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Energy Report 2019/20

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2019/20 Energy Report

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Executive Summary

The 19/20 energy report is a very different reflection on the performance of the university compared to previous years.

The Covid-19 pandemic and national lockdown in March 2020 had a significant impact on the energy performance of the estate. We saw our campuses move into a state of hibernation and a displacement of on-site energy consumption from our estate to domestic homes. In July the process of recovery and re-opening the campus began and, we saw an increase in consumption as buildings came out of hibernation and activity on campus increased. During the months of main hibernation, electricity reduction for April, May and June was 43%, 44%, 41%, respectively.

The University of Nottingham has made significant commitments to promoting environmental sustainability. These are set out in the Strategy 2020 that was published in December 2019. That strategy states:

We will make an outstanding contribution to supporting the United Nations Sustainable Development Goals (SDGs) through our research and education, our engagement with partners and our behaviour on campus and in our communities. We will place a special emphasis on environmental sustainability, supporting the City of Nottingham's desire to be a net zero carbon city by 2028 and working with partners in China and Malaysia to improve sustainability within their regions.

To support the delivery of the University Strategy, in June of this year we published our Estate Development Framework. This provides the framework for how we will invest in and develop our estate over the next years to meet the needs of Strategy 2020. Energy and Carbon reduction is one of the key principles of this, as is the consolidation and rationalisation of space across the estate.

In addition, a design guide for all new build and major refurbishment is under development as part of the wider University sustainability framework. This guide will include minimum energy and water performance targets and integration of renewable energy provision.

Specific energy reduction interventions for existing buildings will need to be developed to support the transition to a net zero carbon Campus. The scale of energy reduction required to bring the University building stock up to modern standards should not be underestimated, either in terms of the complexity, nor the financial investment required.

This report focuses on overall energy consumption and expenditure, and the effects of reduced campus activity for five months of the year.

Responding to the Covid pandemic has illustrated that it is possible to reduce energy consumption relatively quickly and for sustained periods of relative inactivity. This learning is highly relevant to how we hibernate for future vacation periods. It also taught us that the University's baseload of energy is hard to shift even in hibernate mode. The background energy consumption is responsible for around 4,500t of carbon emissions and £2m.

Headline Figures

In 2019/ 20 there has been an overall **reduction of 3% energy consumption** compared to 2018/19

There has been a significant **reduction in water consumption of 22%**

Overall **energy costs reduced** by £1,196,081 or 9%

Water costs have seen a **significant decrease of £434,923** or 17%

Electricity consumption reduced by 14% overall

Investment in the University Park high voltage network has been completed so that in 2020/21 all renewable installation across campus can be put into operation

Around £2m investment has been approved to upgrade the high voltage network which will enable the University to increase the generating capacity of renewable energy at Sutton Bonington and improve resilience to power outages

Metrics

Energy costs/m² down 1% (ave.) to £16.58
Energy consumption/m² down 1.2% to 273kWh/m²
Energy costs/student down to 5.7% to £355
Energy consumption/student down 1.7% to 5,471kWh
Water costs/m² down -0.6% (ave.) to £1.73
Water consumption/m² down 22% to 0.76m³/m²
Water costs/student down 24% to £35.16
Water consumption/student down 19% to 15.34m³

External factors

Weather was 2% cooler.

For the avoidance of doubt, 'energy' means electricity and other fuels, unless indicated in most cases water has a separate commentary within this report. Energy costs do not include taxes.

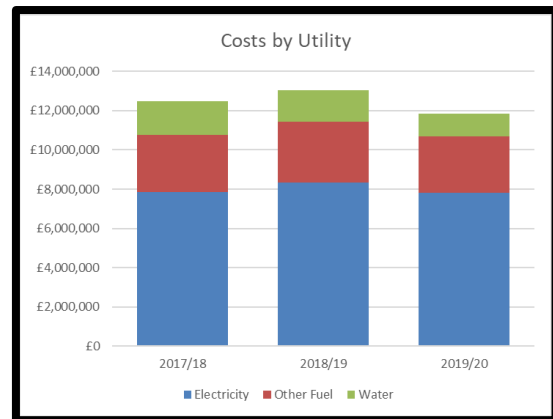
Section 1
2019/2020 Energy & Water

1A. Energy and Water by Utility

Energy and Water Costs in 2019/2020 were £11.8million, a decrease of £1,196,081 or 9% compared to 2018/19.

Some of this will be due to a reduction in the majority of campus operations in March 2020 due to the Covid-19 pandemic, further details regarding this can be found in Section 2 of this report.

Our electricity costs were down 6%, other fuels costs down 7%, whilst water costs fell by 27%.



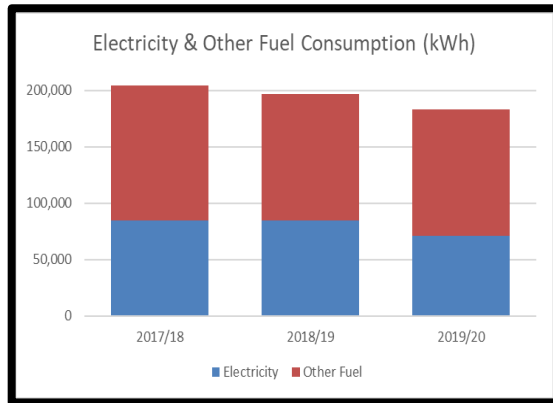
COSTS				Change
	2017/18	2018/19	2019/20	18/19 to 19/20
Electricity	£7,840,716	£8,345,987	£7,810,158	-6%
Other Fuel	£2,941,559	£3,100,523	£2,875,194	-7%
Water	£1,709,488	£1,609,554	£1,174,631	-27%
Total	£12,491,763	£13,056,064	£11,859,982	-9%

Electricity and Gas average unit prices in 2019/2020 have increased by 10% for electricity and 27% for gas. The University's energy contracts are procured through the TEC (The Energy Consortium) framework on a flexible purchasing basis. Our purchasing strategy is being constantly monitored and regular meetings are held with TEC.

Following a recent market testing exercise, the TEC Agreement has been renewed until 2022, this agreement has worked successfully in allowing us to be protected against the volatile energy markets.

We regularly monitor energy markets to support our flexible purchasing approach to ensure best value and minimum financial risk. However, it must be noted that between 30-40% of our energy cost is made up of non-commodity charges which are fixed by the regulator OFGEM (Office of Gas and Electricity Markets), are not affected by energy reduction and cannot be negotiated.

