

Sustainability Report 2022-23

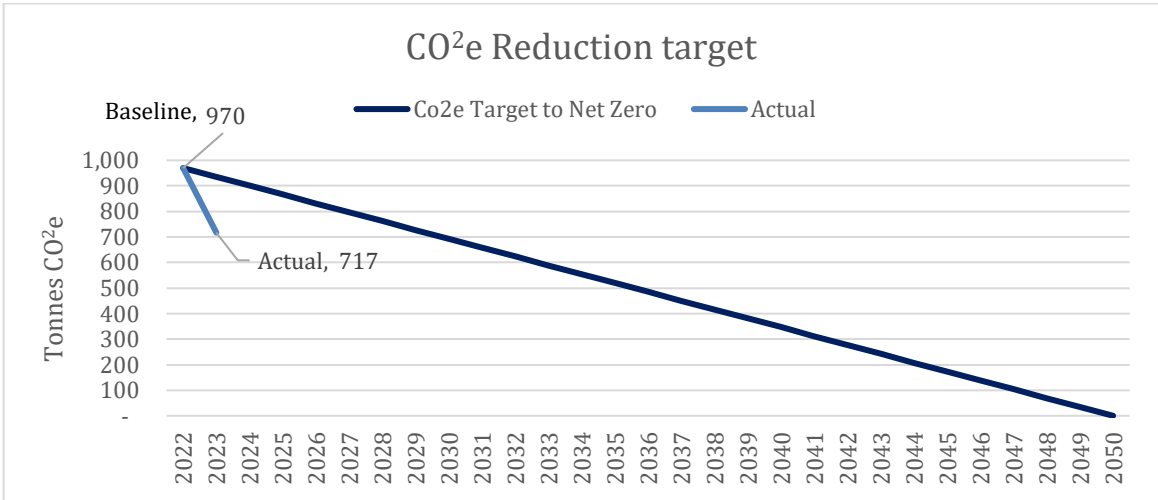
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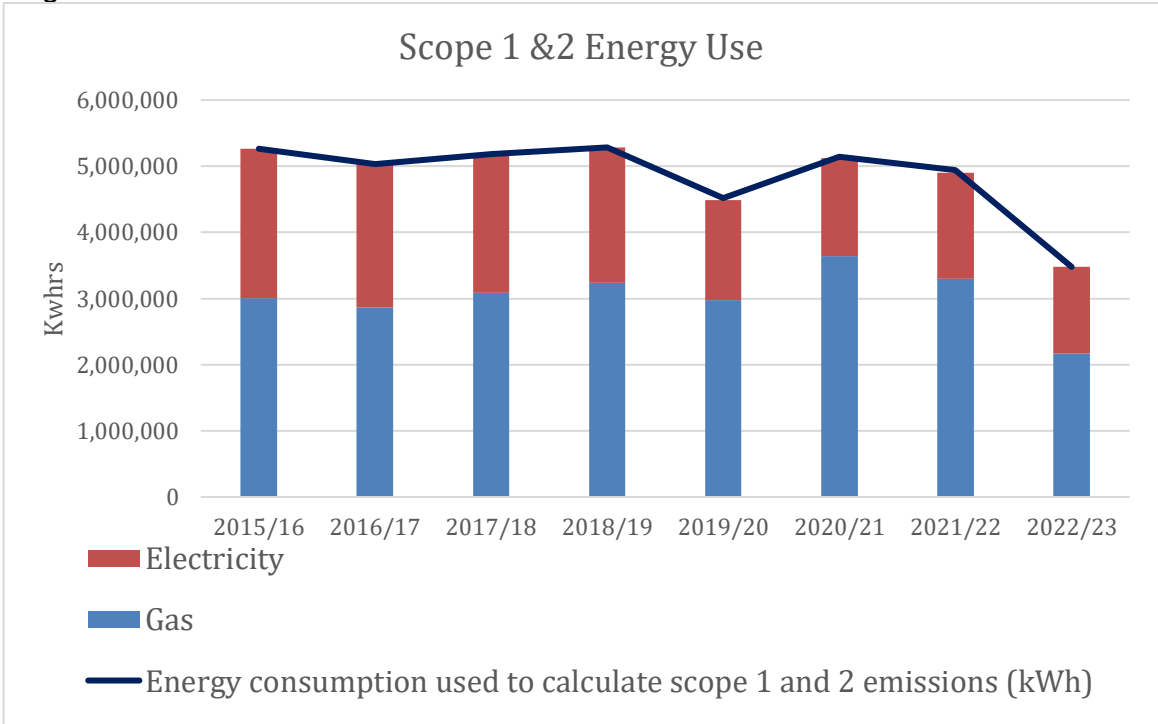
1. Summary

