



The University of
Nottingham

UNITED KINGDOM • CHINA • MALAYSIA



Annual Energy Report 2010/11

<http://www.nottingham.ac.uk/sustainability>

2010/11 Energy Report

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Executive Summary

The University has published an annual report showing trends in our energy and water usage every year since 1998. With the increasing attention on carbon emissions, some elements of this report have now been subsumed within the University's Carbon Management Plan (CMP). However, we will continue to produce the Energy and Water Report to allow direct comparison on the key areas of utility consumption and costs with earlier years.

The headline performance indicators from this year's energy report are as follows:-

- **Energy costs**, including taxes, rose by £1.3 million to £10.6 million. Section 1.K shows that our energy costs per unit and per square metre are the lowest in the sector.
- Overall **energy consumption** reduced by 1.3%, with electricity consumption down 1.6% and gas usage down 1.1%.
- Overall emissions of **carbon dioxide** from all energy sources fell by 1.7%.
- **Water usage** increased by 6%.
- The overall premises Gross Internal Area (GIA) increased by 1.2%, and student numbers were up by 3.0%. The weather, as measured by 'degree days' was colder by 0.4% compared to 2009/10.

Note that most figures relate to the University's financial year of August 1st 2010 to July 31st 2011, with the baseline for comparison being the previous (2009/10) financial year.

Utilities continue to be procured via Notice Ltd, which is a wholly owned subsidiary of the University of Nottingham

Section 1 – Total Energy Report

1.A. - Energy and Water Costs Summary

Energy and water costs rose to £9.2 million in 20010/11, or £10.6 million including taxes. Although this was a rise of 10%, our policy of 'flexible' energy purchasing helped to avoid even greater rises. Section 1.K shows that our unit energy costs were the lowest amongst the Russell Group of Universities during 2009/10, with our prices being 25% below similar-sized institutions. This equates to a procurement saving of just over £2.0 million.

UK Energy prices rose sharply from August 2010 through to the Spring of 2011 (up over 30%), and remained surprisingly high right through to the end of the financial year. Fears regarding the weakness of the economy were outweighed by high world commodity prices caused by demand from the far East and in particular competition for gas resources as Japan closed down nuclear reactors. Instability in the Middle East and North Africa were additional factors.

Energy and Water Costs				Change
	2008/9	2009/10	2010/11	'9/10 to '10/11
University Park	£ 5,800,298	£ 4,633,050	£ 5,033,602	9%
Sutton Bonington	£ 1,471,426	£ 1,229,968	£ 1,392,711	13%
Jubilee Campus	£ 812,197	£ 713,875	£ 810,022	13%
Others	£ 688,071	£ 585,856	£ 635,438	8%
Medical School	£ 1,439,585	£ 1,180,000	£ 1,310,000	11%
Total	£ 10,211,577	£ 8,342,749	£ 9,181,773	10%

Figure 1.A.1 Table of energy and water costs for last 3 years split by campus.

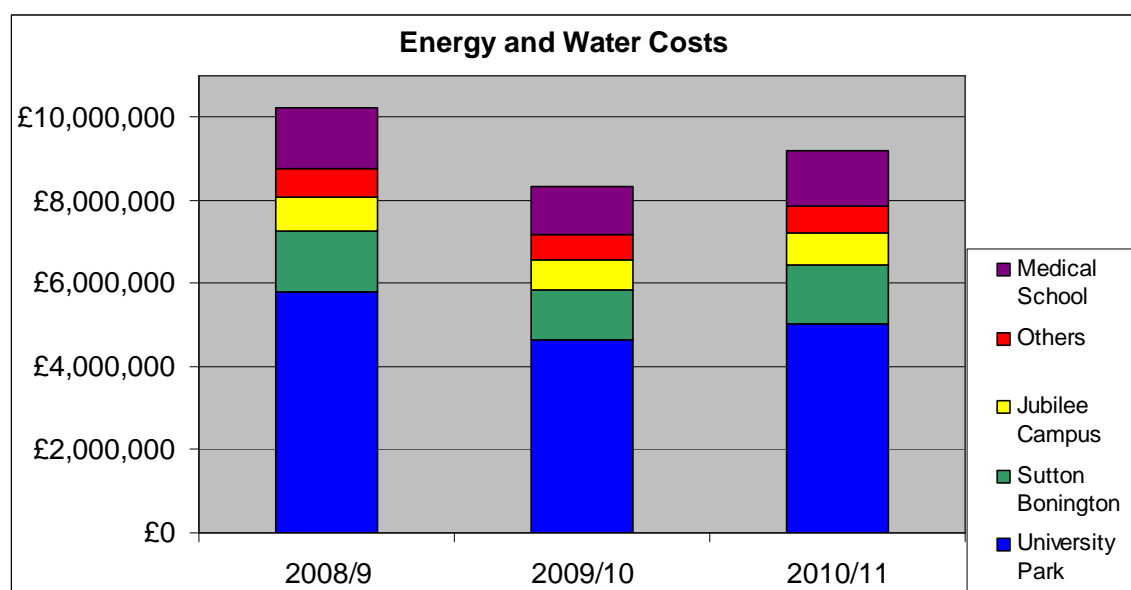


Figure 1.A.2 Graph of net energy and water costs for the last 3 years split by campus.

Note that these figures exclude VAT and Climate Change Levy, which are discussed on page 6.

1.B. – Utility costs per square metre for each Campus

Campus Costs	Floor Area	Cost/sq.m/annum			
		Electricity	Heating	Water	Total
University Park	316,309	£9.13	£4.01	£2.77	£15.91
Sutton Bonington	66,501	£11.50	£5.33	£4.11	£20.94
Jubilee Campus	59,682	£8.17	£2.24	£3.16	£13.57
Others	66,696	£5.96	£2.63	£0.94	£9.53
Medical School	75,429	£8.15	£7.60	£1.62	£17.37
Total	584,617	£8.81	£4.29	£2.60	£15.71

Figure 1.B.1 Table of energy costs per square metre, split by campus.

The overall floor area increased by 1.2% from 2009/10.

Note that if taxes (VAT and CCL, see below) are taken into account, our average utility costs are now £18.17 per square metre per annum.

1.C - Climate Change Levy (CCL) and VAT

VAT costs paid by Notice Ltd on energy bills rose to £1.17million in 2010/11, and CCL was up to £274,000. This rise in CCL was particularly large as we completed our purchases of 'green' electricity, which was CCL-free.

The Climate Change Levy (CCL) was introduced in April 2001. On April 1st 2011 the rates rose 3.0% to 0.169p/kWh on gas and 3.2% to 0.485p/kWh on the electricity costs of all non-residential properties.

If the taxes were included in the total expenditure on utilities the totals can be seen below:-

	2010/11				2009/10
	Electricity	Fossil Fuels	Water	Totals	Totals
Utility Costs	£ 5,153,260	£ 2,506,590	£ 1,521,923	£ 9,181,773	£8,348,750
Climate Change Levy	£ 183,965	£ 90,506	-	£ 274,471	£100,063
Value Added Tax	£ 721,604	£ 449,232	-	£ 1,170,837	£884,579
Total	£ 6,058,830	£ 3,046,328	£ 1,521,923	£ 10,627,081	£9,333,392

Figure 1.C.1 Table of energy and water costs including Climate Change Levy and Value Added Tax.

1.D - 2010/2011 Net Costs Broken Down by Campus and Utilities

Energy and Water Costs	Electricity	Fossil Fuels	Water	Total
University Park	£ 2,887,877	£ 1,269,972	£ 875,753	£ 5,033,602
Sutton Bonington	£ 765,066	£ 354,493	£ 273,151	£ 1,392,711
Jubilee Campus	£ 487,501	£ 133,947	£ 188,573	£ 810,022
Others	£ 397,815	£ 175,178	£ 62,445	£ 635,438
Medical School	£ 615,000	£ 573,000	£ 122,000	£ 1,310,000
Total	£ 5,153,260	£ 2,506,590	£ 1,521,923	£ 9,181,773

Figure 1.D.1 Table of energy and water costs split by campus and by utility

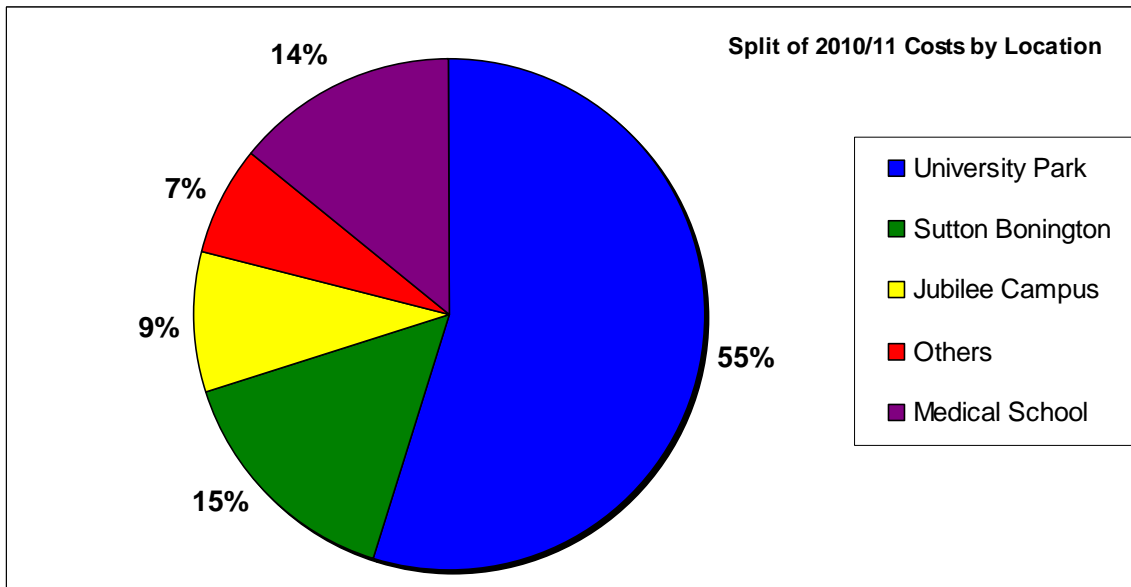


Figure 1.D.2 Chart of energy and water costs split by campus

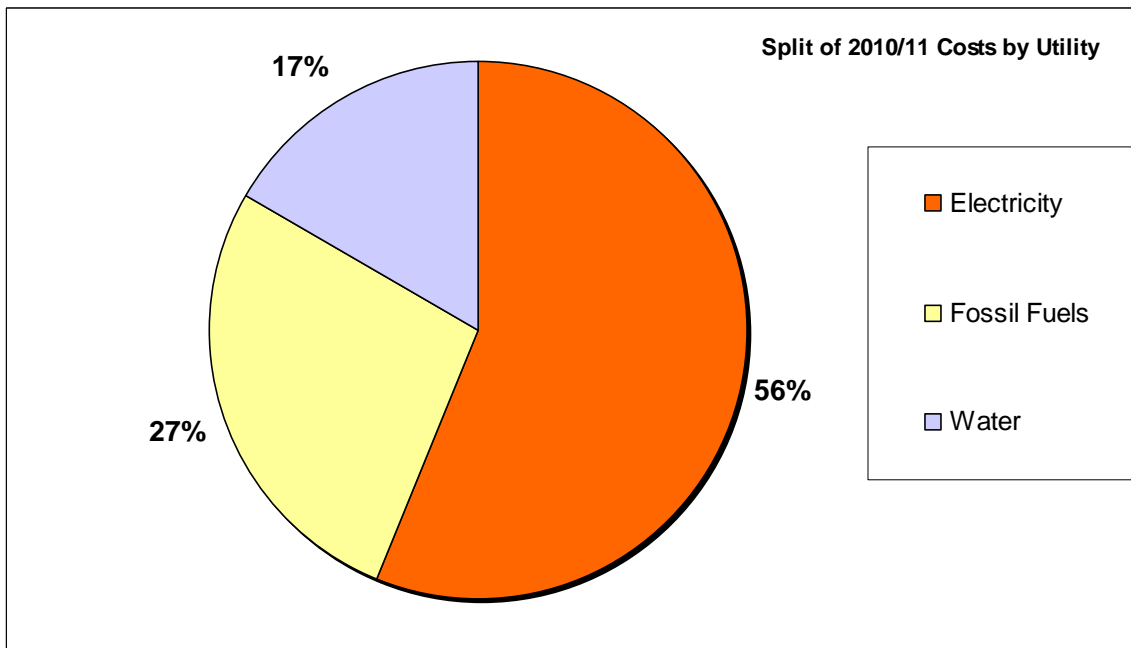


Figure 1.D.3 Chart of energy and water costs split by utility type

1.E - Energy Use Summary

The overall consumption of energy fell by 1.3%, despite floor area increasing by 1.2%, student numbers rising by 3.0% and the weather being 0.4% cooler.

Note that operation of the CHP unit at KMC increased energy consumption by 250MWh over the period concerned, and this is planned to rise to 650MWh across a full year. Whilst operation of the engine increases net energy consumption within our boundaries, there is a monetary saving and CO₂ emissions are reduced as we do not have to import as much electricity.