It is predicted that energy unit costs will continue to rise in the future, as such it is essential that we drive down demand, explore low carbon Power Purchase Agreements (PPAs) and scale up our investment in on site generation to both reduce our financial exposure but also to support our carbon reduction ambitions.



Over this last year we have seen an overall reduction of 3% in Energy Consumption.

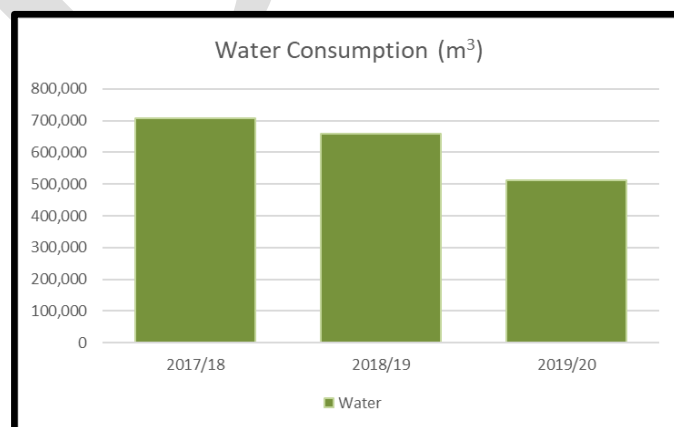
Specifically we have seen a 14% reduction in electricity consumption.

2019/2020 was 2% cooler than the previous year and a 5% increase in other fuel (gas, oil, biofuels) consumption has been seen, other fuels.

A revised Heating and Cooling Policy has recently been approved and systems are being brought in line with the agreed guidelines. A project looking at expanding and updating the building management system to improve control of heating and hot water systems is in progress and will assist with the reduction in consumption of gas, biomass and oil fuels.

CONSUMPTION	2017/18	2018/19	2019/20	Change
				18/19 to 19/20
Electricity (MWh)	84,590	84,509	72,358	-14%
Other Fuel (MWh)	119,888	112,043	117,573	5%
Total	204,478	196,552	189,931	-3%
Water (M ³)	707,123	658,428	512,636	-22%

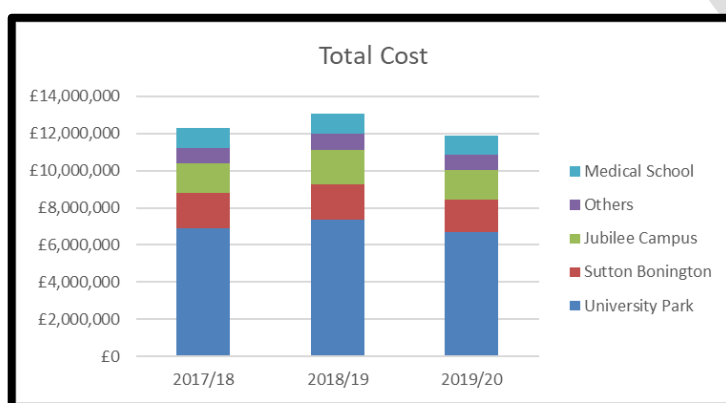
We have seen a significant decrease (22%) in our Water Consumption over this last year. We have carried out a number of infrastructure investments to reduce leaks on our water network. To help us manage, monitor and further reduce our water consumption, a project to install a comprehensive network of automated metering is in development.



1 B. Energy and Water by Campus

Over the last year all our campuses have seen a reduction in overall energy costs, with our larger sites seeing lower costs than 2017/18.

	2017/18	2018/19	2019/20	18/19 to 19/20
University Park	£6,900,875	£7,357,528	£6,682,792	-9%
Sutton Bonington	£1,983,143	£1,922,876	£1,779,402	-7%
Jubilee Campus	£1,718,464	£1,834,017	£1,549,228	-16%
Others	£811,661	£859,746	£829,151	-4%
Medical School	£1,077,620	£1,081,897	£1,019,409	-6%
	£12,491,763	£13,056,064	£11,859,982	-9%

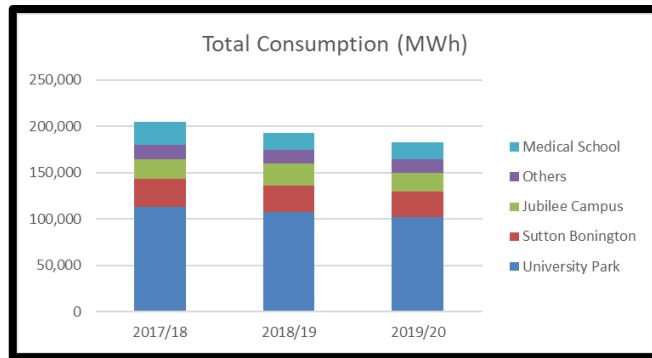


At the same time, we have seen that the average unit price of both electricity and gas has risen throughout the year.

This was most notably seen within the gas market, with OFGEM (Office for Gas and Electricity Markets) artificially propping up the gas market during the pandemic. This resulted in a 40% increase in our gas unit prices.

Overall, our energy consumption decreased by 3% compared to last year, with a notable reduction at Jubilee Campus (14%) but a slight increase in the Medical School (3%). The variation in percentages will be due to how much of the operation of each campus was affected during **the Covid-19 pandemic**.

	2017/18	2018/19	2019/20	18/19 to 19/20
University Park (MWh)	112,648	107,726	101,839	-5%
Sutton Bonington (MWh)	30,350	28,278	27,865	-1%
Jubilee Campus (MWh)	21,679	23,578	20,392	-14%
Others (MWh)	14,911	14,976	13,910	-7%
Medical School (MWh)	24,890	25,130	25,926	3%
	204,478	196,522	189,931	-3%

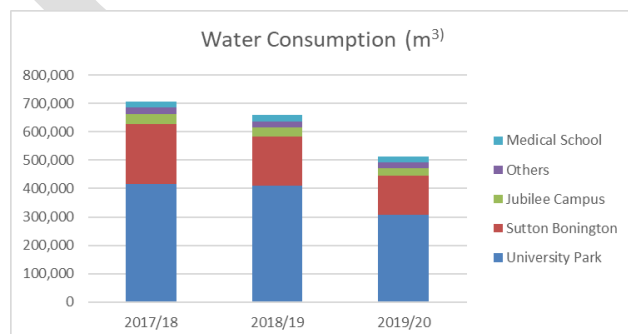


Throughout the period of hibernation, critical research continued across University Park and the Medical School. There are still avenues of investigation into electrical baseloads across all sites as more of a reduction was expected and should have been realised since March 2020.