1.1. This report covers the reporting period from 1 August 2022 to 31 July 2023. The College remains committed to reducing the environmental impacts of our operations and during 2023 has formally adopted the target of achieving net carbon zero by 2050. We continue to set specific objectives and goals in order to improve our environmental performance. This report sets out initial performance benchmarks and actions underway to monitor and improve the environmental impacts of our operations.

1.2. Due to the impact of lockdowns during the covid pandemic in 2019/20 and 2020/21, we have used 2021/22 as our “baseline” year for monitoring our carbon reduction performance on our journey to Net Zero. Our performance so far is summarised in the chart below:



1.3. The college’s historic Scope 1 (Gas) and Scope 2 (Electricity) energy use since August 2015 is summarised below.



2. Goals and progress to date

2.1. Since 2018/19 the college has achieved the following improvements:

- 2019/20: Installation of improved energy efficient lighting across the London Road campus.
- 2019/20: Review of base load electricity consumption which identified significant reductions through optimising use and performance of air ventilation and extraction systems at London Road.
- 2019/20: Replacement of single use plastics in all College canteens with compostable alternatives, combined with incentives to use non disposable alternatives.
- 2019/20: Engagement with Teracycle to redirect writing implement waste to an effective recycling scheme.
- 2019-20: Active management of build-up of construction and motor vehicle wastes
- 2020/21: Renewal and upgrading of windows in the Performing Arts block at London Road campus to improve thermal efficiency and comfort of the building.
- Upgrading of London Road main building boiler with a more thermally efficient unit.
- 2020-21: Review and re-procurement of waste disposal routes.
- 2021/22 Installation of Solar Panels in January 2022.

In 2022/23 the college made the following improvements designed to further reduce its Carbon impact:

- July & August 2022: Replacement of single glazed windows in Main Block at London Road campus to improve thermal efficiency (and comfort) of the block.
- December 2022 & February 2023: Installation of Voltage Reduction equipment at London Road campus, English Bridge and Welsh Bridge to reduce carbon emissions.
- December 2023: Install power management system (ClearVue) to monitor and react to changes in usage at London Road.
- July 2023: Installation of improved energy efficient lighting across the Welsh Bridge campus.
- Commissioned and developed Heat decarbonisation plans for buildings with old gas-based heating systems.

2.2. Goals 2023 to 2024

- a) Complete decarbonisation designs to enable strategic decarbonisation of building heating systems across all campuses over the life cycle of existing building heating equipment.
- b) Review and develop long term plans for EV charging points at all campuses where appropriate.
- c) Continue staff and student engagement to raise awareness and engagement in sustainability activities and sustainable behaviours.
- d) Continue to improve monitoring and management of energy use on all campuses.
- e) Focus on more active management of water consumption and leak identification.

3. Energy Use

Annual Electricity consumption

3.1. The tables below set out the past eight years annual electricity consumption, as measured by KWh usage, CO_{2e} emissions and KWh per m² used. The data is taken from the historic half hourly meter readings on each of the College's campus sites.

Electricity	Campus				
	London Road	English Bridge	Welsh Bridge	Total	Total
Academic Year	KWh used	KWh used	KWh used	KWh used	CO _{2e} emissions (t)
15/16	1,594,738	306,514	363,549	2,264,801	1046
16/17	1,558,571	250,178	354,863	2,163,612	891
17/18	1,501,099	295,692	303,782	2,100,574	739
18/19	1,470,657	286,709	287,380	2,044,746	575
19/20	1,055,099	223,931	234,605	1,513,636.	387
20/21	1,004,891	236,891	241,483	1,483,264	311
21/22	1,080,954	264,463	253,374	1,598,791	336
22/23	869,777	224,702	214,636	1,309,114	253
KWh per m ² used					
15/16	89	37	70		
16/17	87	30	68		
17/18	84	36	58		
18/19	82	35	55		
19/20	59	27	45		
20/21	56	29	46		
21/22	63	32	49		
22/23	49	27	41		
GIA 22/23	17924	8236	5204		

GIA = Gross Internal Area m²

3.2. While consumption in 2019/20 and 20/21 was reduced by the Covid pandemic lockdowns, significant reductions have been achieved on all campuses since 2021 as the result of measures outlined above and in particular by the introduction of new solar panels at the London Road campus in January 2022.

