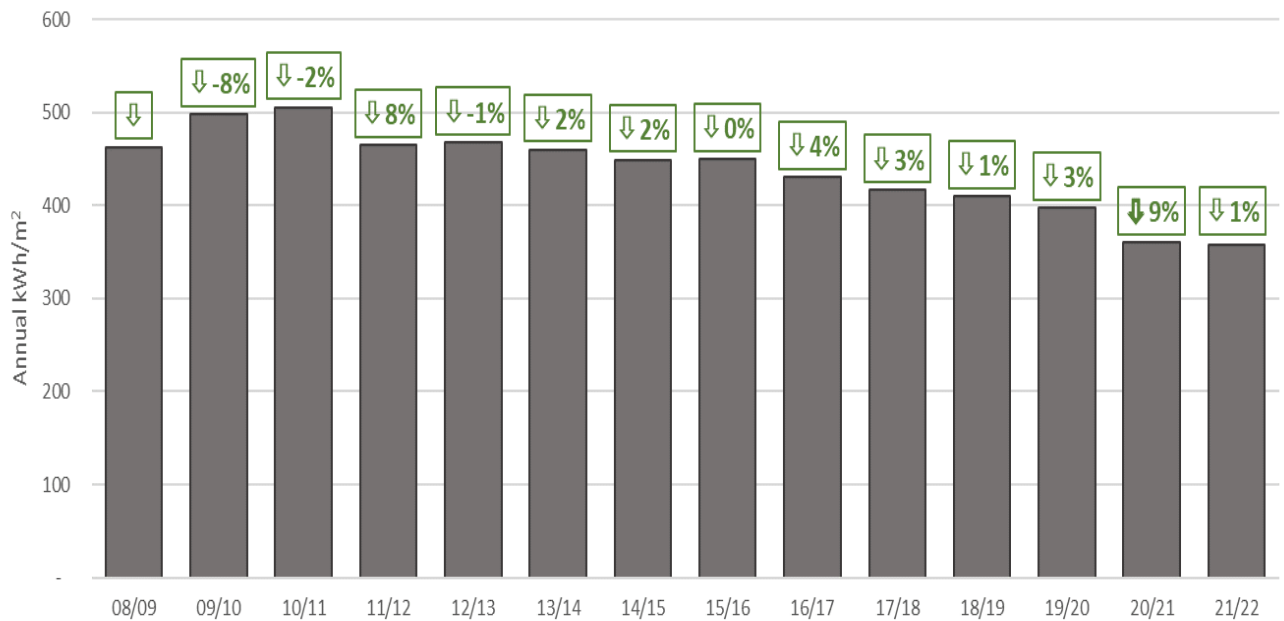
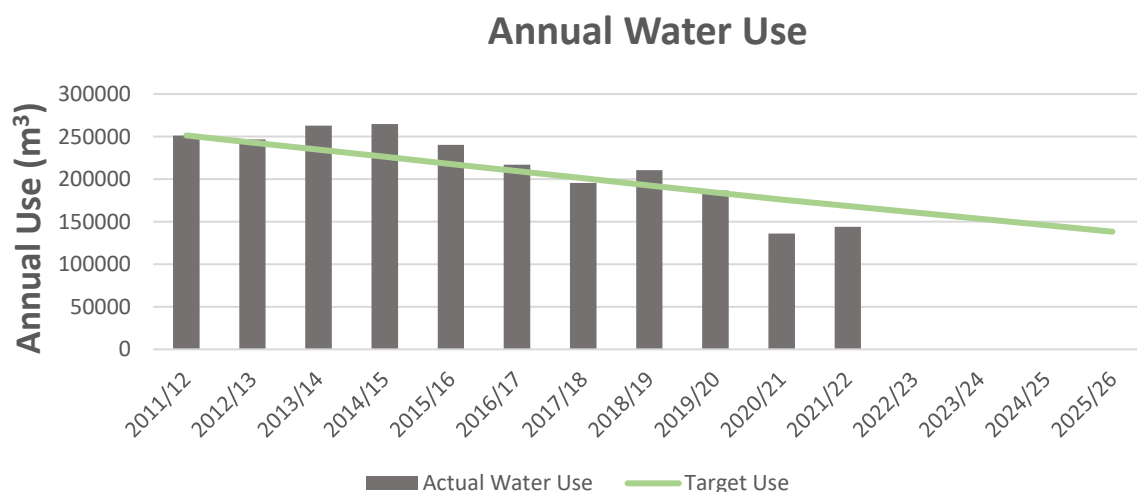


Figure 1 - Normalised primary energy use per m2

Water use compared with baseline and last year (m³)

	2011-12	2020-21	2021-22	% change since last year	% change since baseline
Use - excluding Halls (m ³)	251,341	136,242	144,052	6 % ↑	43 % ↓



Work with Thames Water in 2018/19 and 2019/20 installing water saving equipment resulted in significant reductions in water use (2019/20). Changes in working patterns imposed by COVID generated further reductions, some of which were because of the installation of presence detection

on flushing of urinals. Return of staff to campus in 2021/22 resulted in a slight increase over the previous year.