Water Consumption has fluctuated significantly. There have been repairs carried out on identified leaks along internal water supply pipes in the last year, which will improve the water supply and reduce water loss. There is a project in development to improve metering and monitoring of water consumption across the estate.

	2017/18	2018/19	2019/20	18/19 to 19/20
University Park (M ³)	414,797	411,158	308,369	-25%
Sutton Bonington (M ³)	213,609	170,477	137,421	-19%
Jubilee Campus (M ³)	33,739	34,505	25,998	-25%
Others (M ³)	23,478	20,788	19,348	-7%
Medical School (M ³)	21,500	21,500	21,500	0%
	707,123	658,428	512,636	-22%

Historically the operation and management of our water accounts at the Medical School have been managed by the NHS on our behalf. Recently the accounts have been transferred over to the energy team and this will ensure more accurate billing, better monitoring and management of our consumption.



Section 2

Impact of Covid-19 Pandemic

This year we have faced a significantly different situation. Whilst there were seven months of normal operation from August 2019 to February 2020, in March 2020 the majority of staff and students left campus and over 90% of our buildings were closed, systems turned off or put into standby and a state of 'hibernation' fell across the University in response to the Covid-19 pandemic. The following section is to highlight the impact this had on consumption patterns across our three main campuses compared to 2018/2019.

2.A Electricity

Costs

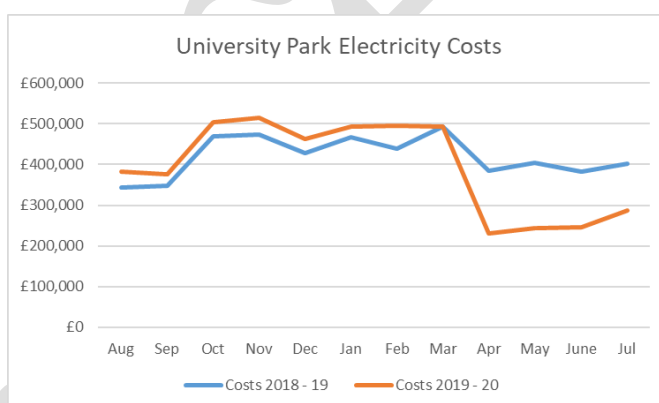
Overall, electricity costs were higher through the first seven months of 19/20.

University Park

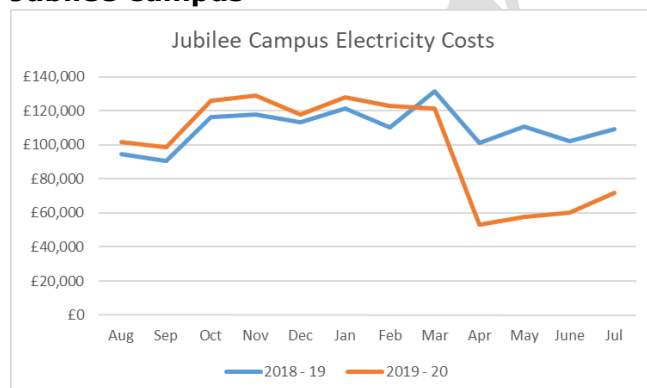
A 9% increase in energy costs was recorded through the first seven months of 19/20.

Campus shutdown in March then provided an average monthly reduction of 30% in costs for the remainder of the year.

Overall during 19/20, there was a saving of £298,800 on University Park campus.



Jubilee Campus



An 8% increase in energy costs was recorded through the first seven months of 19/20.

Campus shutdown in March then provided an average monthly cost reduction of 36% for the remainder of the year.

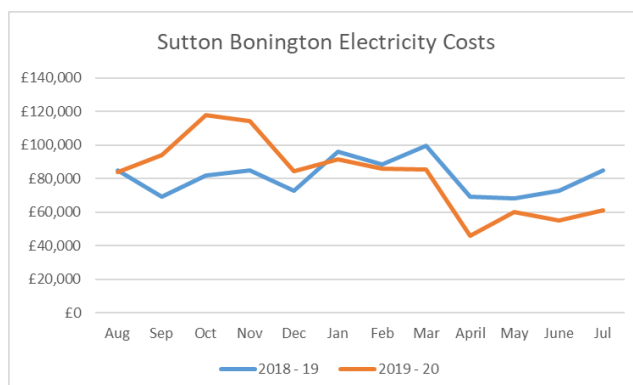
Overall during 19/20, there was a saving of £130,000 on Jubilee Campus.

Sutton Bonington

A 16% increase in energy costs was recorded through the first seven months of 19/20.

Campus shutdown in March then provided an average monthly cost reduction of 22% for the remainder of the financial year.

Overall during 19/20, there was an increase in costs of £6,000.

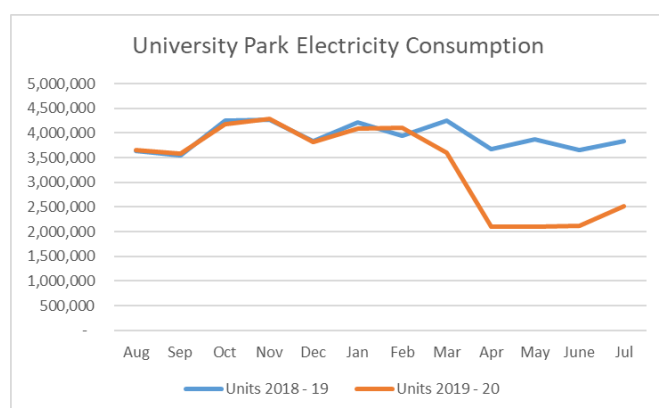


It should be noted we are reporting mains imported electricity from the national grid and figures do not include on-site combined heat and power (CHP) generated power.

Consumption

All campuses continued to consume significant amounts of electricity during campus shutdown. Some of this can be attributed to areas still being operational: buildings that remained open for research, selected halls of residence, -80 freezers, air extract and other equipment, security systems, external lighting, IT systems.

University Park



Electricity consumption through the first seven months of 19/20 was almost identical to 18/19.

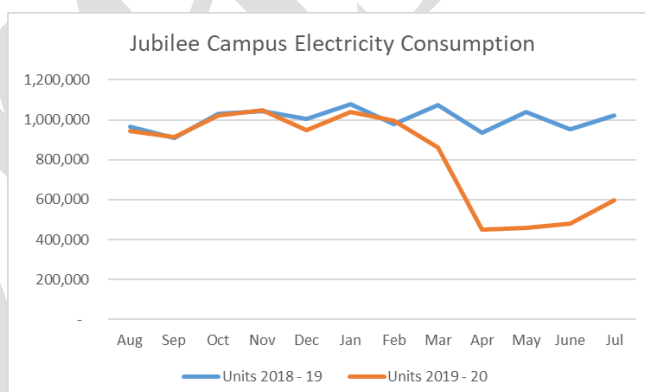
March to July provided an average monthly reduction of 38%.

