

Energy Report

2005/6

2005/6 Energy Report – Executive Summary

Overall 2005/6 saw a reduction in energy and water consumption by the University. However energy costs have continued to increase. The impact has been a £3.3million increase in total energy and water costs*.

The annual key performance indicators (KPI's) from this year's report are as follows:-

Energy

Total energy consumption was reduced by 3.0%, despite colder weather which would have indicated a consumption increase of 2.4%.

Energy consumption per square metre reduced by 6.3%, and is now falling below 400kWh/m² for the first time.

Energy usage per FT student reduced by 6.7% from last year, to a new low (now 12.5% lower than in 2002/2003)

Water

Water consumption was reduced by 8% during this reporting period.

Costs

Significant increases in utility costs including taxes for 2005/6 showed a rise of 54%, taking the total to £9.47 million.

Environmental

Overall CO₂ Emissions have risen 42% due to reduced amounts of 'green' electricity being purchased.

Turnover

The University's turnover has increased by 8.4% during this reporting year. Total utility costs are now 2.67% of turnover.

Student Numbers

The student numbers for full-time students have increased by 4.0%.

Premises

The overall premises Gross Internal Area (GIA) has increased by 3.5% over this period. The first full year of occupation of the King's Meadow Campus added an extra 1.3million kWh (1.2%) to overall energy consumption.

*This year saw the introduction of 'flexible' energy procurement practice which removed the large contingency costs of future fixed pricing but included accepting inherent market risk. In the event, the cost benefit achieved has been £550k for the 12 months commencing 1st October 2005.

Notes to accompany Executive Summary

The strategic management of energy is undertaken by the Energy Sub-Group, this reports to the Environment Committee, chaired by the PVC for Infrastructure. As part of its strategy to control consumption and costs, the Energy Sub-Group has commissioned an Energy Report each year since 1997/8.

The membership of the Energy Sub-Group for 2005/6 was as follows:-

C. Jagger – Director of Estate Management
G. Scott – Environment Manager, Estates
J. Seymour – Management Accountant, Finance
T. Rudge – Energy Management Engineer, Estates
Dr. S.Pickering – Senior Lecturer, School of MMMEM
P. Cooper – Senior Engineer, Estates
Dr. R. Wilson – Senior Lecturer, Institute of Building Technology
J. Yarnall – BMS/Controls Engineer, Estates
S. Day – Environment & Social Justice Officer, SU

Note that most figures relate to the University's financial year of August 1st 2005 to July 31st 2006, with the baseline for comparison being the previous (2004/5) financial year.

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

2005/6 Energy Report

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Introduction

The annual energy report is produced to provide statistical information over a rolling three-year period. The data includes all of the University's UK building stock with the exception of student houses not located within our campuses.

It concentrates on three sections; the content in broad terms is:

Section 1 – Total Energy Report

Covering total energy costs by campus, floor area (square metres), and full-time student numbers set against the total University turnover.

Section 2 – Analysis of Energy Components

Covering the analysis of electricity, fossil fuels (gas and fuel oil) and water consumption and costs associated directly with the consumption.

Section 3 – Environmental Considerations

Covering carbon dioxide emissions and how the climatic conditions in the East Midlands and weather data affect the required heating load for the University.

Section 4 – Appendices

Covering the individual accounts billed for electricity, gas and water, plus a record of work undertaken during the year.

Section 1 – Total Energy Report

1.A. - Energy and Water Costs Summary

Energy and water bills increased by almost £2.8million last year, a significant increase on the year before. UK energy prices have doubled in the last two years, driven up by high world oil prices and a shortage of gas into the UK. Prices now seem to have stabilised, but remain at significantly increased levels to those of the last five years.

In sections 2.B and 2.D you will see how new purchasing strategies have helped to minimise the impact of these energy price rises. However, it is important that the University continues to do everything possible to reduce our consumption in order to minimise our exposure to continued high energy prices.