Energy Consumption	MWh 2008/9	MWh 2009/10	MWh 2010/11	Change '9/10 to '10/11
University Park	114,187	115,790	112,818	-2.6%
Sutton Bonington	26,702	29,428	29,032	-1.3%
Jubilee Campus	12,079	12,874	13,635	5.9%
Others	12,450	12,899	13,374	3.7%
Medical School	32,671	33,037	32,520	-1.6%
Total	198,089	204,028	201,380	-1.3%

Figure 1.E.1 Table of energy usage for the last 3 years split by campus.

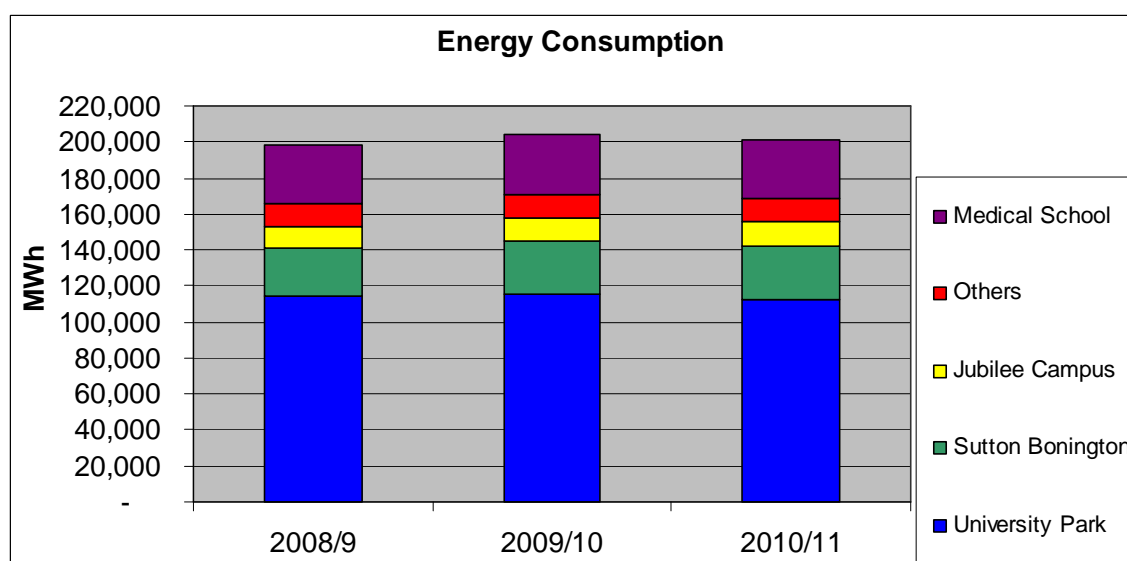


Figure 1.E.2 Graph of energy consumption for the last 3 years split by campus

1.F - Energy Use Breakdown by Campus and Utilities

Energy Consumption 2010/2011	MWh Electricity	MWh Fossil Fuels	MWh Total
University Park	44,487	68,331	112,818
Sutton Bonington	11,516	17,516	29,032
Jubilee Campus	7,153	6,482	13,635
Others	5,514	7,860	13,374
Medical School	9,587	22,933	32,520
Total	78,258	123,122	201,380

Figure 1.F.1 Table of energy consumption split by campus and by utility

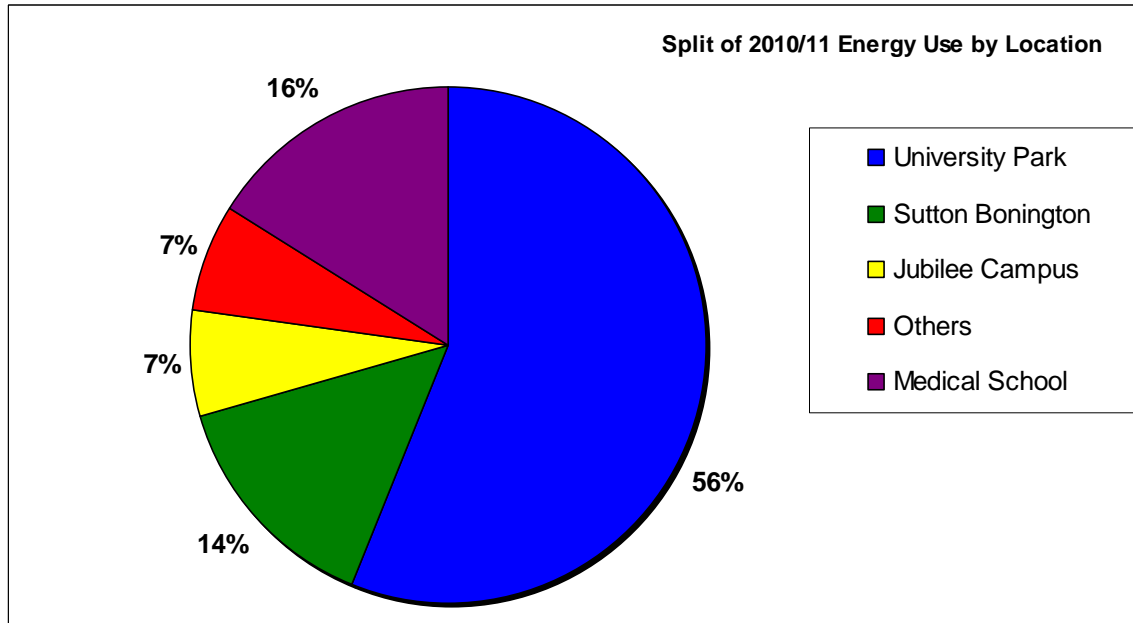


Figure 1.F.2 Pie chart of energy consumption split by campus

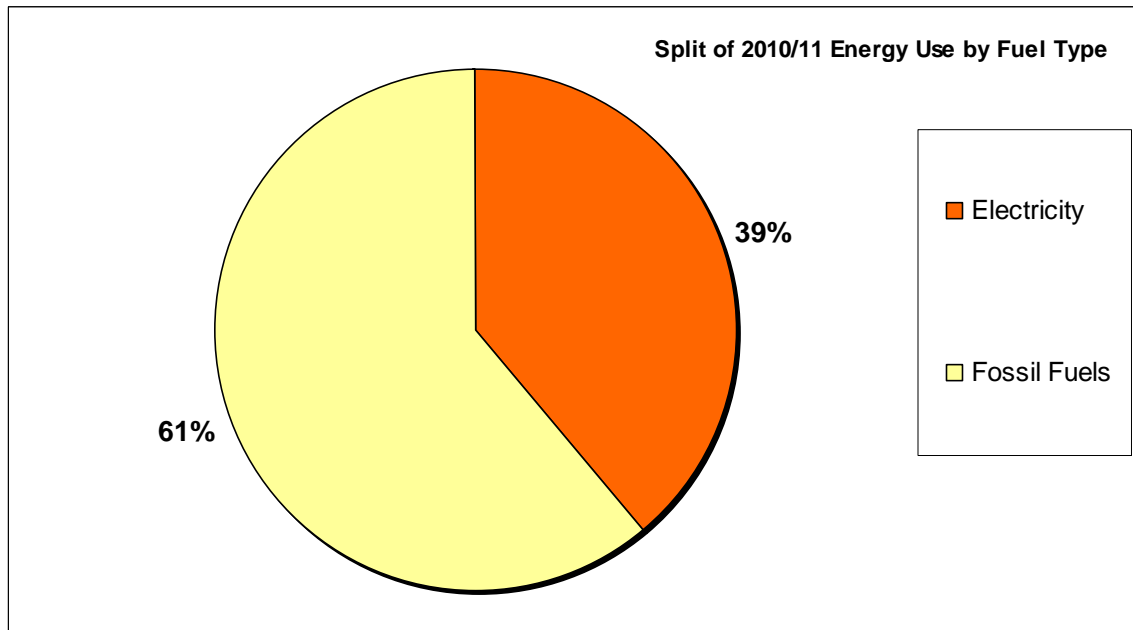


Figure 1.F.3 Pie chart of energy consumption split by utility type.

Note: Our 'fossil fuels' comprise 99.5% gas and 0.5% gasoil

1.G - Energy Usage and Cost Comparison with Gross Premises Area

	2007/8	2008/9	2009/10	2010/11	Change
Floor Area (sq.m.)	542,998	561,189	577,871	584,617	1.2%
Annual Energy Usage (MWh)	199,279	198,089	204,028	201,380	-1.3%
Energy Usage Per sq. m. (kWh/m2)	367	353	353	344	-2.4%

Figure 1.G.1 Table of last four years energy usage and floor area.

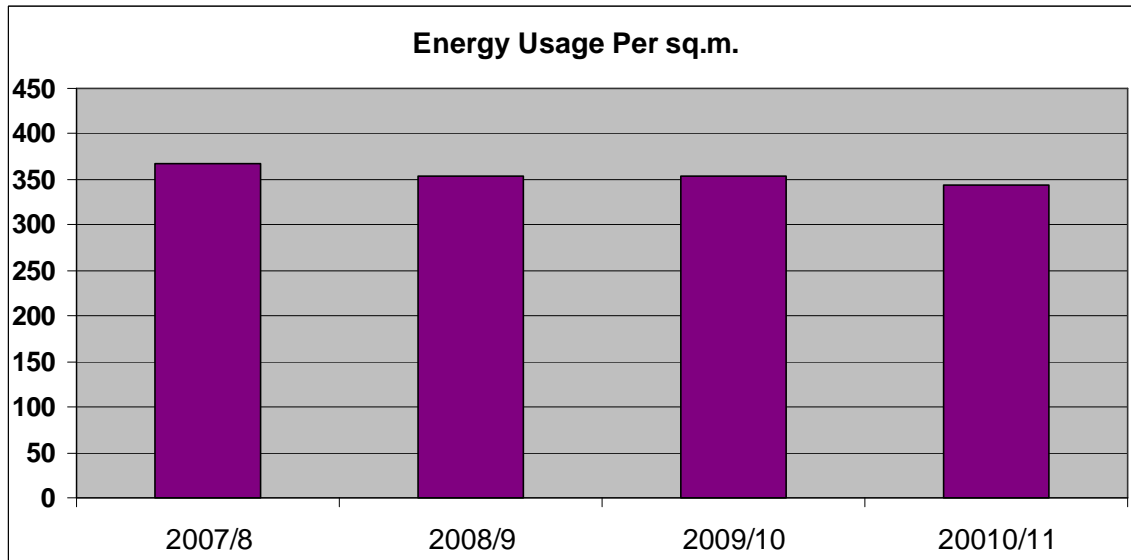


Figure 1.G.2 Graph of last four years energy usage per unit floor area.

The figures above indicate an absolute efficiency improvement of 6.3% over the last three years. If weather data is considered the efficiency improvement over three years is 14.5%.

	2007/8	2008/9	2009/10	2010/11	Change
Floor Area (sq.m.)	542,998	561,189	577,871	584,617	1.2%
Gross Energy and Water Costs	£10,839,000	£11,380,000	£ 9,333,000	£10,627,081	13.9%
Utility Cost Per sq. m.	£ 19.96	£ 20.28	£ 16.15	£ 18.18	12.6%

Figure 1.G.3 Table of last four year gross energy and water costs and floor area (excluding taxes).

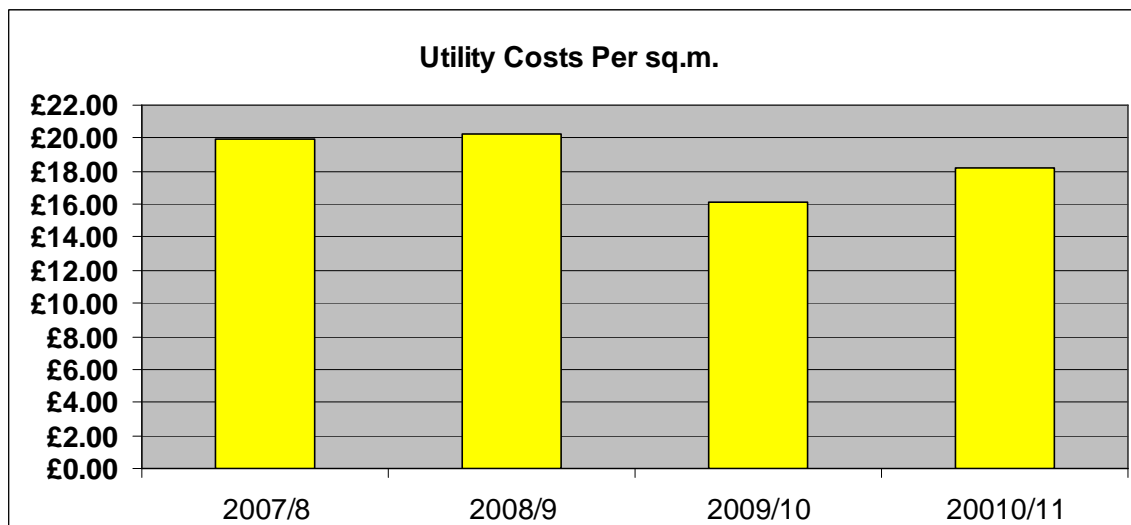


Figure 1.G.4 Graph of last four years energy and water costs normalised by floor area.