62% of the normal electricity consumption was still being consumed.

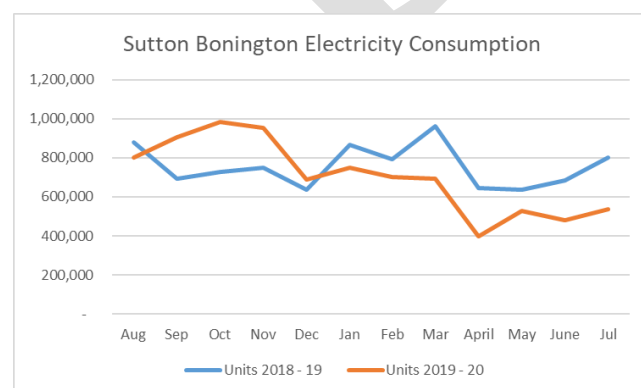
Jubilee Campus

A reduction of 1% in consumption had been recorded through the first seven months of 2019/20.

Between March and July we saw a 44% reduction in electricity consumption.
56% of the normal electricity consumption was still consumed.



Sutton Bonington



No variance in average consumption of imported electricity was noted during the first seven months of 2019/20.

March to July provided an average reduction of 38%.

This does not include CHP generated electricity.

2.B Gas

Costs

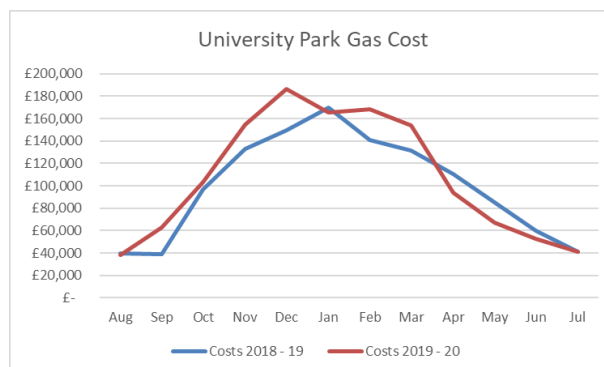
Overall, gas costs were higher through the first seven months of 19/20.

University Park

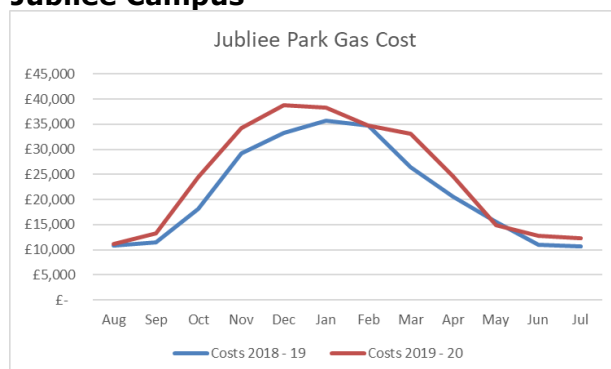
A 14% increase in energy costs was recorded through the first seven months of 19/20.

Campus shutdown in March then provided an average monthly increase of 8% in costs for the remainder of the year.

Overall during 19/20, there was an increase of £91,000.



Jubilee Campus



An average 12% increase in gas costs was recorded through the first seven months of 19/20.

Campus shutdown in March then provided an average monthly increase of 15% in costs for the remainder of the year.

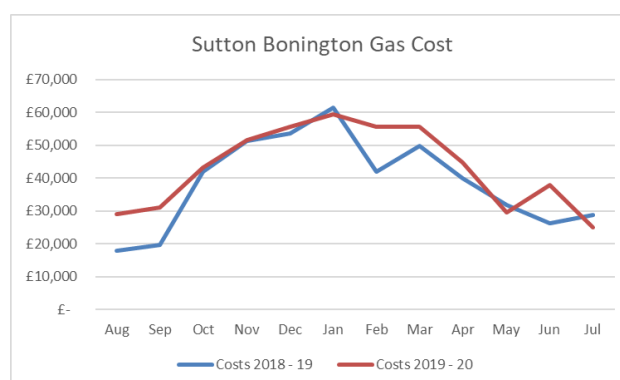
Overall during 19/20, there was an increase of £35,000.

Sutton Bonington

A 22% increase in gas costs was recorded through the first seven months of 19/20.

Campus shutdown in March then provided an average monthly increase of 12% in costs for the remainder of the year.

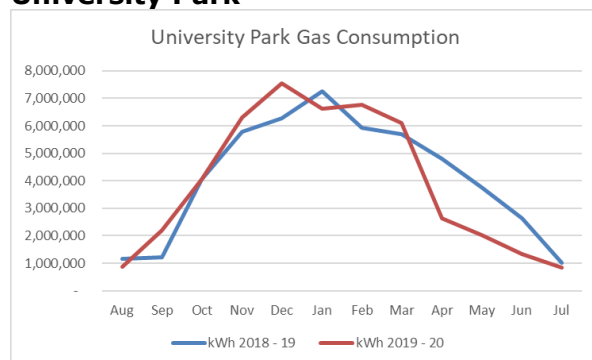
Overall during 19/20, there was an increase in costs of £53,000.



Consumption

All campuses continued to consume gas during campus shutdown for, primarily, hot water, but also some space heating which can be attributed to selected halls still being operational, buildings that remained open for research, and having to keep hot water at normal temperatures to avoid any concerns over legionella. There is normally lower consumption of gas through May, June and July due to warmer temperatures and a significant amount of work was carried out by Estates teams to turn down other systems across the entire estate to reduce consumption in vacated buildings. The team continue to monitor the systems, making regular adjustment to provide comfortable buildings.

University Park



Overall gas consumption through the first seven months of 19/20 was 9% higher than 18/19.

March to July provided an average monthly reduction of 30%.

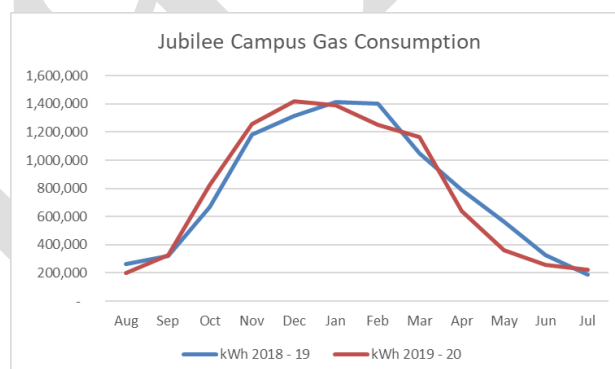
Although a reduction in consumption can be seen in the graph, 95% of the normal gas consumption was still used.