Energy and Water Costs				Change
	2003/4	2004/5	2005/6	'05/6 to '04/5
University Park	£ 2,237,998	£ 3,043,972	£ 4,697,358	54%
Sutton Bonington	£ 536,245	£ 725,387	£ 1,149,584	58%
Jubilee Campus	£ 332,314	£ 379,587	£ 530,352	40%
Others	£ 147,268	£ 292,862	£ 486,098	66%
Medical School	£ 927,317	£ 1,026,500	£ 1,378,232	34%
Total	£ 4,181,142	£ 5,468,308	£ 8,241,624	51%

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

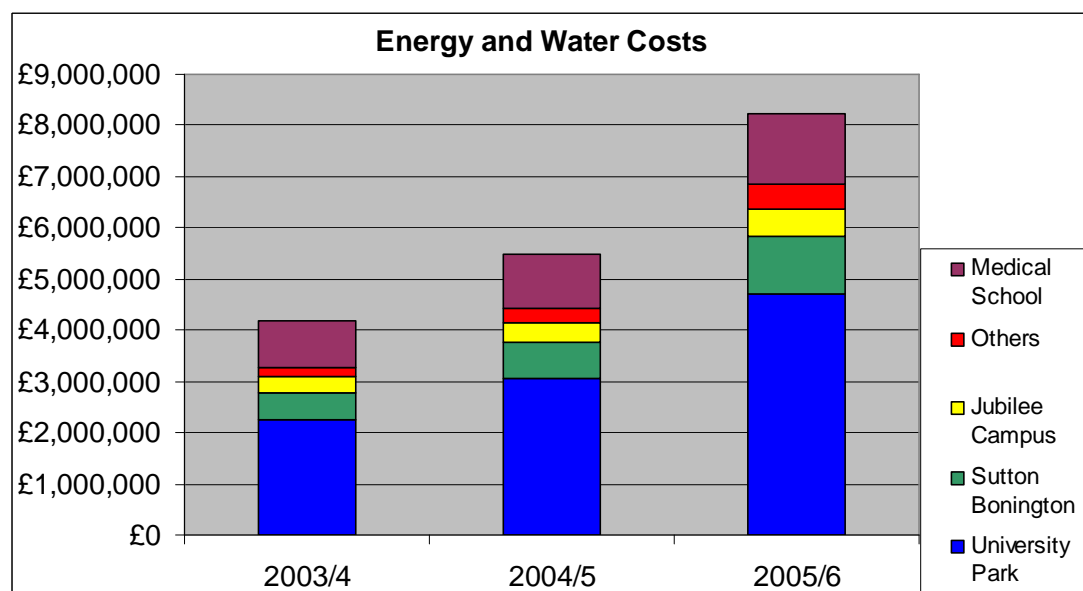


Figure 1.A.2 Graph of energy and water costs for the last 3 years split by campus.

Note that these figures exclude VAT and Climate Change Levy, which are discussed on page 7.

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

Campus Costs	Floor Area	Cost/sq.m/annum			
		Electricity	Heating	Water	Total
University Park	287,072	£8.79	£5.25	£2.33	£16.36
Sutton Bonington	48,740	£12.61	£7.16	£3.82	£23.59
Jubilee Campus	45,570	£6.59	£2.57	£2.48	£11.64
Others	53,919	£5.31	£2.75	£0.95	£9.02
Medical School	46,843	£9.88	£18.13	£1.41	£29.42
Total	482,144	£8.68	£6.16	£2.25	£17.09

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

The overall floor area increased by 3.5% from 2004/5.

Note that if taxes are taken into account, our average utility costs are now £19.63 per square metre per annum.

1.C - Climate Change Levy and VAT

The total amount of CCL paid by Notice Ltd during 2005/6 was £211,000 for electricity and £92,000 for gas. This showed an increase compared to last year due to the reduced amount of 'green' electricity that was available for procurement.

In the majority of tables in this report VAT is also not included. However for completeness some tables have VAT shown where indicated. VAT paid for 2005/6 FY was £921,000 (£270,000 gas and £651,000 on electricity).

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

	2005/6				2004/5
	Electricity	Fossil Fuels	Water	Totals	Totals
Energy Costs	£ 4,186,654	£ 2,970,946	£ 1,084,024	£ 8,241,624	£5,468,308
Climate Change Levy	£ 210,987	£ 91,632	£ -	£ 302,620	£150,523
Value Added Tax	£ 651,021	£ 270,009	£ -	£ 921,029	£536,965
Total	£ 5,048,662	£ 3,332,587	£ 1,084,024	£ 9,465,273	£6,155,796

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

The Climate Change Levy (CCL) was introduced due to a change in government legislation in April 2001. This energy tax added 0.15p/kWh to gas and 0.43p/kWh to the electricity costs of all non-residential properties, although 'green' electricity is exempt.