Annual Gas Consumption

3.3. Gas is used to supply heating and hot water at all three campuses. Gas demand is driven primarily by outside temperatures. The differing thermal efficiencies of the buildings at each campus primarily drive the amount of heating and gas

consumption required. The London Road campus has a Building Energy Management system designed to control manage and monitor heating in several buildings. Use of such BEM systems are estimated to reduce overall gas usage. The age and condition of existing heating systems at the English Bridge and Welsh Bridge mean that installation of equivalent systems at these campuses is not currently considered practical. Alternative mechanisms for enabling improved regulation of heating will be kept under review and implemented as practicable.

- 3.4. The tables below set out the past eight years annual gas consumption, as measured by KWh usage, CO_{2e} emissions and KWh per m² used. The data is taken from the historic meter readings on each of the College's campus sites.

Gas	Campus				
	London Road	English Bridge	Welsh Bridge	Total	Total
Academic Year	KWh used	KWh used	KWh used	KWh used	CO _{2e} emissions (t)
15/16	1,897,040	555,390	549,002	3,001,432	552
16/17	1,868,148	526,039	475,659	2,869,846	528
17/18	2,023,711	602,633	458,134	3,084,478	568
18/19	2,162,152	631,907	445,588	3,239,647	596
19/20	2,238,606	656,876	406,586	3,302,068	608
20/21	2,550,008	626,716	462,501	3,639,225	669
21/22	2,173,211	742,159	383,861	3,299,231	603
22/23	1,431,617	491,211	247,142	2,169,971	397
	KWh per m ² used				
15/16	106	67	105		
16/17	104	64	91		
17/18	113	73	88		
18/19	121	77	86		
19/20	125	80	78		
20/21	142	76	89		
21/22	121	90	74		
22/23	80	60	47		
GIA 22/23	17924	8236	5204		

- 3.5. Consumption in 2020/21 was particularly high due to the requirements to ensure high ventilation in rooms to help reduce transmission during the covid pandemic, and yet try to maintain thermal comfort for students and staff. Significant reductions have been achieved on all campuses since 2021/22 as the result of measures outlined above and in particular by the introduction of new double glazing at the London Road campus in July and August 2022. In addition, starting in 2021/22 the College actively reviewed the use and timing of heating of its campus buildings in response to external temperatures and staff and student feedback to reduce the amount of gas used.

4. Water Use

- 4.1. Water is a precious resource and clean, drinking water is both energy and chemical intensive in its production and supply. Water use is primarily people related with most water being used in toilet and cooking facilities. At the London Road campus, water is also consumed by the Sports Centre changing facilities and other curriculum areas such as sports, hair and beauty and brickwork. At the English and Welsh Bridge campuses water is only used primarily for toilet and cooking facilities.
- 4.2. The table below set out the past six year’s annual water consumption. The data is taken from the historic readings on each of the College’s campus sites.
- 4.3. There was a major leak at London Road in December 2021 that affected consumption at London Road.

Water	Campus				
	London Road	English Bridge	Welsh Bridge	Total	Total
Academic Year	M ³ used	M ³ used	M ³ used	M ³ used	CO _{2e} emissions (t)
15/16	4,664	2,724	-	7,388*	2.54*
16/17	6,803	2,809	-	9,612*	3.31*
17/18	5,585	2,340	1138	9,063	3.12
18/19	5,761	2,410	1067	9,238	3.18
19/20	4,379	2,050	691	7,120	2.45
20/21	9,125	1,774	559	11,458	1.70
21/22**	23,793	1,744	974	26,511	3.95
22/23	13,107	3,073	1,050	17,230	2.57

* - Welsh Bridge meter readings data for 15/16 an 16/17 is not reliable or consistent and have been excluded.

** - London Road consumption for 21/22 and 22/23 is inflated by a major pipe leak which occurred underneath a building and so did not become immediately apparent.