1.H - Energy Usage and Cost per FT Student

	2007/8	2008/9	2009/10	2010/11	Change
UK Student Numbers	30,444	30,457	32,044	32,999	3.0%
Annual Energy (MWh)	199,279	198,089	204,028	201,380	-1.3%
Energy / Student (kWh)	6,546	6,504	6,367	6,103	-4.2%

Figure 1.H.1 Table of last four years energy usage and full-time student numbers.

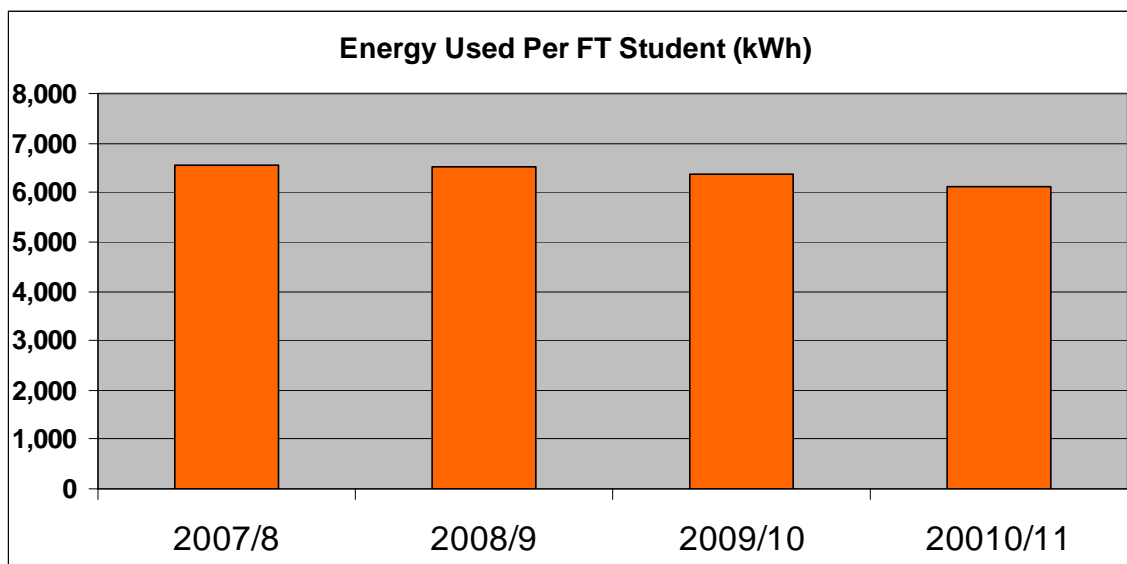


Figure 1.H.2 Graph of last four years energy usage per full-time student.

	2007/8	2008/9	2009/10	2010/11	Change
UK Student Numbers	30,444	30,457	32,044	32,999	3.0%
Energy and Water Costs	£ 10,839,000	£11,380,000	£ 9,333,000	£ 10,627,081	13.9%
Utility Costs / Student	£ 356.03	£ 373.64	£ 291.26	£ 322.04	10.6%

Figure 1.H.3 Table of last four years gross energy and water costs and full-time student numbers.

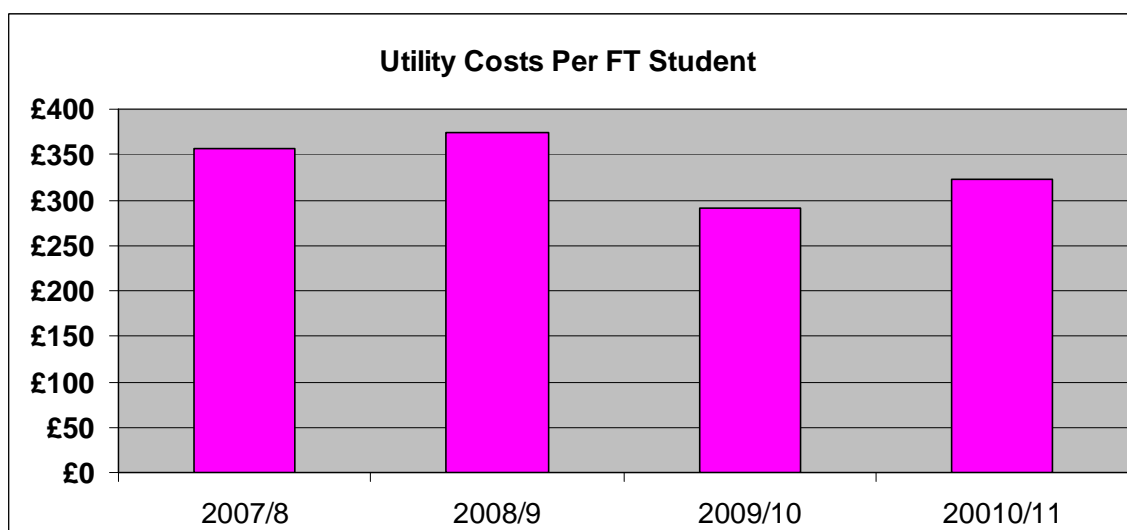


Figure 1.H.4 Graph of last four years gross energy and water costs per full-time student.

Note: The statistics on student numbers exclude students not currently studying in Nottingham.

1.I - Utility Costs as a Proportion of University Turnover

Percentage of Turnover (£ 000)	2007/8	2008/9	2009/10	2010/11	Change
Utility Costs inc. taxes	£ 10,839	£ 11,380	£ 9,333	£ 10,627	13.9%
Total University Turnover	£ 409,354	£ 448,700	£ 474,600	£ 479,000	0.9%
Percentage	2.65%	2.54%	1.97%	2.22%	12.8%

Figure 1.I.1 Table of last four years gross energy and water costs (including taxes) and total University turnover.

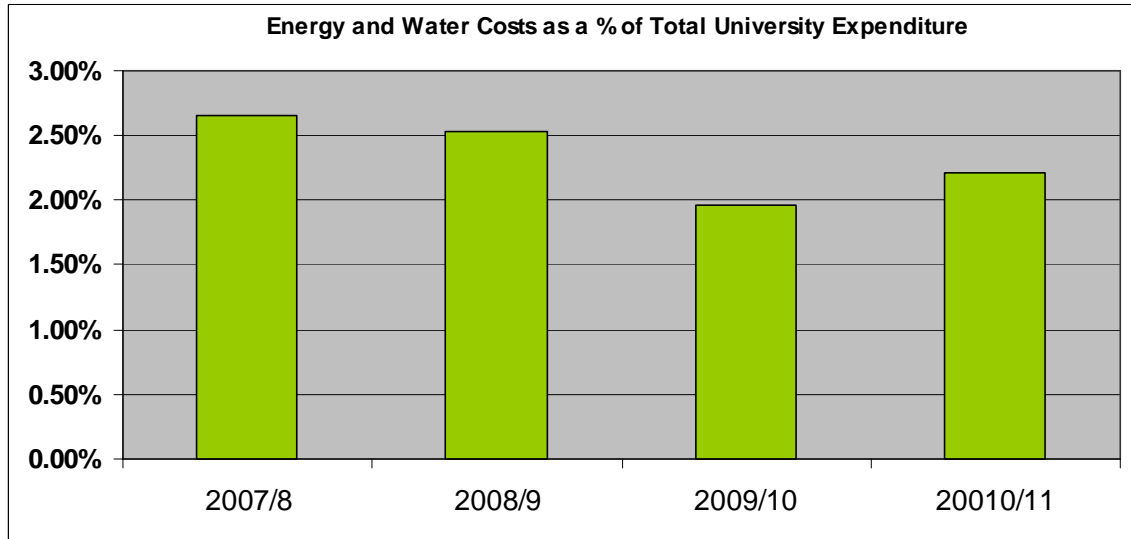


Figure 1.I.2 Graph of last four years gross energy and water costs normalised by total University turnover.

1.J – Typical elements of Gas and Electricity Charges

The following table has been included to show the increasing proportion of energy costs that are due to non-energy elements such as transportation (costs paid to get the energy to site via the National Grid) and energy taxes. Transportation costs have been rising steadily over the last few years to pay for the introduction of renewable electricity generation across the UK.

From next April, CCL will rise to 0.177p/kWh for gas and to 0.509p/kWh for electricity. VAT rose from 17.5% to 20% in January 2011, and the new Carbon Reduction Commitment will effectively add 0.247p/kWh to gas and 0.649p/kWh to electricity when it is introduced in 2012.

Average Energy Prices in pence/kWh		
2010/11 University Park	Gas	Electricity
Energy	1.6200	4.4450
Transportation charges	0.4160	2.1400
CCL	0.1690	0.4850
CRC	0.0000	0.0000
VAT	0.4410	1.4140
Total	2.6460	8.4840

Figure 1.J.1 Table showing composition of gas and electricity prices.

1.K – Energy Costs Comparison to Russell Group Universities – 2009/10

The statistics in the next four tables provide a range of comparators to other major Universities, as reported in the EMS returns for 2009/10. Note that this is the most recent year where data is available for comparison, but is one year behind the most recent information presented elsewhere in this report.

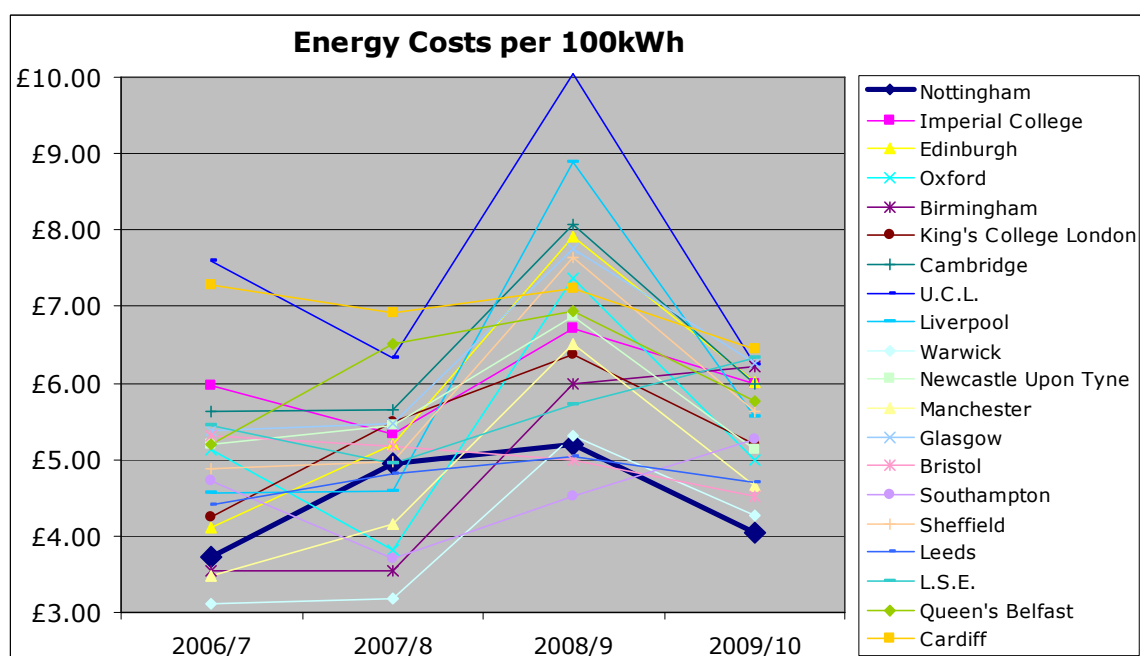


Figure 1.K.1 Graph of Russell Group Energy Costs per 100kWh.

The two graphs on this page indicate that as of last year, the University of Nottingham had the lowest energy prices within the Russell Group, paying an average of 4.04p/kWh, some 25% below the typical rates across the sector of 5.0 to 6.0p/kWh. Energy costs per square metre were also the lowest in the sector.