1.D - 2005/2006 Costs Broken Down by Campus and Utilities

Energy and Water Costs	Electricity	Fossil Fuels	Water	Total
University Park	£ 2,522,336	£ 1,507,478	£ 667,544	£ 4,697,358
Sutton Bonington	£ 614,473	£ 349,059	£ 186,052	£ 1,149,584
Jubilee Campus	£ 300,457	£ 116,892	£ 113,003	£ 530,352
Others	£ 286,388	£ 148,485	£ 51,225	£ 486,098
Medical School	£ 463,000	£ 849,032	£ 66,200	£ 1,378,232
Total	£ 4,186,654	£ 2,970,946	£ 1,084,024	£ 8,241,624

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

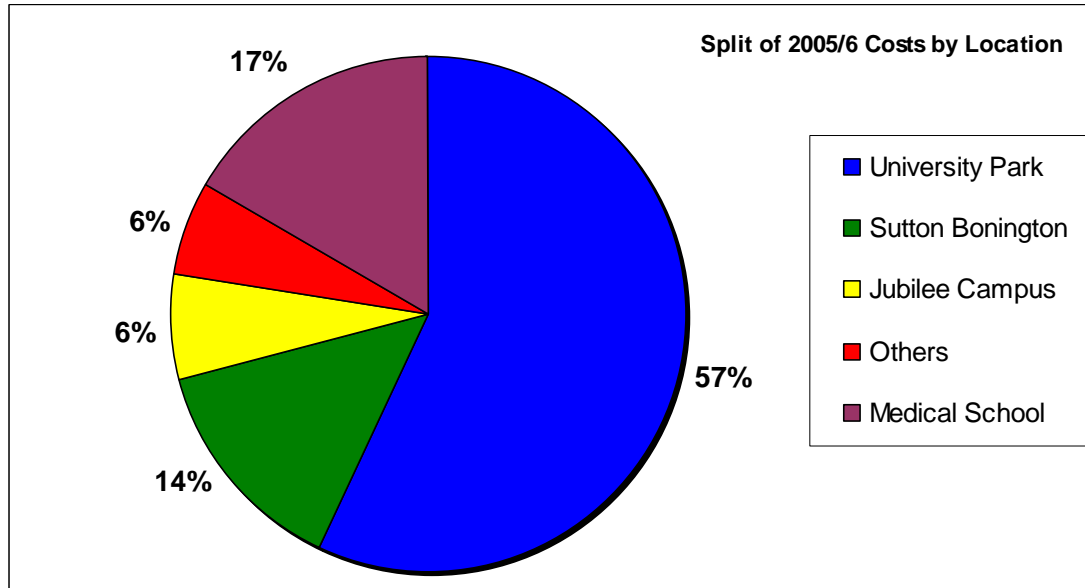


Figure 1.D.2 Pie chart of energy and water costs split by campus

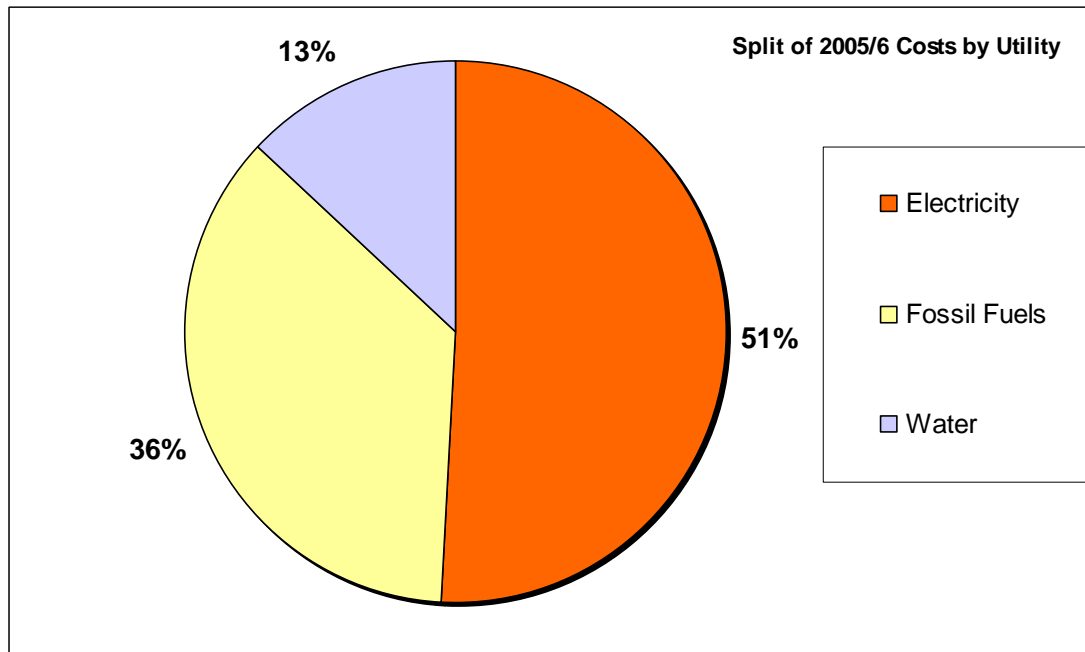


Figure 1.D.3 Pie chart of energy and water costs split by utility type

1.E - Energy Use Summary

Energy consumption reduced by 3% in 2005/6. Electricity consumption increased in line with the increase in floor area up by 4% (see section 2.A), gas consumption decreased by 7% taking into account a significantly cold period (see 2.C)