Jubilee Campus

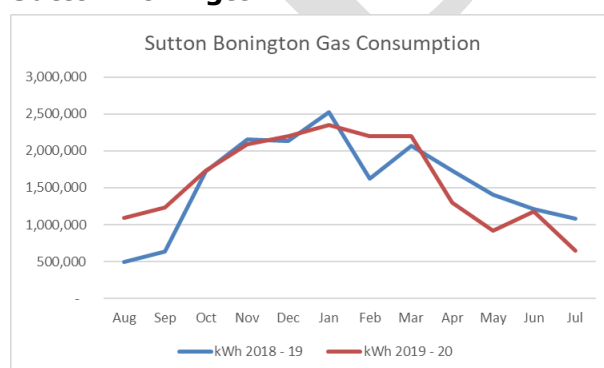
An increase of 1% in consumption had been recorded through the first 7 months of 2019/20.

The closure of the campus led to an average 9% reduction in gas consumption from March.

This shows that 98% of the normal gas was still used.



Sutton Bonington



A 35% increase in consumption was noted during the first 7 months of 2019/20.

Following the March shutdown, an average reduction of 19% has been reported.

The fluctuating pattern in consumption is due to the gas-powered combined heat and power (CHP). We utilise the CHP to produce not only heat but also

electricity for the campus. There have been periods this year where, either due to significant work being carried out or reduced demand for heat, the system has been turned off for periods so less gas has been consumed.

Section 3 **Renewable Energy**

3.A Generation

Over the last year we have seen fluctuations and challenges with the operation and productivity of our renewable energy technologies. We have also seen a number of systems go into fault resulting in down time. System improvements and modifications have been put in place to minimise this moving forward. More detailed information is shown in 3.B below.

Building	Type	Annual Generation (kWh) 19/20	Annual Generation (kWh) 18/19	
BioEnergy	Biomass	111,750	90,980	22.83%
Geospatial	Biomass	54,870	53,290	2.96%
Sustainable Chemistry (GSK)	Bio Oil	16,480	25,140	-34.45%
Total		166,620	144,270	15.49%
Humanities	GSHP	151,600	85,800	76.69%
Si Yuan	GSHP	49,171	46,058	6.76%
Cripps Health Centre (New 2019)	GSHP	61,688	43,600	41.49%
ATC	GSHP	29,710	38,850	-23.53%
Maths Building	GSHP	11,276	9,660	16.73%
Total		303,445	223,968	35.49%
Sherwood & Rutland	Solar Thermal	9,227	9,486	-2.73%
Si Yuan Chinese Studies	Solar Thermal	472	780	-39.49%
Total		9,699	10,266	-5.52%
Sustainable Chemistry (GSK)	PV	137,883	215,973	-36.16%
Veterinary School	PV	125,144	123,909	1.00%
Derby Hall	PV	53,416	48,985	9.05%
Lincoln Hall	PV	31,552	37,639	-16.17%
George Green Library	PV	34,067	32,684	4.23%
Business Sch North	PV	14,901	14,245	4.61%
Energy Technologies Building	PV	11,734	13,511	-13.15%
Aerospace Technology	PV	11,711	11,212	4.45%
Orchard Hotel	PV	8,538	8,621	-0.96%
Dearing	PV	2,926	7,310	-59.97%
Computer Sciences	PV	7,029	6,706	4.82%
Advanced Manufacturing (New 2018)	PV	5,002	4,877	2.56%
Ingenuity Centre (TEC)	PV	4,520	4,511	0.20%
Si Yuan Chinese Studies	PV	3,900	4,122	-5.39%
Total		452,323	534,305	-15.34%
IMH	ASHP	4,535	5,110	-11.25%
Total		4,535	5,110	-11.25%
Total Renewable		936,622	917,919	2.04%

We continue to monitor the performance of our renewables and the proposed metering strategy will encompass an increase in the metering of our renewable installations to enable a more proactive approach to the management and maintenance of our systems.

Moving forwards, investment in on-site renewable generation will need to be a major part of our energy strategy, to both limit our financial risk in what is likely to be volatile energy markets, but also to support the reduction of our future carbon emissions.

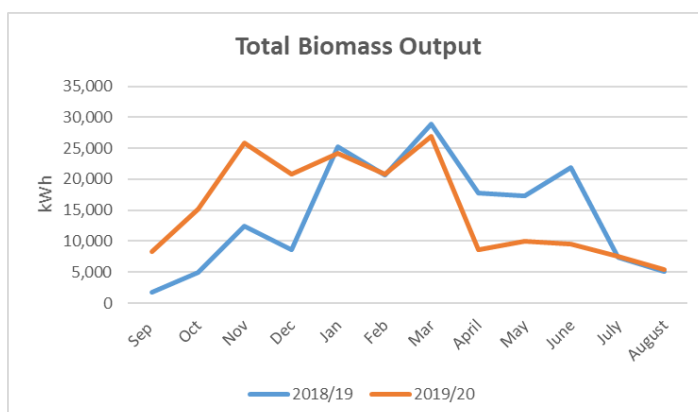
Feasibility studies are being carried out for photo voltaic (PV) arrays at a number of our sites, including a 2MW PV array at Sutton Bonington.

3.B Production and Performance

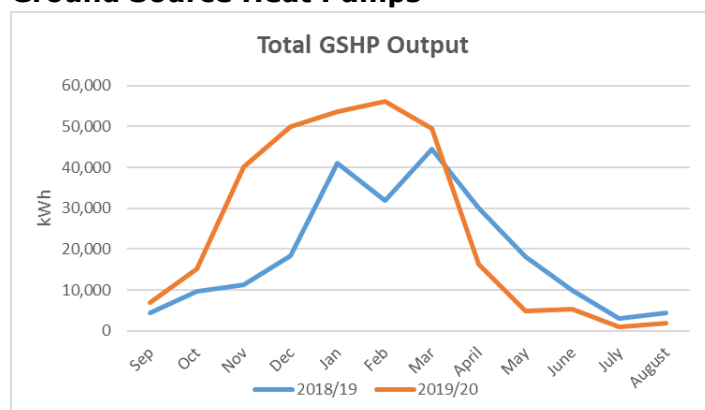
Biomass Boilers

Problems were encountered over 19/20, with an on-going intermittent fault with the Biomass systems. Significant works from the Operational team and contractors have resolved these.