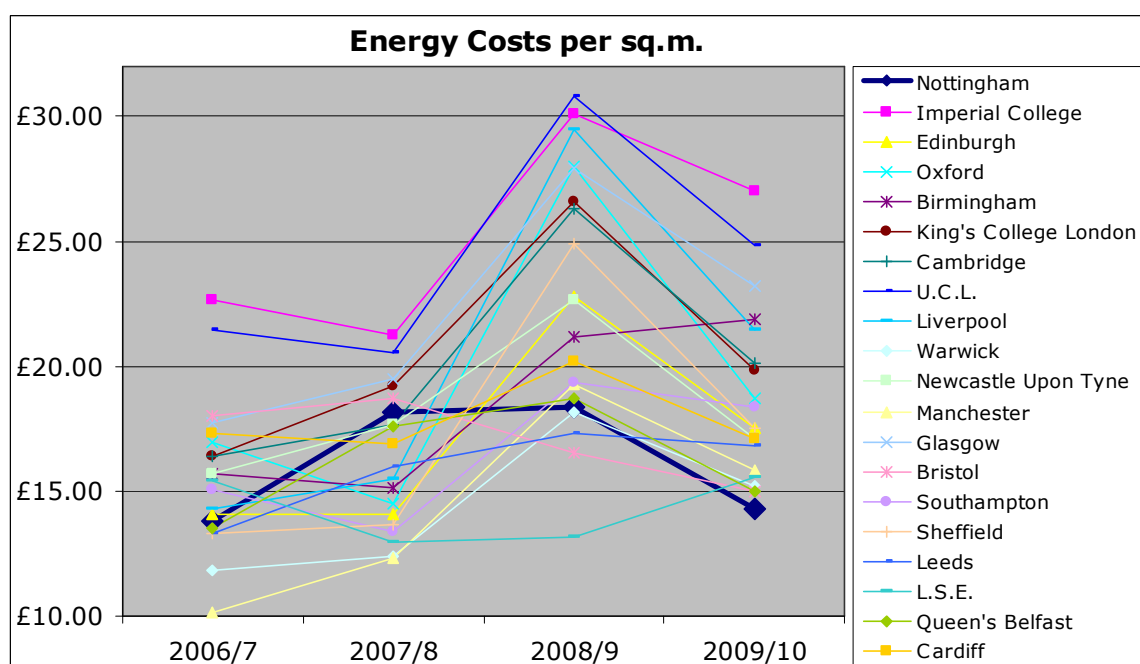


Figure 1.K.2 Graph of Russell Group Energy Costs square metre

1.L – Energy Efficiency Comparison to Russell Group Universities – 2009/10

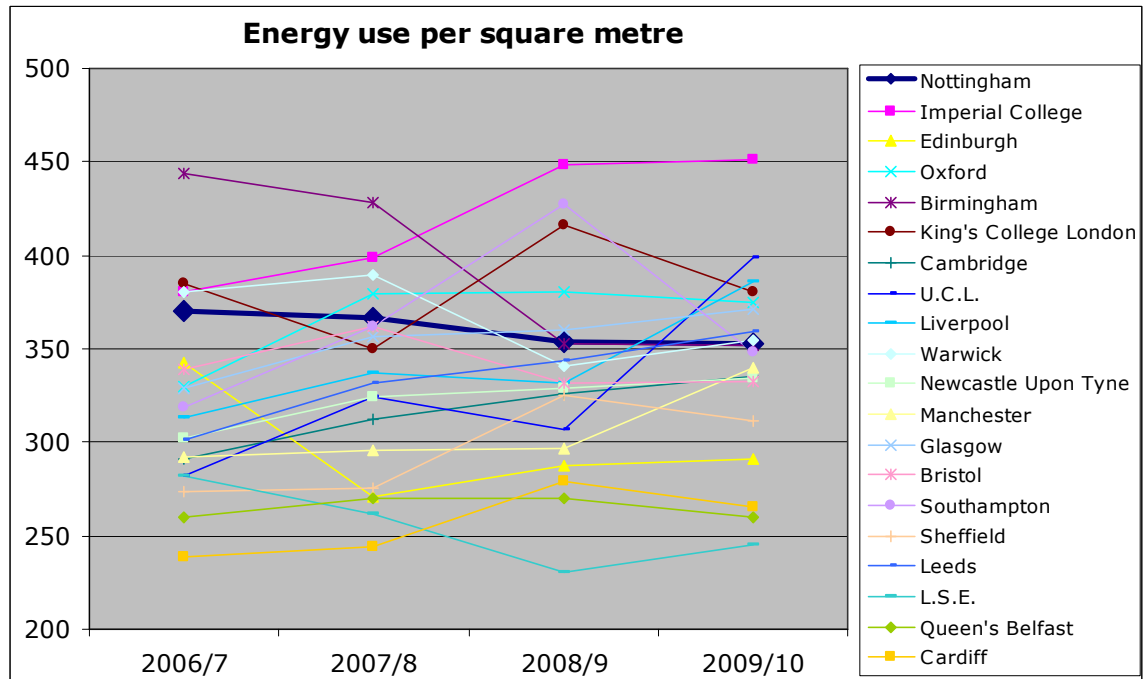


Figure 1.L.1 Graph of Russell Group Energy use per square metre.

The graphs on this page indicate that Nottingham's energy consumption per square metre and energy use per student is still mid-range within the Russell Group.

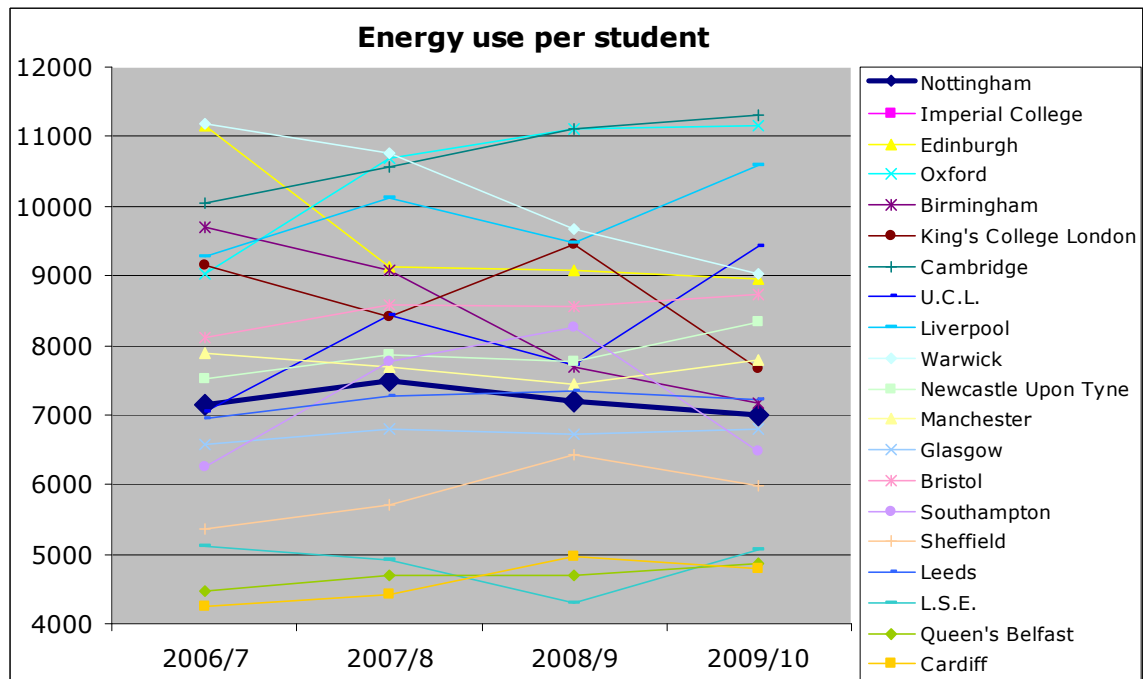


Figure 1.L.1 Graph of Russell Group Energy use per student (note Imperial is off the top of the scale at around 16,000kWh/student).

Section 2 – Electricity, Gas and Water data

2.A - Electricity Consumption

Electricity consumption fell for the first time since 1997/8. This was led by University Park, where consumption was basically flat until Christmas, but then showed significant reductions of 4% or more in each month thereafter, compared to 2009/10.

Consumption was up at Sutton Bonington and Jubilee Campus as the first full year of usage at the new buildings was registered, but a reduction of 12% was seen at King's Meadow Campus where the gas-fired CHP engine was recommissioned (this is part of the 'Others' category). This engine generated 364 MWh of electricity in three months of operation in the Spring of 2011.

Electricity Consumption	MWh 2008/9	MWh 2009/10	MWh 2010/11	Change '9/10 to '10/11
University Park	46,862	45,867	44,487	-3.0%
Sutton Bonington	11,229	11,339	11,516	1.6%
Jubilee Campus	6,447	6,854	7,153	4.4%
Others	5,291	5,709	5,514	-3.4%
Medical School	9,571	9,758	9,587	-1.8%
Total	79,401	79,527	78,258	-1.6%

Figure 2.A.1 Table of electricity usage for the last 3 years split by campus.

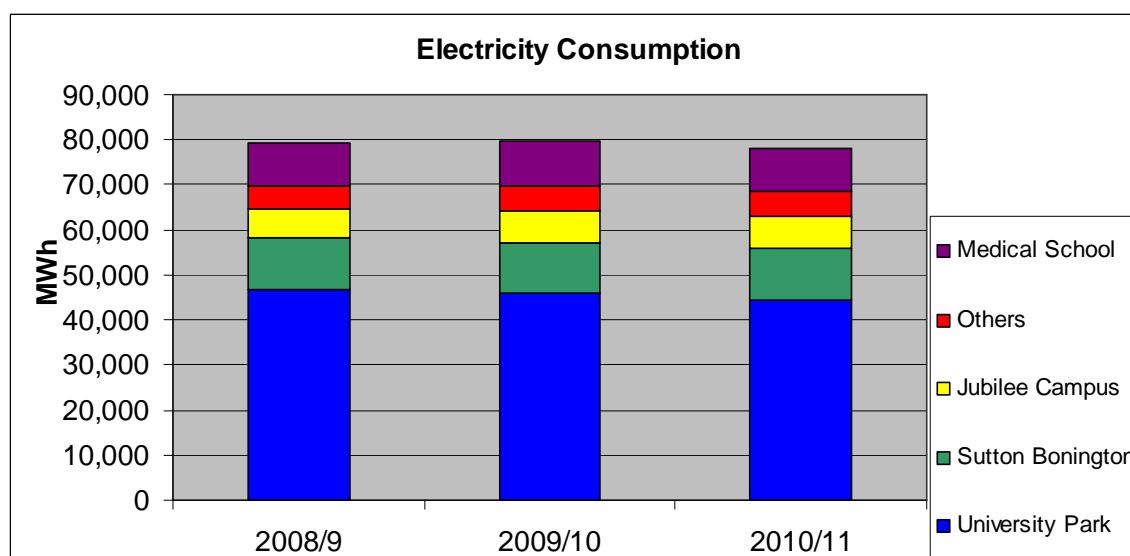


Figure 2.A.2 Graph of electricity usage for the last 3 years split by campus.

See Appendix A for a detailed breakdown of consumption on an account by account basis.

2.B - Electricity Costs

The University continued with the flexible purchasing policy first adopted in October 2005, by renewing our contract with GDF Suez Energy in February 2011. This policy shielded us from the significant rises in electricity that occurred over the year.

During the period, market electricity prices for large annual contracts (baseload energy only) rose sharply from 4.5p/kWh in August 2010 to 6.0p/kWh in April 2011, before settling back to 5.5p/kWh by July. At University Park, the average price paid per kWh across the year rose from 6.16p/kWh in 2009/10 to 6.49p/kWh in 2010/11, a rise of 5.4%.

The University's 'sub-100kW' sites (representing 36 smaller properties, such as sports grounds) was tendered in February 2011, and the contract was won by Southern Electric. All of the sites are priced individually, but unit rates are typically 10.27p/kWh for day units and 6.14p/kWh for night units and 9.36 p/kWh for evening and weekend units.

Electricity Costs	2008/9	2009/10	2010/11	Change '9/10 to '10/11
University Park	£ 3,807,325	£ 2,825,400	£ 2,887,877	2%
Sutton Bonington	£ 944,564	£ 717,196	£ 765,066	7%
Jubilee Campus	£ 519,428	£ 445,349	£ 487,501	9%
Others	£ 464,792	£ 400,160	£ 397,815	-1%
Medical School	£ 659,585	£ 580,000	£ 615,000	6%
Total	£ 6,395,694	£ 4,968,105	£ 5,153,260	4%

Figure 2.B.1 Table of net electricity costs (excluding taxes) for the last 3 years split by campus.

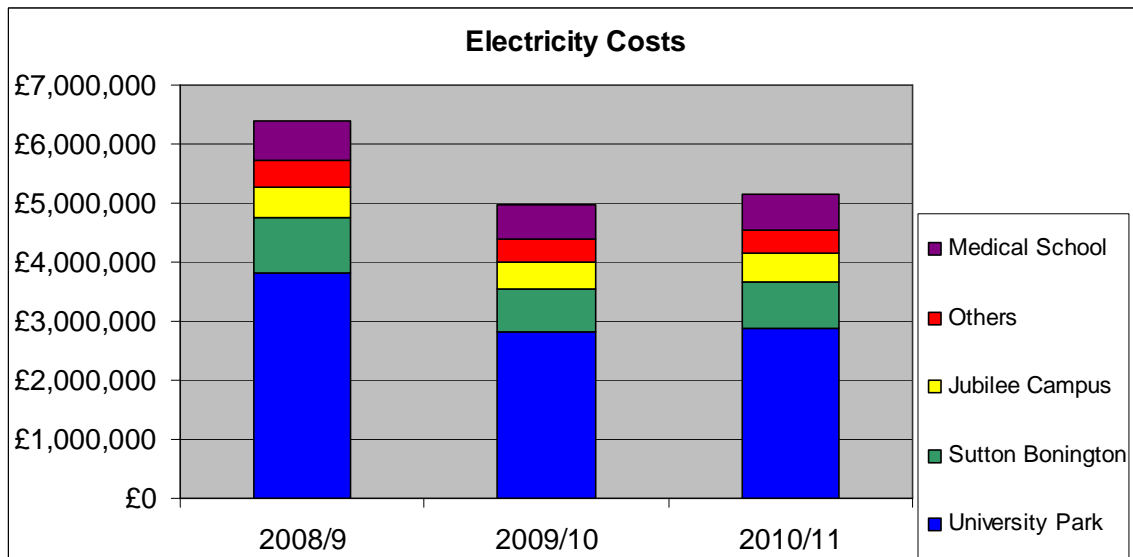


Figure 2.B.2 Graph of net electricity costs for the last 3 years split by campus.