Energy Consumption	MWh 2003/4	MWh 2004/5	MWh 2005/6	Change '05/6 to '04/5
University Park	109,116	116,269	109,088	-6%
Sutton Bonington	26,682	26,706	25,818	-3%
Jubilee Campus	9,333	10,396	9,939	-4%
Others	5,886	10,404	10,544	1%
Medical School	31,585	34,150	36,516	7%
Total	182,602	197,924	191,905	-3%

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

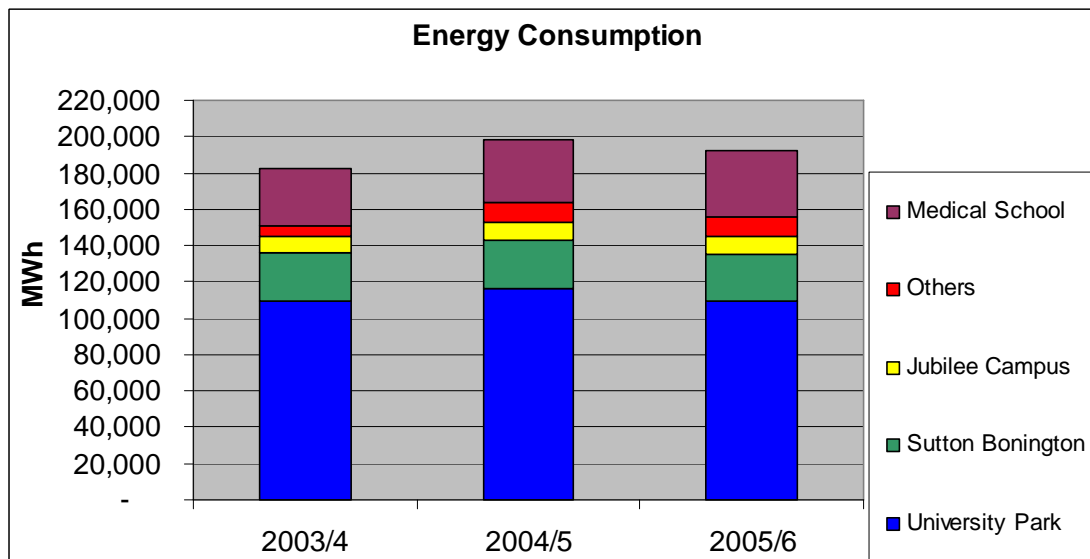


Figure 1.E.2 Graph of energy consumption for the last 3 years split by campus

1.F - Energy Use Breakdown by Campus and Utilities

Energy Consumption	MWh	MWh	MWh
2005/2006	Electricity	Fossil Fuels	Total
University Park	44,380	64,708	109,088
Sutton Bonington	10,475	15,343	25,818
Jubilee Campus	4,912	5,027	9,939
Others	4,134	6,410	10,544
Medical School	10,204	26,312	36,516
Total	74,105	117,800	191,905