Total Annual production:
183,100 kWh.



Ground Source Heat Pumps



All GSHP's operated correctly during 2019/20.

Reduced operations on campus led to a drop in generation as buildings were put in set-back mode, so less energy was consumption for 5 months

A total of £205.62 has been received in Renewable Heat Incentive payments.

Total Annual generation:
303,445 kWh.

Solar thermal

Both solar thermal installations operated throughout 2019/20.

Total Annual generation:
9,699 kWh

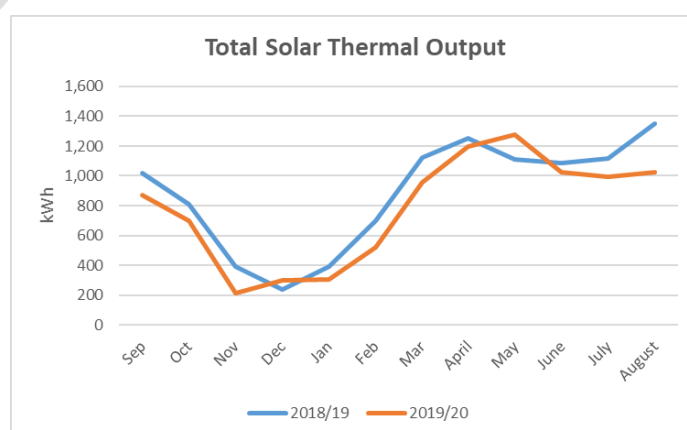
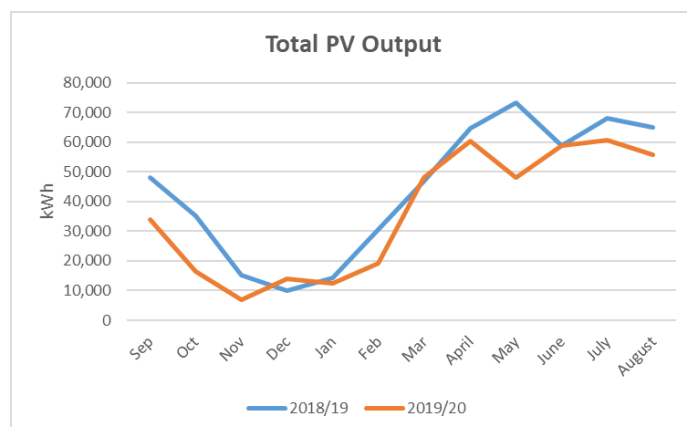


Photo Voltaic



All PV installations have been operating correctly throughout 19/20.

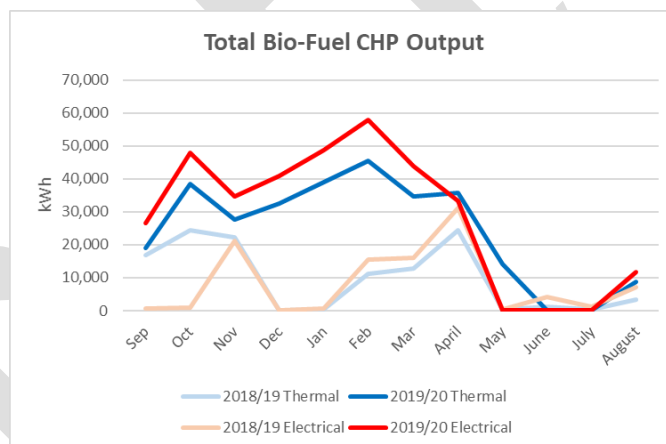
A total of £11,262.45 was received in Feed in Tariff payments for the electricity generated.

Total Annual generation:
445,785 kWh.

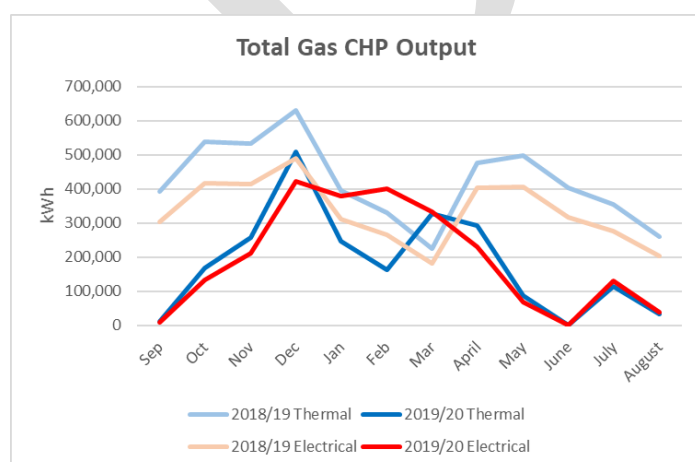
Biofuel Combined Heat & Power

Both biofuel CHPs have had increased availability throughout the year as Operational teams and contractors work hard to ensure correct running.

Total Annual generation:
Electricity 341,357 kWh.
Thermal 290,270kWh.



Natural Gas Combined Heat & Power



The Sutton Bonington CHP was operational throughout the year.

Total Annual generation:
Electricity 2,520,416 kWh
Thermal 2,438,667 kWh.

APPENDIX A

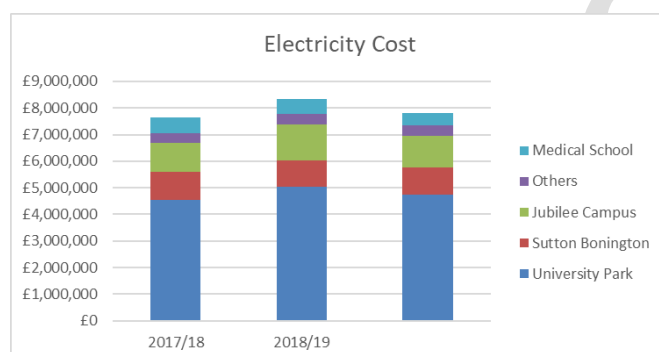
By Campus & Utility

Energy Cost

Electricity unit prices have risen on average by around 10% overall. A 6.4% reduction in costs have been realised largely as a result of reduced activity on campus through March - June 2020.