2.C - Fossil Fuel Consumption

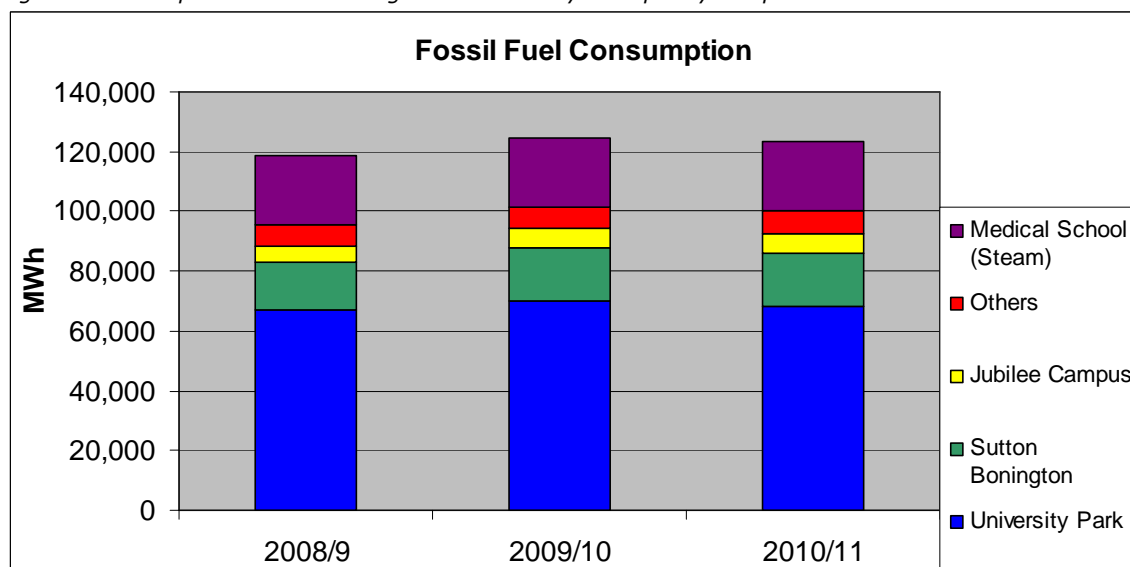
Consumption of fossil fuels fell by 1.1%, which is particularly encouraging when the colder weather would have predicted a rise of 0.4% in a like-for-like situation.

The biggest rise, seen in the 'others' category, is due to increased gas usage at the King's Meadow Campus. This was expected as a result of restarting the site's 300kW CHP unit. This engine burns gas to create electricity plus heat, and although this results in a net increase in energy consumed by the University, there is a saving in CO₂ emissions and monetary terms.

Fossil Fuel Consumption	MWh 2008/9	MWh 2009/10	MWh 2010/11	Change '9/10 to '10/11
University Park	67,324	69,923	68,331	-2.3%
Sutton Bonington	15,473	18,089	17,516	-3.2%
Jubilee Campus	5,632	6,020	6,482	7.7%
Others	7,159	7,190	7,860	9.3%
Medical School (Steam)	23,100	23,279	22,933	-1.5%
Total	118,688	124,501	123,122	-1.1%

Figure 2.C.1 Table of fossil fuel usage for the last 3 years split by campus.

Figure 2.C.2 Graph of fossil fuel usage for the last 3 years split by campus.



See Appendix B for additional information showing a detailed breakdown of consumption on each account.

2.D - Fossil Fuel Costs

The University continued with the flexible purchasing policy first adopted in October 2005, by renewing our contract with GDF Suez Energy in February 2011. This meant that we were able to continue to purchase gas in monthly tranches at opportune times, rather than annually.

During the period, monthly gas prices for large annual contracts (energy only) increased significantly, from 1.55p/kWh in August 2010 to 2.00p/kWh in January 2011 and remaining at about this level to the end of the year, finishing at 1.97p/kWh by July 2010. For the first time in many years there was a disconnect with electricity prices, and electricity did not rise by anything like as much.

Overall, the average price paid across the year rose from 1.52p/kWh to 1.90p/kWh (including transportation charges), an increase of 25%. As seen in previous years, delaying purchases until just before the month in question resulted in savings of around 10% as risk premiums were eroded as the date of delivery approached.

Fossil Fuel Costs				Change
	2008/9	2009/10	2010/11	'9/10 to '10/11
University Park	£ 1,413,980	£ 1,051,195	£ 1,269,972	21%
Sutton Bonington	£ 323,372	£ 276,305	£ 354,493	28%
Jubilee Campus	£ 122,771	£ 97,113	£ 133,947	38%
Others	£ 174,378	£ 134,786	£ 175,178	30%
Medical School (Steam)	£ 702,000	£ 522,000	£ 573,000	10%
Total	£ 2,736,501	£ 2,081,399	£ 2,506,590	20%

Figure 2.D.1 Table of net fossil fuel costs(excluding VAT and CCL) for the last 3 years split by campus.

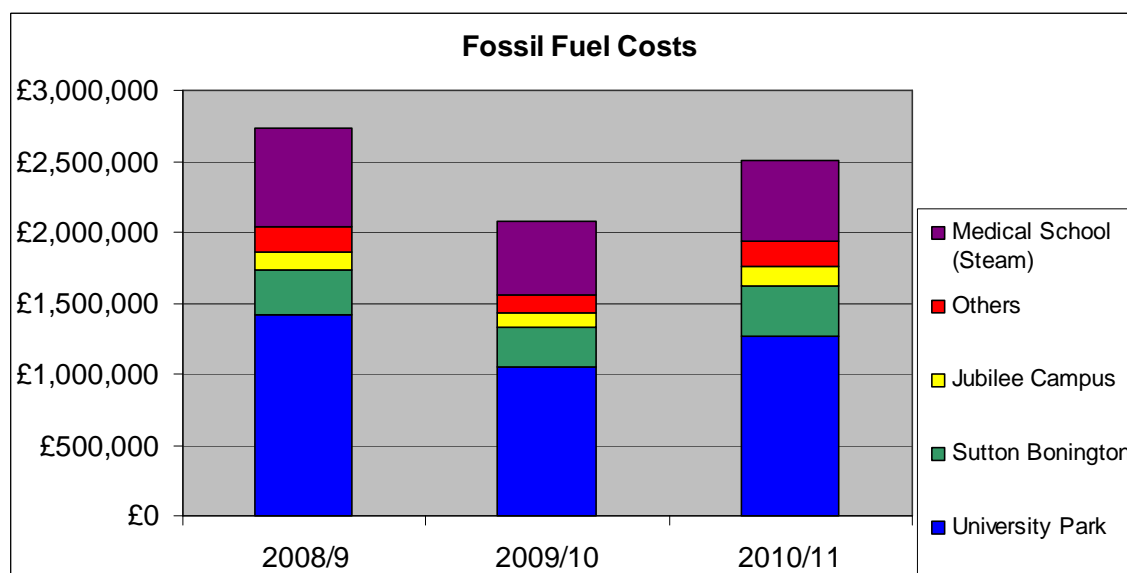


Figure 2.D.2 Graph of net fossil fuel costs for the last 3 years split by campus.

2.E - Water Consumption

Water consumption increased by 6% overall compared to 2009/10. Whilst the figures also show a 13% rise between 2008/9 and 2009/10, this was mostly down to the 2008/9 figure being artificially low due to estimated data. Whilst we have seen a modest upward trend in the last few years, it should be noted that our consumption reached 925,590 cubic metres per annum back in 2004/5. This means that we are still 12% below this peak despite six years of considerable growth.

Water Consumption	cubic m. 2008/9	cubic m. 2009/10	cubic m. 2010/11	Change '9/10 to '10/11
University Park	389,588	489,239	483,105	-1%
Sutton Bonington	141,907	136,755	161,700	18%
Jubilee Campus	93,768	84,248	93,491	11%
Others	12,333	13,190	18,308	39%
Medical School	40,800	43,705	56,088	28%
Total	678,396	767,138	812,692	6%

Figure 2.E.1 Table of water usage for the last 3 years split by campus.

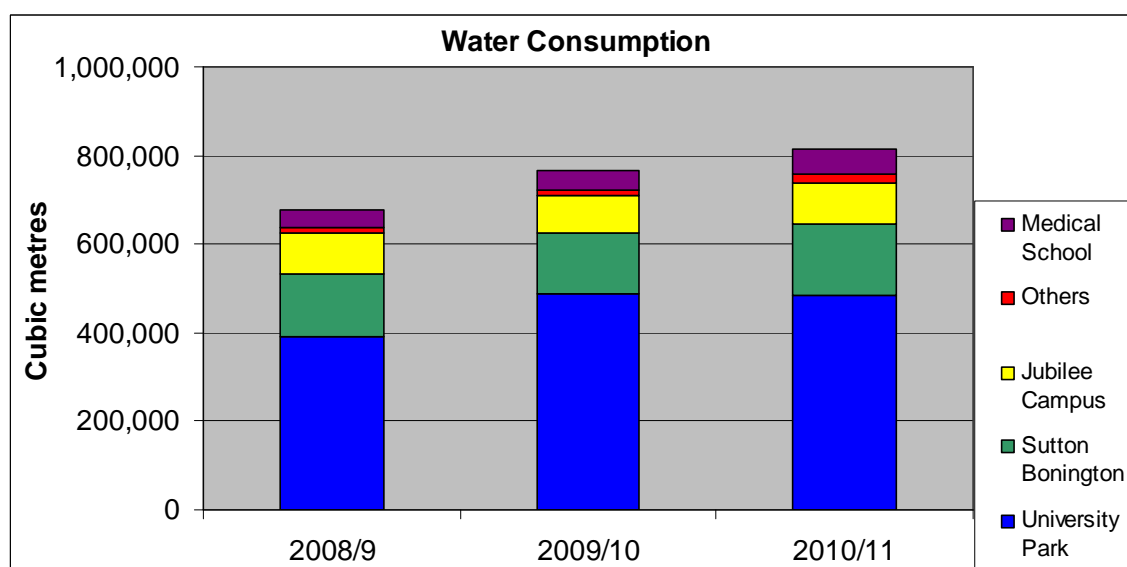


Figure 2.E.2 Graph of water usage for the last 3 years split by campus.

See Appendix C for a detailed breakdown of consumption on an account by account basis.

2.F - Water Costs

Severn Trent Water have continued to increase charges by more than inflation. The price of water supplied increased by 7.0% in April 2011, up from 91.14p/m³ to 97.52 p/m³ in summer for large sites such as University Park. The winter rate for large sites was up by the same percentage, from 48.83p/m³ to 52.25 p/m³. Rates for used water at large sites were up 5.9%, from 83.68p/m³ to 88.6 p/m³. Charges for the surface water drainage element, which is based on site area, were up by 5.8% from £99,536 per annum to £105,259.

Whilst the focus has been primarily on carbon reduction in the last couple of years, it is important that we continue to look for opportunities to reduce water costs as the water bill's share of total utility costs has risen from 13% in 2007/8 to 17% today.

Water Costs	2008/9	2009/10	2010/11	Change '9/10 to '10/11
University Park	£ 578,993	£ 756,455	£ 875,753	16%
Sutton Bonington	£ 203,490	£ 236,468	£ 273,151	16%
Jubilee Campus	£ 169,998	£ 171,413	£ 188,573	10%
Others	£ 48,901	£ 50,911	£ 62,445	23%
Medical School	£ 78,000	£ 84,000	£ 122,000	45%
Total	£ 1,079,381	£ 1,299,246	£ 1,521,923	17%

Figure 2.F.1 Table of water costs for the last 3 years split by campus.