Figure 1.F.1 Table of energy consumption for 2005/6 split by campus and by utility

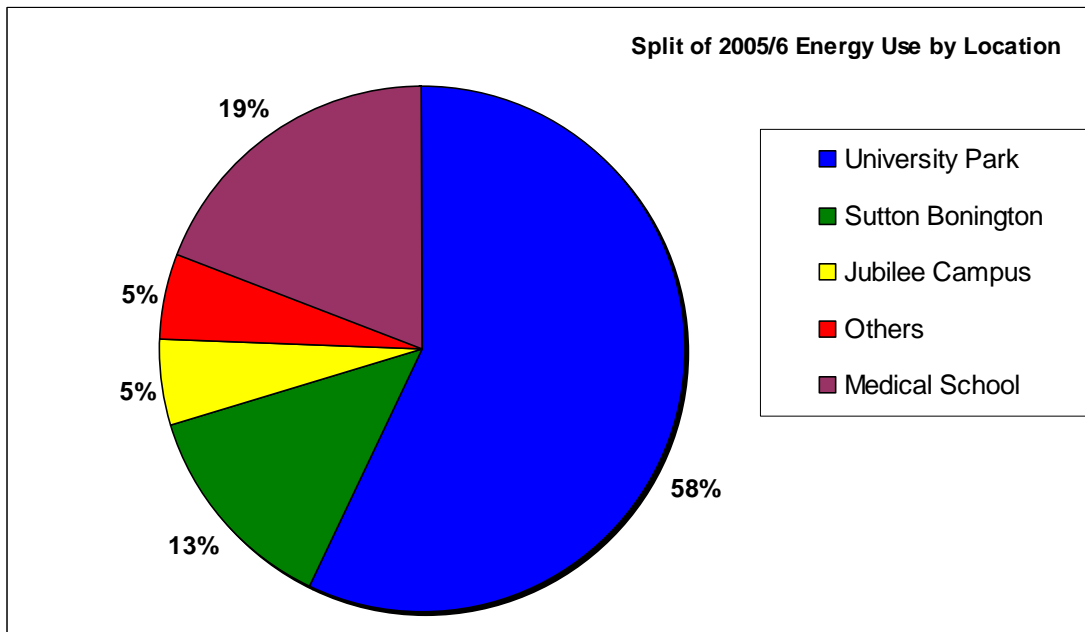


Figure 1.F.2 Pie chart of energy consumption split by campus

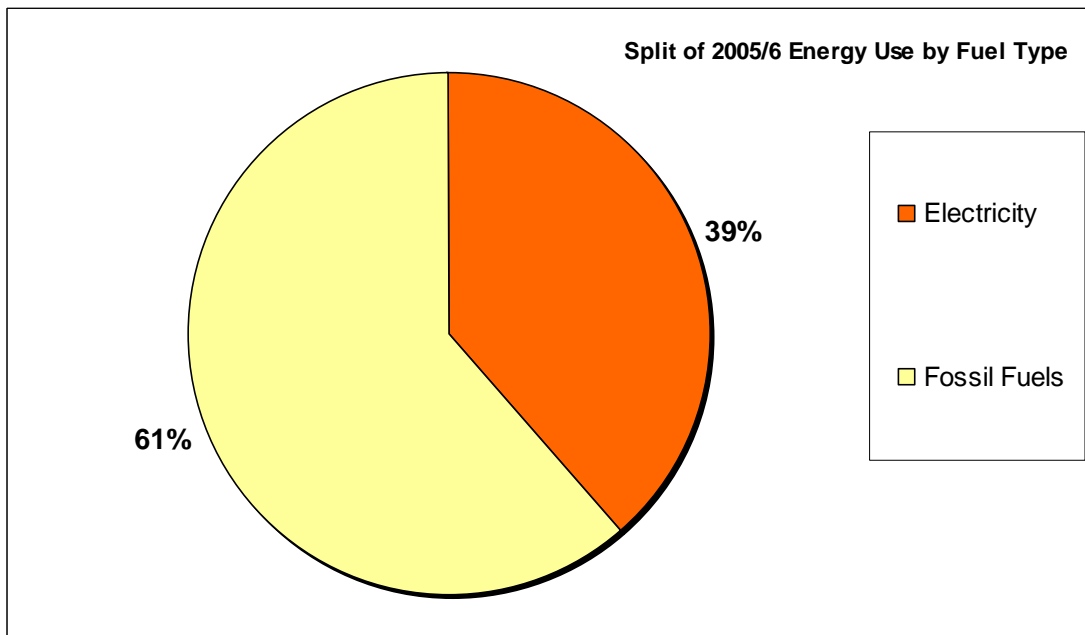


Figure 1.F.3 Pie chart of energy consumption split by utility type.

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

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

	2002/3	2003/4	2004/5	2005/6	Change
Floor Area (sq.m.)	420,854	436,236	465,769	482,144	3.5%
Annual Energy Usage (MWh)	188,782	182,602	197,924	191,905	-3.0%