5. Waste & Waste minimisation

- 5.1. The College recognises the importance of the UK Government’s waste hierarchy, namely ‘reduce, reuse, and recycle’. The College is committed to disposing of materials in an environmentally sensitive manner and encouraging the reuse and recycling of waste materials where possible. However, the minimisation of wastes produced is the first priority.
- 5.2. Since 1 April 2021 the College’s waste is disposed of by Veolia, who have recently invested in a new disposal facility in Shrewsbury, with the additional benefit of reducing transport mileage to and from the college and the disposal site.

- 5.3. Veolia transports solid waste to specialized sorting centres. Waste resulting from the selective collection of commercial waste and non-hazardous industrial and commercial waste is sent to high performance sorting centres managed by Veolia. Specialised processes, such as auto-adaptive sequential sorting (TS2A), are used to achieve recovery rates of up to 95%. The recovered waste then becomes secondary raw materials for industry. Veolia also separates and recycles complex waste, such as batteries and electronic cards.
- 5.4. Non-recyclable non-hazardous waste is estimated to be 60% of the waste stream that is transported to incineration plants or landfills. The incineration process produces energy in the form of steam which is converted into electricity and fed into the national grid distribution network. Veolia also captures gas generated by the fermentation of organic waste in its landfills. This biogas is then directly delivered to a distribution network, used to produce electricity through turbines or engines, or used as fuel for vehicles.
- 5.5. Specialist wastes (e.g. building waste, metals etc.) are stored and disposed of separately through appropriate routes. e.g. Metal waste is sold to scrap metal merchants for re-use.

- 5.6. During 2022-23 London Road campus waste streams were as follows

Material	Proportion	Weight: Tonnes
Commercial	36.3%	55.1
General Construction Waste	41.4%	63.0
Paper & Cardboard	10.3%	15.6
Food Waste	6.7%	10.1
General Waste		
Plasterboard	4.1%	6.2
Glass	1.2%	1.8
Grand Total	100%	151.8

- 5.7. Waste streams from English Bridge campus are measured and reported by Veolia. The table below shows the total waste by type for English Bridge. area.

Material	Proportion	Weight: Tonnes
General Waste	87.1%	23.3
General Construction Waste	12.9%	3.4
Grand Total	100%	26.7

- 5.8. Waste streams from Welsh Bridge campus are measured and reported by Veolia. The table below shows the total waste by type for Welsh Bridge.

Material	Proportion	Weight: Tonnes
General Waste	67.9%	9.3
Mixed Recycling	31.1%	4.4
Grand Total	100%	13.7

6. Transport

In 2022-23 staff travelled 91,504 miles on college business and College minibuses and other vehicles travelled 44,325 miles. This equates to the following CO₂ emissions.

	CO _{2e} emissions (t)
Business travel in employee-owned vehicles	30.86
Owned transport	14.4

7. Streamlined energy and carbon reporting for college corporations.

The following table summarises the College's annual UK energy use (in kWh) relating to gas, purchased electricity and transport fuel and the associated greenhouse gas emissions (in tonnes of carbon dioxide equivalent (CO_{2e}))

Greenhouse gas emissions and energy use data for the period 1 August 2022 to 31 July 2023 – UK	2022/23
Energy consumption used to calculate emissions (kWh)	3,523,409
Energy consumption break down (kWh) (optional):	
Gas	2,169,971
Electricity	1,309,114
Transport fuel	45.26
Scope 1 emissions in metric tonnes CO_{2e}	
Gas consumption	397
Owned transport	14
Total scope 1	411
Scope 2 emissions in metric tonnes CO_{2e}	
Purchased electricity	275
Scope 3 emissions in metric tonnes CO_{2e}	
Business travel in employee-owned vehicles	31
Total gross emissions in metric tonnes CO_{2e}	717
Intensity ratio	
Tonnes CO _{2e} per member of staff	1.17

We have followed the 2020 HM Government Environmental Reporting Guidelines. We have also used the GHG Reporting Protocol – Corporate Standard and have used the 2021 UK Government's Conversion Factors for Company Reporting. Intensity measurement

The chosen intensity measurement ratio is total gross emissions in metric tonnes CO_{2e} per staff member, the recommended ratio for the sector. Measures taken to improve energy efficiency during the year have been set out in section 2 above.