				Change
	2017/18	2018/19	2019/20	18/19 to 19/20
University Park	£4,540,180	£5,032,919	£4,733,923	-6%
Sutton Bonington	£1,054,200	£1,006,077	£1,016,181	1%
Jubilee Campus	£1,096,053	£1,337,044	£1,202,299	-10%
Others	£371,396	£399,524	£388,602	-3%
Medical School	£575,620	£570,423	£469,153	-18%
Total	£7,840,716	£8,345,987	£7,810,158	-6.4%

Additionally, the slight increase seen at Sutton Bonington is due to the gas combined heat and power plant (CHP) not being fully operational and we were required to purchase more electricity from the national grid.



It has been identified that University Park and Sutton Bonington have been regularly exceeding their Authorised Supply Capacity (ASC) for some time, which is in breach of Electricity Supply Agreements. Around £2m investment has been approved to upgrade the high voltage network which will enable the University to increase the generating capacity of

renewable energy at Sutton Bonington and improve resilience to power outages.

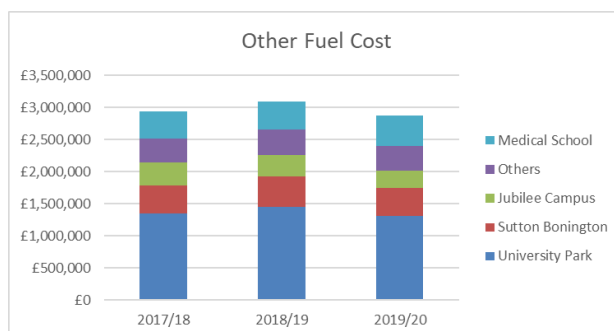
The new ASC is expected to add a minimum of £55,000 to the University's costs in future years.

Other Fuel

Overall other fuel (gas etc.,) unit costs have gone down on average by 9%. The closure of campuses has led to a reduction of £225,329 in costs compared to last year.

	2017/18	2018/19	2019/20	18/19 to 19/20
University Park	£1,354,736	£1,452,353	£1,316,870	-9%
Sutton Bonington	£435,772	£473,529	£425,554	-10%
Jubilee Campus	£353,655	£339,643	£269,911	-21%
Others	£371,396	£399,524	£388,602	-3%
Medical School	£426,000	£435,474	£474,256	9%
	£2,941,559	£3,100,523	£2,875,194	-7%

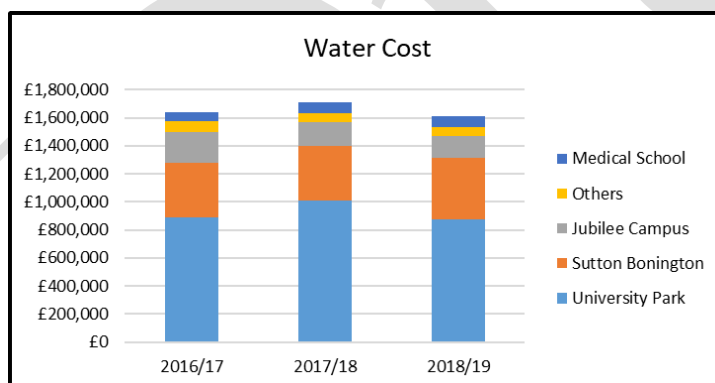
The new buildings for BioDiscovery Institute (formerly referred to as Centre for Bio-molecular Sciences) and the Vet School expansion have become operational during 2019/2020 although the full effect of this has not been realised to date. The Power Electronics and Machine Centre is in construction and is expected to be handed over to the University in early 2021.



Water

Water costs have seen a significant decrease of £434,923 or 27%, some of which is due to the reduction in consumption. To better understand how water is used, plans are in place to look towards improved sub metering around campuses.

	2017/18	2018/19	2019/20	18/19 to 19/20
University Park	£1,005,959	£872,256	£631,999	-28%
Sutton Bonington	£393,171	£443,270	£337,667	-24%
Jubilee Campus	£168,756	£157,330	£77,018	-51%
Others	£65,602	£60,698	£51,947	-14%
Medical School	£76,000	£76,000	£76,000	0%
	£1,709,488	£1,609,554	£1,174,631	-27%

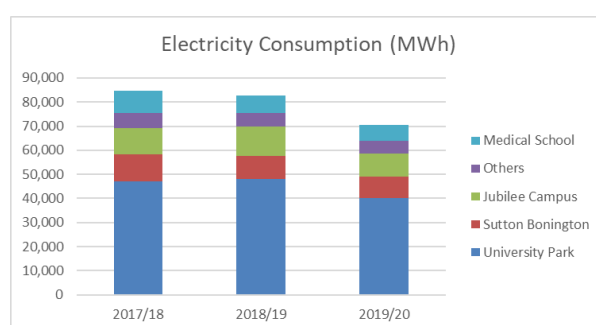


Energy Consumption

Electricity MWh

Electricity consumption on the whole has reduced by over 14%.

	2017/18	2018/19	2019/20	18/19 to 19/20
University Park	47,015	48,210	40,182	-17%
Sutton Bonington	11,176	9,317	8,716	-6%
Jubilee Campus	11,056	12,175	9,865	-19%
Others	6,053	5,765	5,183	-10%
Medical School	9,290	9,183	8,412	-8%
	84,590	84,650	72,358	-14.5%



The reduced operations across all campuses during March – June 2020 has led to a significant reduction in consumption.

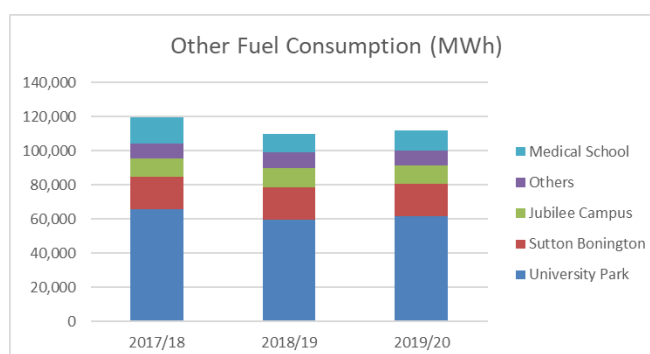
Investment in the University Park high voltage network has been completed so that in 20/21 all renewable installations across campus can be put into operation.

Other Fuels MWh

The reduced operations on campus has lessened the need for heating plants to be operational leading to a drop in other fuels such as gas, oil and biomass, so other fuel consumption has been cut.

	2017/18	2018/19	2019/20	18/19 to 19/20
University Park	65,634	59,515	61,656	4%
Sutton Bonington	19,174	18,961	19,150	1%
Jubilee Campus	10,623	11,403	10,526	-8%
Others	8,857	9,211	8,726	-5%
Medical School	15,600	15,947	17,514	10%
	119,888	115,037	117,573	2.2%

Although small increases are shown in consumption at University Park and Jubilee, it should be noted that last year's data was compromised by inaccurate meters which have since been replaced.