Energy Usage Per sq. m.	449	419	425	398	-6.3%

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

Note that energy usage has fallen below 400kWh per square metre.

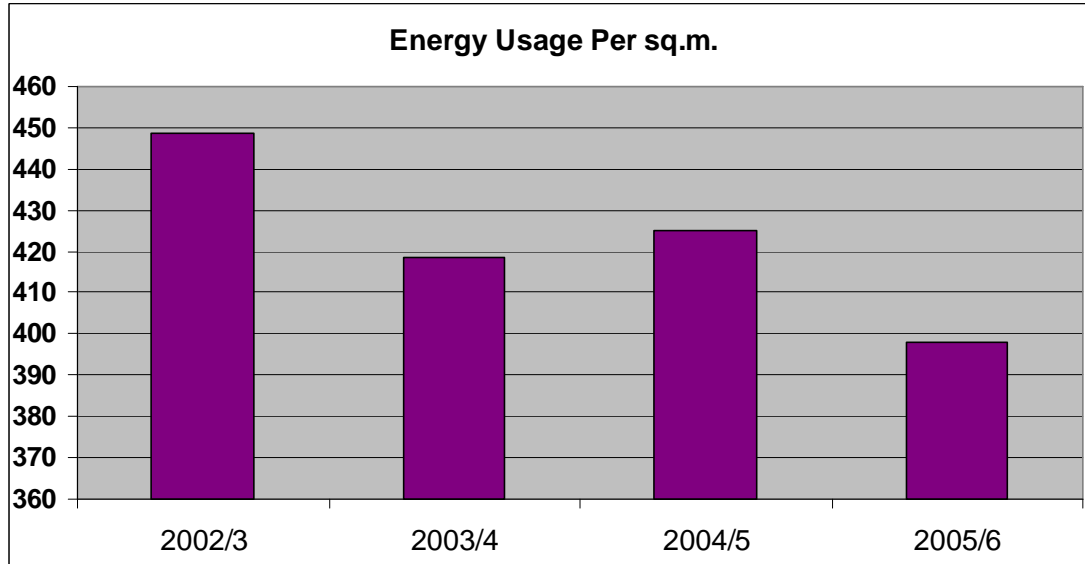


Figure 1.G.2 Graph of last four years energy usage per unit floor area.

	2002/3	2003/4	2004/5	2005/6	Change
Floor Area (sq.m.)	420,854	436,236	465,769	482,144	3.5%
Energy and Water Costs	£ 4,017,880	£ 4,181,142	£ 5,468,308	£ 8,241,624	50.7%
Utility Cost Per sq. m.	£ 9.55	£ 9.58	£ 11.74	£ 17.09	45.6%