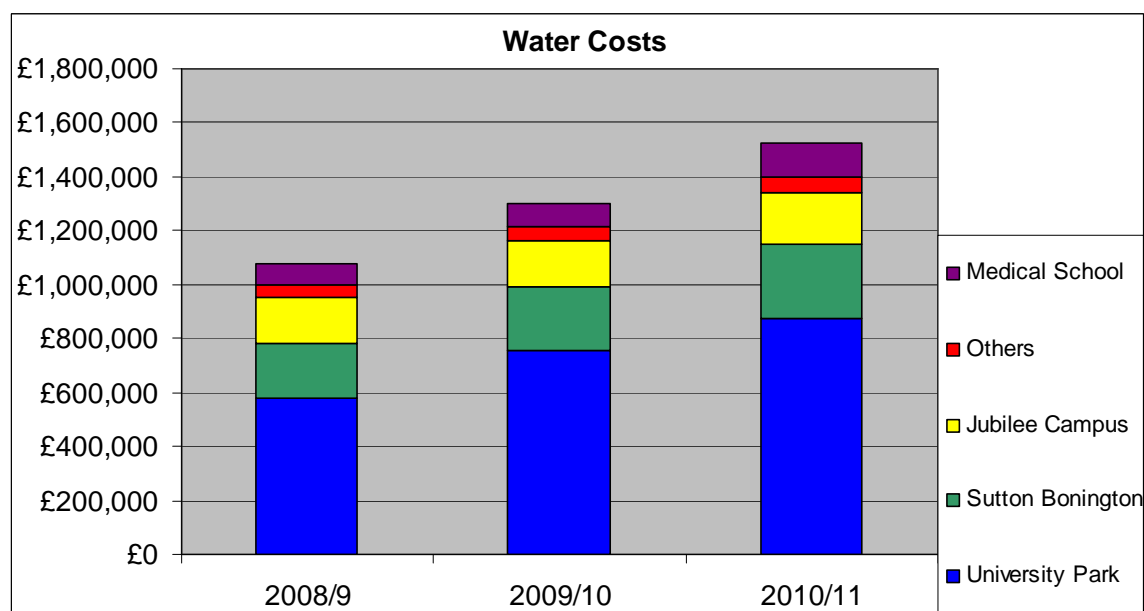


Figure 2.F.2 Graph of water costs for the last 3 years split by campus.

Section 3 – Environmental Considerations

3.A - Carbon Dioxide Emissions

The University's Carbon Management Plan has ambitious targets in place to reduce emissions by 34% by 2020 compared to a 2005/6 baseline. This will necessitate annual reductions in carbon dioxide emissions of around 2,500 Tonnes per annum.

In 2010/11 Carbon dioxide emissions fell by 1.7% (1,172 Tonnes), despite the colder weather, a rise in floor area of 1.2%, and a 3% increase in student numbers.

Note that 'green' electricity was purchased up until 31st August 2010, although no credit is shown in the attached data for this.

In the table and graph below, the Estates Management Statistics (EMS) emission factors have been used as shown:-

CO ₂ Emission Factors	2008/9	2009/10	2010/11
Electricity kg/kWh	0.541	0.542	0.541
Gas kg/kWh	0.204	0.205	0.204

Figure 3.A.1 Table of CO₂ emission factors for the last 3 years.

CO ₂ Emissions	Tonnes 2008/9	Tonnes 2009/10	Tonnes 2010/11	Change '9/10 to '10/11
University Park	39,087	39,194	38,007	-3.0%
Sutton Bonington	9,231	9,854	9,804	-0.5%
Jubilee Campus	4,637	4,949	5,192	4.9%
Others	4,323	4,568	4,586	0.4%
Medical School	9,890	10,061	9,865	-1.9%
Total	67,168	68,626	67,454	-1.7%

Figure 3.A.2 Table of CO₂ emissions for the last 3 years split by campus.

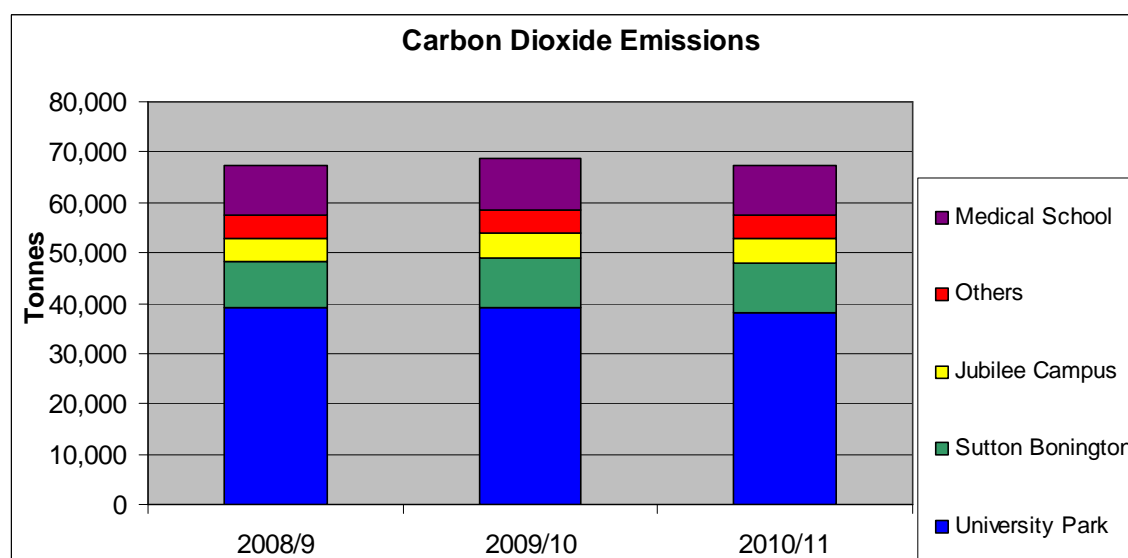


Figure 3.A.3 Graph of CO₂ emissions for the last 3 years split by campus.

3.B - Carbon Dioxide Emissions Breakdown by Campus and Utilities

CO2 Emissions 2010/2011	Tonnes Electricity	Tonnes Fossil Fuels	Tonnes Total	Prop'n Elec	Prop'n Gas
University Park	24,068	13,940	38,007	63%	37%
Sutton Bonington	6,230	3,573	9,804	64%	36%
Jubilee Campus	3,870	1,322	5,192	75%	25%
Others	2,983	1,603	4,586	65%	35%
Medical School	5,187	4,678	9,865	53%	47%
Total	42,338	25,117	67,454	63%	37%

Figure 3.B.1 Table of CO₂ emissions split by campus and by utility

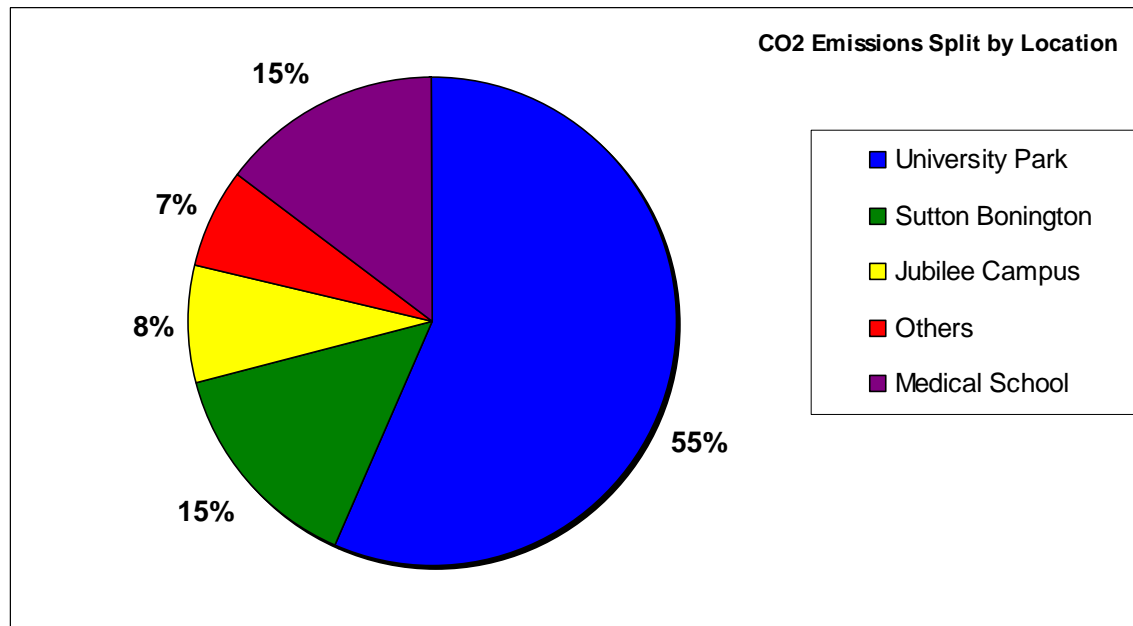


Figure 3.B.2 Chart of CO₂ emissions split by campus

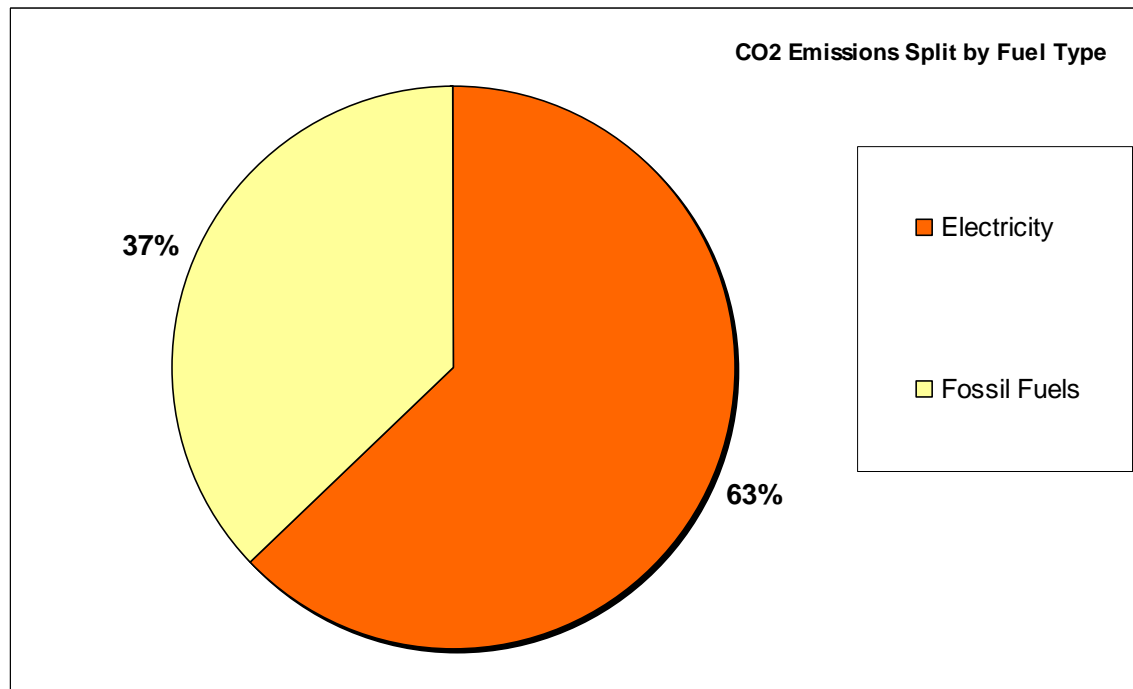


Figure 3.B.3 Chart of CO₂ emissions split by source fuel type

3.C - Weather Data – Degree Days

This year was the third unusually cold year in a row, and was the coldest of the three overall. After a cool Autumn, November, December, and the start of January were bitterly cold. The rest of the year was then unusually mild, but overall the year was slightly colder than 2009/10. For the purposes of this report, 75% of the change in degree days has been used, as production of domestic hot water typically accounts for about 25% of usage.

Degree days are determined by comparing the mean daily temperature to a set temperature, in this case 15.5 Celsius. For instance, a day where the outside temperature averaged 5.0C would be counted as 10.5 degree days. The values are summated over a calendar month and the total provides a reasonably accurate guide as to the relative heating load that should be required.

	Deg. Days 20 Yr Avg	Deg. Days 2008/9	Deg. Days 2009/10	Deg. Days 2010/11	'9/10 to '10/11 Change
Aug	34	20	23	46	100.0%
Sep	74	68	62	79	27.4%
Oct	159	186	126	168	33.3%
Nov	266	264	211	320	51.7%
Dec	339	370	387	499	28.9%
Jan	353	383	441	374	-15.2%
Feb	304	327	362	251	-30.7%
Mar	279	272	296	271	-8.4%
Apr	212	165	198	126	-36.4%
May	134	114	161	110	-31.7%
Jun	70	65	54	70	29.6%
Jul	34	29	21	42	100.0%
Total	2,258	2,263	2,342	2,356	0.6%
				Weather modifier (75%)	0.4%

Figure 3.C.1 Table showing last three years monthly degree days and average degree days.