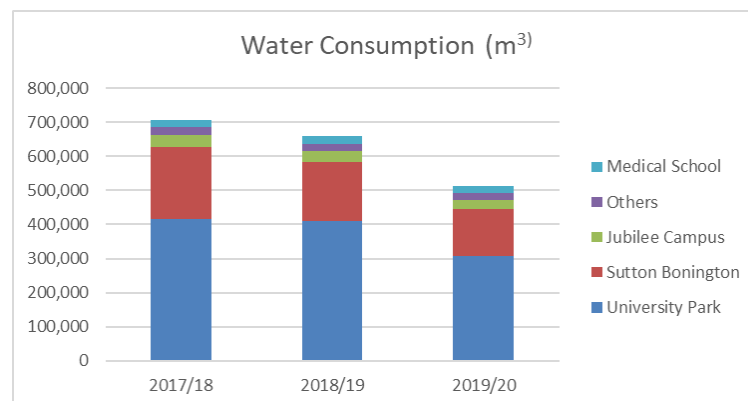


Water m³

Overall there has been a 22% reduction in water consumption.

	2017/18	2018/19	2019/20	18/19 to 19/20
University Park	414,797	411,158	308,369	-25%
Sutton Bonington	213,609	170,477	137,421	-19%
Jubilee Campus	33,739	34,505	25,998	-25%
Others	23,478	20,788	19,348	-7%
Medical School	21,500	21,500	21,500	0%
	707,123	658,428	512,636	-22%

Water consumption data at the Medical School relies on estimated data. Historically the water was charged to the Queens Medical Centre and then subsequently re-charged to UoN. We have taken steps to transfer the ownership of the water account directly to the University to allow for better monitoring and control.



APPENDIX B

By Floor Area

Data provided by Space Development colleagues confirmed that the reported floor area used in this report is 1.6% lower than previous years as a result of improved accuracy of space reporting. Student numbers were down 3.6%.

It should be noted that a significant amount of work has been carried out over the last year into space management and re-calculating available floor area.

M ²	2017/18	2018/19	2019/20	
University Park	354,090	357,232	350,090	-2%
Sutton Bonington	77,293	77,293	75,293	-3%
Jubilee Campus	106,981	106,981	104,981	-2%
Others	69,880	69,800	69,659	0%
Medical School	77,644	77,644	77,644	0%
	685,888	688,950	677,667	-1.64%

Costs

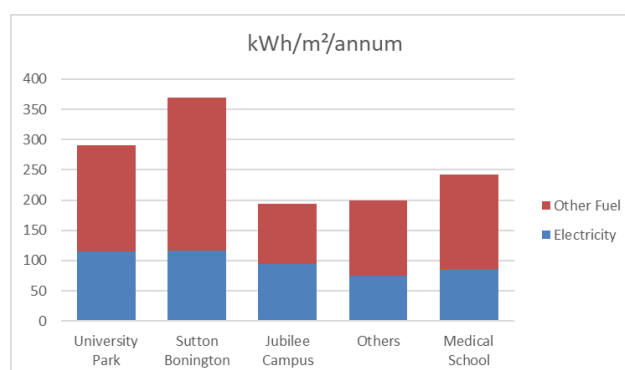
Average floor area energy costs have fluctuated compared to last year.

		Cost/m ² /annum				
	Floor Area	Electricity	Other Fuel	Water	Total	Difference to last year
University Park	350,090	£13.52	£3.76	£1.81	£19.09	0.11
Sutton Bonington	75,293	£13.50	£5.65	£4.48	£23.63	-0.78
Jubilee Campus	104,981	£11.45	£2.57	£0.73	£14.76	-1.69
Others	69,659	£5.58	£5.58	£0.75	£11.90	1.12
Medical School	77,644	£6.04	£6.11	£0.98	£13.13	-0.75
Total	677,667					

Consumption

Overall there has been an improvement in consumption by floor area consumption.

		Consumption (kWh)/m ² /annum			Difference to last year	
	Floor Area	Electricity	Other Fuel	Total		%
University Park	350,090	115	176	291	-16.82	-5.46%
Sutton Bonington	75,293	116	254	370	-5.48	-1.46%
Jubilee Campus	104,981	94	100	194	-30.35	-13.51%
Others	69,659	74	125	200	-15.31	-7.12%
Medical School	77,644	86	155	242	4.99	2.11%
Total	677,667	104	165	270	-2.20	-0.81%



APPENDIX C

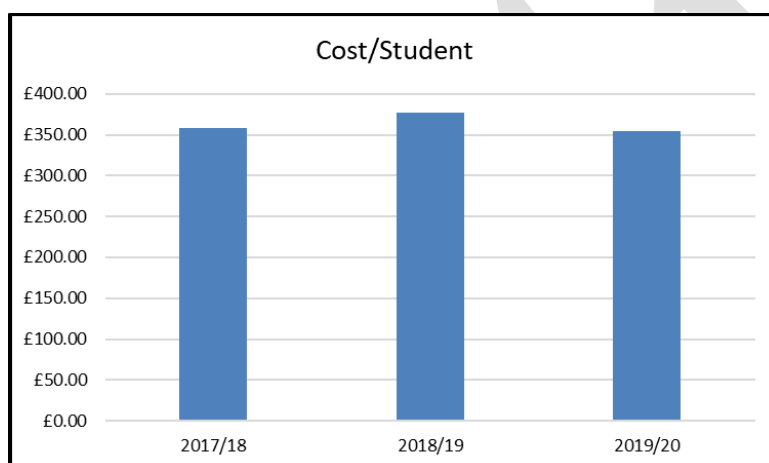
By Student

Student numbers as reported by the University website were down 3.6% on last year.

Costs

The cost of energy and water has decreased per student by 5.7%.

	2017/18	2018/19	2019/20	Change
UK Student Numbers	34329	34670	33408	-3.64%
Energy & Water Costs	£12,288,496	£13,056,064	£11,859,982	-9.16%
Cost/Student	£357.96	£376.58	£355.00	-5.73%



Consumption

With energy consumption reducing, kWh/student has dropped by 2.2%.

	2017/18	2018/19	2019/20	Change
UK Student Numbers	34329	34670	33408	-3.64%
Energy Consumption	204,478	196,552	189,931	-3.37%
kWh/Student	5,956	5,565	5,685	-2.16%