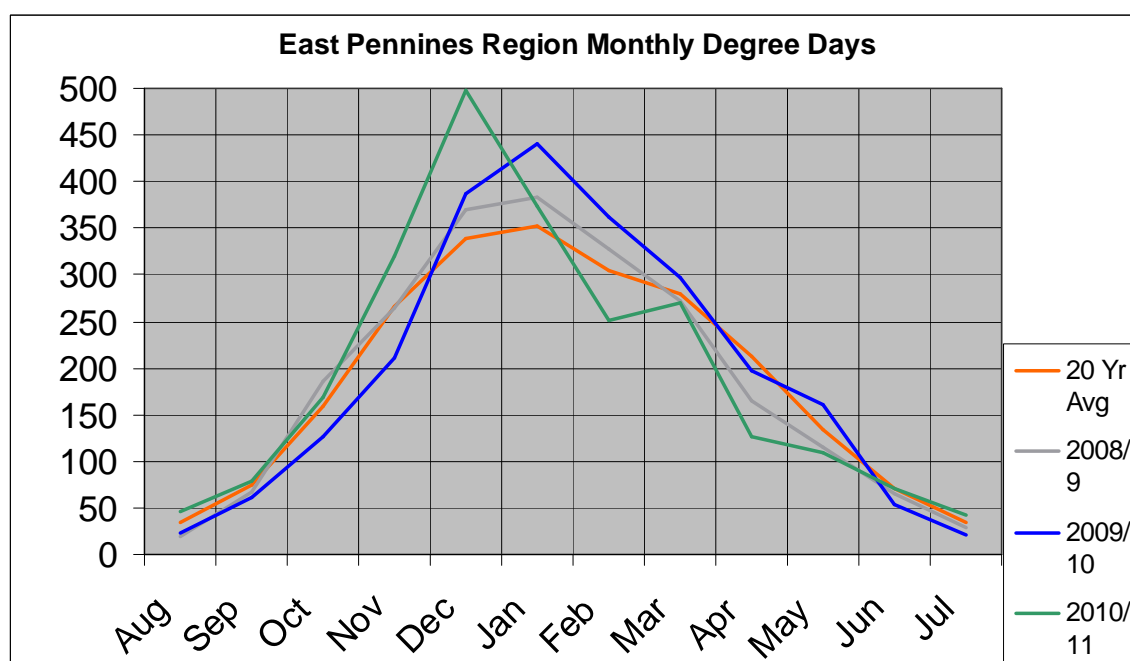


Figure 3.C.2 Graph showing last three years monthly degree days and average degree days

Section 4 – Appendices

4.A - Appendix A – Electricity Data

Electricity Invoices		2010/11		2009/10	% change	2010/11	2009/10	% change	
Main Campus		kWh		kWh	kWh	£	£	£	
University Park	1000	44,447,070	45,828,227		-3%	£2,884,122	£2,821,763	2%	
Lenton Lodge	2251	22,900	22,800		0%	£1,900	£1,900	0%	Jul'11 Est'd
Lenton Eaves Cottage no.2	1461	15,000	13,000		15%	£1,400	£1,200	17%	Jul'11 Est'd
Redcourt Lodge	2222	1,400	2,317		-40%	£220	£287	-23%	Jul'11 Est'd
Lenton Eaves Cottage no.1	1461	1,000	1,100		-9%	£235	£250	-6%	Jul'11 Est'd
Total of 5 accounts	Totals	44,487,370	45,867,444		-3%	£2,887,877	£2,825,400	2%	
Electricity Invoices		2010/11		2009/10	% change	2010/11	2009/10	% change	
Sutton Bonington		kWh		kWh	kWh	£	£	£	
Sutton Bonington Campus	6800	10,872,988	10,595,531		3%	£710,347	£656,157	8%	
New Dairy	6500	490,000	588,955		-17%	£38,500	£44,862	-14%	Jul'11 Est'd
Melton Lane Building A	5433	30,910	22,512		37%	£2,558	£1,875	36%	
Eviton House (68 College Road	5891	26,414	24,121		10%	£2,169	£1,950	11%	Jul'11 Est'd
Manor Farm NU Press 2	6910	17,325	17,342		0%	£1,521	£1,520	0%	
St.Michael's House (Flats 1-5)	6841	12,744	23,052		-45%	£1,696	£2,522	-33%	
St.Michael's Flats Nos 8&9	##	11,790	7,912		49%	£1,782	£1,378	29%	
Bunny Park Farm	6860	10,730	10,532		2%	£1,016	£1,014	0%	
Manor Farm NU Press 1	6910	10,499	10,106		4%	£1,026	£955	7%	
St.Michael's Close (Flats 10-15	6840	5,828	5,512		6%	£650	£553	17%	
40 College Road	6811	5,585	4,049		38%	£544	£430	27%	Jul'11 Est'd
New Dairy Herdsman's House	6500	5,500	5,771		-5%	£550	£577	-5%	May - Jul'11 Est'd
24 College Road	6805	5,200	6,083		-15%	£540	£566	-5%	Jul'11 Est'd
44 College Road	6814	4,876	2,501		95%	£506	£309	64%	Jul'11 Est'd
50 College Road	6819	3,079	2,505		23%	£346	£309	12%	Jul'11 Est'd
St.Michael's Flats Nos 6&7	6842	2,700	8,592		-69%	£900	£1,443	-38%	Jun - Jul'11 Est'd
45 College Road	6815	100	3,423		-97%	£120	£412	-71%	Jul'11 Est'd
Manor Farm Soar Irrigation Pur	6910	0	28		-100%	£152	£170	-11%	
Manor Farm Pump House Kings	##	0	132		-100%	£144	£194	-26%	
Total of 19 accounts	Totals	11,516,267	11,338,658		2%	£765,066	£717,196	7%	
Electricity Invoices		2010/11		2009/10	% change	2010/11	2009/10	% change	
Jubilee Campus		kWh		kWh	kWh	£	£	£	
Jubilee Campus Main Supply	7000	5,993,242	5,896,178		2%	£396,850	£380,632	4%	
Newark & Southwell Halls	7000	728,019	738,718		-1%	£51,199	£45,953	11%	
Jubilee Sports Centre	7301	223,411	213,102		5%	£18,380	£17,739	4%	
6 Triumph Rd (Dairy Crest Site)		146,860	0		-	£12,734	£0	-	All estd by supplier
9 Triumph Road (Dairy Crest Site)		57,913	0		-	£7,826	£0	-	
Charnock Ave Lighting	7201	3,890	5,818		-33%	£512	£1,025	-50%	Jul'11 Est'd
Total of 6 accounts	Totals	7,153,334	6,853,817		4%	£487,501	£445,349	9%	
Electricity Invoices		2010/11		2009/10	% change	2010/11	2009/10	% change	
Others		kWh		kWh	kWh	£	£	£	
King's Meadow Campus	6901	2,973,913	3,363,571		-12%	£194,262	£216,996	-10%	CHP now in operation
Derby Medical School	3561	1,072,343	894,795		20%	£72,832	£61,064	19%	
Clinical Sci. (City Hospital)	3325	1,070,000	1,050,000		2%	£97,000	£90,000	8%	No bills recvd
Boat House	6321	101,941	102,140		0%	£8,000	£7,650	5%	All estd by supplier
Clinical Sci. (City Hospital) Ph2	3325	77,201	0		-	£7,000	£0	-	No bills recvd
Grove Farm - Old Farmhouse	6121	64,879	60,512		7%	£4,881	£4,600	6%	All estd by supplier
Sports Ground - Highfields	6311	59,159	48,753		21%	£5,246	£4,479	17%	
Grove Farm	6123	45,836	46,107		-1%	£3,787	£3,535	7%	All estd by supplier
14-22 Shakespeare Street	6101	29,297	59,201		-51%	£2,995	£5,304	-44%	
Grove Farm - Changing Rooms	6122	11,075	69,041		-84%	£950	£5,202	-82%	
8 Peachey Street	6102	8,300	14,731		-44%	£860	£1,329	-35%	Jul'11 Est'd
Total of 15 accounts		5,513,945	5,708,851		-3%	£397,815	£400,160	-1%	
Electricity Invoices		2010/11		2009/10	% change	2010/11	2009/10	% change	
Medical School		kWh		kWh	kWh	£	£	£	
Medical School		7,487,081	7,657,853		-2%	£480,000	£450,000	7%	Estd
Embedded units (Q.M.C.)		2,100,000	2,100,000		0%	£135,000	£130,000	4%	Estd
	Totals	9,587,081	9,757,853		-2%	£615,000	£580,000	6%	

4.B - Appendix B – Fossil Fuel Data

Gas Invoices		2010/11	2009/10	% change	2010/11	2009/10	% change	
Main Campus		kWh	kWh	kWh	£	£	£	
Main Campus Invoices	1000	30,734,821	32,026,344	-4%	£526,340	£449,446	17%	
Rutland Hall & Sherwood Hall	2191	2,905,380	3,166,894	-8%	£54,335	£50,276	8%	
Hugh Stewart Hall	2181	2,608,716	2,839,796	-8%	£57,165	£44,776	28%	Transportation Charges
Derby Hall	2121	2,198,294	2,108,221	4%	£56,846	£33,460	70%	Transportation Charges
Cripps Hall	2171	2,163,776	2,400,996	-10%	£40,585	£38,169	6%	
Bio-Molecular Sciences Ph.1	1353	2,133,561	1,916,780	11%	£42,869	£30,233	42%	Transportation Charges
Bio-Molecular Sciences Ph.2	1353	1,809,836	1,860,638	-3%	£35,290	£34,332	3%	
Lenton & Wortley Hall	2141	1,713,374	1,700,022	1%	£32,107	£26,597	21%	
Willoughby Hall	2211	1,690,855	1,567,992	8%	£31,963	£24,075	33%	
Lincoln Hall	2150	1,616,037	1,457,976	11%	£30,423	£22,355	36%	
Swimming Pool	1571	1,589,582	1,630,450	-3%	£29,473	£24,586	20%	
Nightingale Hall	2161	1,523,900	1,542,162	-1%	£28,534	£23,608	21%	
Florence Boot Hall	2131	1,284,581	1,281,097	0%	£24,078	£19,768	22%	
Jesse Boot Conference Centre	1481	1,191,590	1,048,548	14%	£22,636	£16,409	38%	
Science Area, MRI, etc	1271	1,179,800	1,106,113	7%	£22,166	£17,415	27%	
Boots Science Building	1581	1,148,752	1,094,179	5%	£23,718	£16,632	43%	Transportation Charges
Cavendish Hall	2111	1,042,877	1,036,773	1%	£19,491	£16,436	19%	
Ancaster Hall	2101	999,778	1,249,634	-20%	£18,867	£19,959	-5%	
Institute of Hearing Research	1401	785,965	755,550	4%	£14,737	£11,199	32%	
Trent, Law & SS Extn etc	1101	769,171	679,575	13%	£15,162	£11,040	37%	
Arts Centre & School of Music	1501	578,476	535,932	8%	£10,952	£8,161	34%	
D.H.Lawrence Lakeside Pavillion	1631	572,663	423,170	35%	£11,270	£6,543	72%	
Staff Club Lenton Mount, Hems	1181	517,370	523,207	-1%	£9,782	£8,186	19%	
Wolfson Building	1421	488,361	597,406	-18%	£9,302	£9,139	2%	
Lenton Firs - Built Environment	1431	485,531	513,309	-5%	£9,201	£8,370	10%	
Sports Centre, Main Campus	1221	461,925	561,813	-18%	£8,844	£9,071	-3%	
Innovative Technology Research	1641	357,261	266,482	34%	£8,852	£6,380	39%	
Lenton Hurst	2411	339,121	309,842	9%	£6,571	£4,928	33%	
Redcourt	2221	252,499	231,775	9%	£4,819	£3,642	32%	
Portland Building new extn.	1111	233,677	266,232	-12%	£4,436	£4,269	4%	
Cripps Health Centre	1231	233,615	234,524	0%	£4,447	£3,753	19%	
Lenton Grove (History)	1211	179,881	176,805	2%	£3,534	£2,770	28%	
Cripps Hall Kitchen	2171	166,864	189,842	-12%	£3,108	£2,881	8%	
Environmental Education Centre	1439	150,723	181,699	-17%	£2,732	£2,994	-9%	
Fitness Centre	1221	144,174	111,212	30%	£3,102	£1,948	59%	
Sherwood Hall Kitchen	2200	143,049	148,664	-4%	£2,685	£2,253	19%	
Lenton Eaves (UNSSC)	1461	137,319	128,871	7%	£3,264	£2,647	23%	
Paton House (Built Env.)	1441	135,914	168,438	-19%	£2,618	£2,685	-2%	
MMMEM (Production Engineering)	1371	131,068	216,065	-39%	£2,501	£3,667	-32%	
Rutland Hall Kitchen	2191	108,455	126,935	-15%	£2,047	£1,895	8%	
Lincoln Hall Kitchen	2150	100,757	107,256	-6%	£1,931	£1,693	14%	
Sustainable Research Building	1436	99,716	89,518	11%	£2,159	£1,556	39%	
Rutland Hall Extension HWS	2195	96,480	115,298	-16%	£1,820	£1,750	4%	
Cavendish Hall Extension 1994	2115	94,715	104,574	-9%	£1,789	£1,620	10%	
Lenton Close Annexe (Cripps H)	2175	92,638	111,732	-17%	£1,798	£1,692	6%	
Orchards	1161	90,464	97,902	-8%	£1,744	£1,562	12%	
Lenton Fields (China House)	2163	83,903	99,993	-16%	£2,899	£1,889	53%	
Playgroup	1411	83,707	80,933	3%	£1,613	£1,248	29%	
Cavendish Hall Kitchen	2111	74,034	86,811	-15%	£1,385	£1,324	5%	
Lenton & Wortley Hall Kitchen	2141	67,320	88,101	-24%	£1,260	£1,261	0%	
Portland Building Kitchens	1111	66,964	90,618	-26%	£1,296	£1,370	-5%	
Former Warden's House, Caver	2113	61,402	58,520	5%	£1,171	£910	29%	
Lenton Lodge	2251	52,613	45,791	15%	£1,012	£736	38%	
Warden's House Sherwood Ha	2207	50,198	63,807	-21%	£963	£986	-2%	
J.Boot C.C. Annexe (Cottage)	1482	45,402	43,795	4%	£889	£699	27%	
Warden's House Rutland Hall	2194	39,081	42,520	-8%	£744	£687	8%	
Paton Cottage	8144	38,304	27,133	41%	£736	£407	81%	
Lenton Firs Lodge West	2241	37,065	14,370	158%	£708	£231	207%	
Warden's House Florence Boot	2133	34,611	32,344	7%	£658	£481	37%	
Warden's House Ancaster Hall	2105	31,348	39,171	-20%	£588	£619	-5%	
1 Nightingale Close (Nigh.Hall)	2321	27,871	32,563	-14%	£540	£482	12%	
5A Wortley Hall Close (Eco-Hou)	2296	27,753	25,516	9%	£606	£412	47%	
New Eco-houses		10,891	24,483	-56%	£429	£338	27%	
Energy Learning Unit (old Squa	1223	8,924	10,977	-19%	£257	£186	38%	
Sherwood Hall Laundry	2200	6,164	6,871	-10%	£126	£106	18%	
Total of 65 accounts	Totals	68,330,916	69,922,559	-2%	£1,269,972	£1,051,195	21%	

4.B - Appendix B – Fossil Fuel Data continued

Gas Invoices		2010/11	2009/10	% change	2010/11	2009/10	% change	
Sutton Bonington		kWh	kWh	kWh	£	£	£	
Main Boilerhouse	6800	9,065,848	9,864,017	-8%	£182,732	£147,211	24%	
Animal Houses Boilerhouse	6800	2,908,579	2,826,779	3%	£54,765	£43,394	26%	
Plant Sciences	5711	2,149,938	2,373,166	-9%	£44,441	£37,789	18%	
Veterinary School	5721	1,863,392	1,913,599	-3%	£38,161	£30,492	25%	
Sports Hall SB (New)	5951	290,365	318,385	-9%	£6,051	£5,004	21%	
The Firs (Surgery No.2)	5233	237,153	0	-	£4,423	£0	-	
The Elms (Environmental Science)	5161	181,053	175,616	3%	£3,695	£2,724	36%	
Eviton House	###	121,000	120,000	1%	£2,000	£1,850	8%	
Bio-Energy and Brewing Science	5781	120,353	0	-	£5,271	£0	-	Part year, new building
Food Hall	5081	89,975	62,038	45%	£1,713	£927	85%	
Main Building (Sutton Bonington)	5011	89,465	92,058	-3%	£1,705	£1,403	22%	
Gateway Building (Bio-Sciences)	5771	62,200	0	-	£2,015	£0	-	Part year, new building
St.Michael's Flats Nos 6&7	6842	59,804	76,896	-22%	£1,556	£1,318	18%	
Food Sciences Building	5701	53,149	62,805	-15%	£990	£928	7%	
Bonington Hall Laundry & Gym	5881	33,315	36,111	-8%	£630	£541	16%	
St.Michael's House (Flats 1-5)	6841	31,121	23,757	31%	£557	£379	47%	
Bonington Hall Warden's House	5842	27,026	29,254	-8%	£521	£471	11%	
24 College Road	6805	24,627	27,616	-11%	£466	£455	2%	
52 College Road	6820	24,218	28,107	-14%	£464	£440	5%	
St.Michael's House Flat 1	6841	22,765	13,128	73%	£417	£218	92%	
Bio-Energy Biomass	5781	18,700	0	0%	£865	£0	0%	Part year, new building
St.Michael's House Flat 5	6841	12,533	26,801	-53%	£315	£425	-26%	
St.Michael's House Flat 3	6841	11,253	16,636	-32%	£243	£266	-9%	
St.Michael's Flats Nos 8&9	6843	10,723	-3,919	-374%	£340	£27	-1348%	
St.Michael's House Flat 4	6841	6,823	6,198	10%	£130	£99	31%	
North Laboratory	5091	698	792	-12%	£14	£12	18%	
South Laboratory	5051	32	63	-50%	£1	£1	-35%	
Old Sports Hall SB(VLA)	5221	0	0	-	£11	£0	-	
Hathern House, Bon. Hall (4)	5831	0	0	-	£0	£0	-	
Portakabins (T.C.R. unit)	5301	0	-546	-100%	£0	£13	-100%	
Total of 29 accounts	Totals	17,516,108	18,089,356	-3%	£354,493	£276,305	28%	
Gas Invoices		2010/11	2009/10	% change	2010/11	2009/10	% change	
Jubilee Campus		kWh	kWh	kWh	£	£	£	
Newark Hall	7130	1,222,549	1,236,348	-1%	£28,983	£19,848	46%	Transportation Charges
Computer Sciences (DCS) & Th	7040	760,442	804,805	-6%	£14,402	£12,805	12%	
Melton Hall	7110	647,648	600,889	8%	£12,260	£9,553	28%	
Business School North (SMF)	7020	632,462	447,546	41%	£13,781	£6,970	98%	Transportation Charges
Southwell Hall	7120	600,820	611,579	-2%	£11,429	£9,690	18%	
The Exchange (CTF)	7030	588,894	588,034	0%	£11,230	£9,532	18%	
Business School South (New)	7080	535,698	456,170	17%	£10,195	£7,431	37%	
Gearing Building (FOE)	7050	513,459	508,882	1%	£9,572	£8,070	19%	
Jubilee Sports Centre	7301	369,861	334,749	10%	£7,713	£5,238	47%	
Catering (CCF) HWS	7040	368,834	138,295	167%	£7,130	£2,063	246%	
Geospatial Gas	7350	168,971	250,000	-32%	£4,200	£4,000	5%	
6 Triumph Road		49,700	0	-	£2,152	£0	-	
Geospatial Biomass	###	22,461	43,018	-48%	£900	£1,913	-53%	
Total of 13 items		6,481,798	6,020,317	8%	£133,947	£97,113	38%	
Gas Invoices		2010/11	2009/10	% change	1296.36	1370.04	% change	
Others		kWh	kWh	kWh	1170.9	910.12	£	
King's Meadow Campus	6901	4,253,498	3,303,407	29%	£85,116	£52,812	61%	CHP in operation
Derby Medical School	3561	1,721,917	1,201,489	43%	£34,515	£18,872	83%	
Clinical Sciences (City Hospital)	3325	1,100,000	1,750,000	-37%	£30,000	£40,000	-25%	Estd
Grove Farm OIL		210,000	247,414	-15%	£11,000	£10,870	1%	Estd
Clinical Sciences (City Hospital)	3325	141,369	0	-	£4,000	£0	-	
Sports Ground - Highfields	6311	137,496	190,344	-28%	£2,889	£3,066	-6%	
14-22 Shakespeare Street	6101	137,000	269,676	-49%	£2,968	£4,344	-32%	
8 Peachey Street	6102	123,068	146,676	-16%	£2,694	£2,315	16%	
Boathouse OIL		50,000	50,000	0%	£2,200	£2,000	10%	Estd
Tea Room Sports Ground - Highfield	6311	-14,599	31,022	-147%	£203	£507	-140%	
Total of 9 accounts		7,859,750	7,190,028	9%	£175,178	£134,786	30%	
					256.9	186.45		
Steam Used		2010/11	2009/10	% change	125.82	106.41	% change	
Medical School		kWh	kWh	kWh	£	£	£	
Medical School	3101	18,933,000	19,239,000	-2%	£450,000	£410,000	10%	Estd from Uni meters
Embedded Units (Q.M.C.)	3101	4,000,000	4,040,000	-1%	£123,000	£112,000	10%	Estd
		22,933,000	23,279,000	-1%	£573,000	£522,000	10%	

4.C - Appendix C – Water Data

Water Invoices		2010/11	2009/10	% change	2010/11	2009/10	% change	
Main Campus		cubic m.	cubic m.	cubic m.	£	£	£	
Main Supply, Sth Entrance	1000	451,548	464,566	-3%	£0	£0	0%	
Nightingale Hall	2161	10,567	4,673	126%	£0	£0	0%	
Science Area	1000	9,566	10,751	-11%	£0	£0	0%	
J.B.C.C. Banqueting	1481	2,443	2,269	8%	£0	£0	0%	
Redcourt	2221	1,987	451	340%	£0	£0	0%	
Lenton Eaves (UNSSC)	1461	1,689	902	87%	£0	£0	0%	Leak Dec 10
Paton House (Built Env.)	1441	1,055	993	6%	£0	£0	0%	
Lenton Grove (History)	1211	972	422	131%	£0	£0	0%	Building work
Lenton Hurst	2411	824	1,027	-20%	£0	£0	0%	
Lenton Firs - Built Environment	1431	774	444	74%	£0	£0	0%	
Jesse Boot Conference Centre	1481	747	464	61%	£0	£0	0%	
Beeston Lane Gardeners' Compour	1511	404	542	-25%	£0	£0	0%	Estd
Lenton Lodge	2251	249	180	38%	£0	£0	0%	
Playgroup	1411	235	368	-36%	£0	£0	0%	
5A Wortley Hall Close (Eco-House)	2296	45	63	-28%	£0	£0	0%	
Water+SWD Invoices	1000	0	0	-	£451,259	£447,364		
TE & Sewerage	1000	0	0	-	£424,494	£309,091		
Total of 17 accounts	Totals	483,105	488,114	-1%	£875,753	£756,455	16%	
Water Invoices		2010/11	2009/10	% change	2010/11	2009/10	% change	
Sutton Bonington		cubic m.	cubic m.	cubic m.	£	£	£	
Landcroft Lane Meter	6800	144,000	124,711	15%	£0	£0	-	Estd
St.Michael's House (Flats 1-5)	6841	8,960	4,561	96%	£20,075	£9,929	102%	Leak
College Road Meter	6800	8,600	7,403	16%	£0	£0	-	Estd
Bunny Park Farm	6860	140	80	75%	£230	£120	92%	
SB TE Costs	6800	0	0	-	£127,822	£119,929	7%	
SB Water Costs	6800	0	0	-	£125,000	£106,466	17%	Estd
Trough, Kegworth Rd.	6910	0	0	-	£24	£24	0%	
Total of 7 items		161,700	136,755	18%	£273,151	£236,468	16%	
Water Invoices		2010/11	2009/10	% change	2010/11	2009/10	% change	
New Campus		cubic m.	cubic m.	cubic m.	£	£	£	
Jubilee Campus main meter	7000	59,386	58,532	1%	£0	£0	-	
Newark Hall	7130	19,662	13,881	42%	£0	£0	-	Plantroom leak
Southwell Hall	7120	7,557	7,140	6%	£0	£0	-	
The Amenities Building	7330	2,216	1,652	34%	£0	£0	-	
9 Triumph Road		1,300	0	-	£0	£0	-	
International House	7320	1,275	1,385	-8%	£0	£0	-	
Jubilee Sports Centre	7301	861	771	12%	£0	£0	-	New build activity
Sir Colin Campbell Building	7340	677	501	35%	£0	£0	-	
Geospatial Building	7350	326	371	-12%	£0	£0	-	
6 Triumph Rd		230	0	-	£900	£0	-	
Charnock Ave Sports Pavilion	7201	1	14	-93%	£40	£50	-20%	
Jubilee Campus Costs	7000	0	0	-	£187,633	£171,363	9%	
Total of 11 items		93,491	84,248	11%	£188,573	£171,413	10%	
Water Invoices		2010/11	2009/10	% change	2010/11	2009/10	% change	
Others		cubic m.	cubic m.	cubic m.	£	£	£	
King's Meadow Campus	6901	10,200	6,998	46%	£44,000	£37,163	18%	Jul '11 Estd
Clin Sci (City Hospital) Ph.1	3325	2,218	1,600	39%	£6,500	£4,400	48%	?
Sports Ground - Highfields	6311	2,092	1,735	21%	£4,890	£3,801	29%	
Grove Farm - Changing Rooms	6122	2,000	1,245	61%	£2,800	£1,665	68%	Jul '11 Estd
Boat House	6321	1,200	1,100	9%	£3,000	£2,634	14%	Dec - Jul Estd
14-22 Shakespeare Street	6101	479	479	0%	£842	£1,062	-21%	Jul '11 Estd
8 Peachey Street	6102	62	34	83%	£264	£185	43%	Jul '11 Estd
Clin Sci (City Hospital) Ph.2	3325	57	0	-	£150	£0	-	?
Total of 12 accounts		18,308	13,190	39%	£62,445	£50,911	23%	
Water Recharges		2010/11	2009/10	% change	2010/11	2009/10	% change	
Medical School		cubic m.	cubic m.	cubic m.	£	£	£	
Medical School	3101	45,288	32,905	38%	£100,000	£65,000	54%	Estd
Embedded Units	3101	10,800	10,800	0%	£22,000	£19,000	16%	Estd
		56,088	43,705	28%	£122,000	£84,000	45%	

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