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

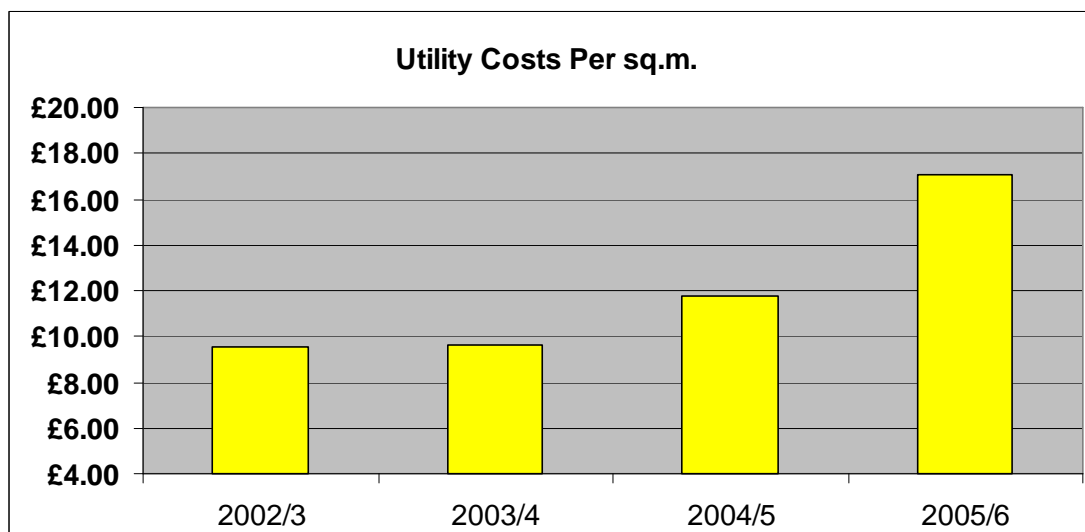


Figure 1.G.4 Graph of last four years energy and water costs normalised by floor area.

1.H - Energy Usage and Cost per FT Student

	2002/3	2003/4	2004/5	2005/6	Change
FT Student Numbers	21,244	22,808	23,740	24,680	4.0%
Annual Energy (MWh)	188,782	182,602	197,924	191,905	-3.0%
Energy / Student (kWh)	8,886	8,006	8,337	7,776	-6.7%

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

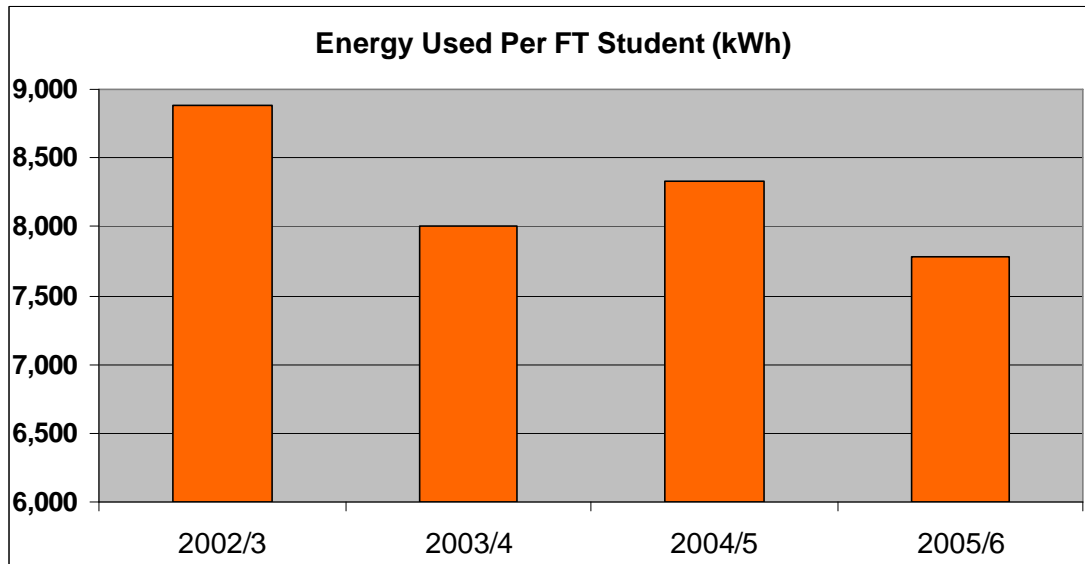


Figure 1.H.2 Graph of last four years energy usage per full-time student.

	2002/3	2003/4	2004/5	2005/6	Change
FT Student Numbers	21,244	22,808	23,740	24,680	4.0%
Energy and Water Costs	£ 4,017,880	£ 4,181,142	£ 5,468,308	£ 8,241,624	50.7%
Utility Costs / Student	£ 189.13	£ 183.32	£ 230.34	£ 333.94	45.0%

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

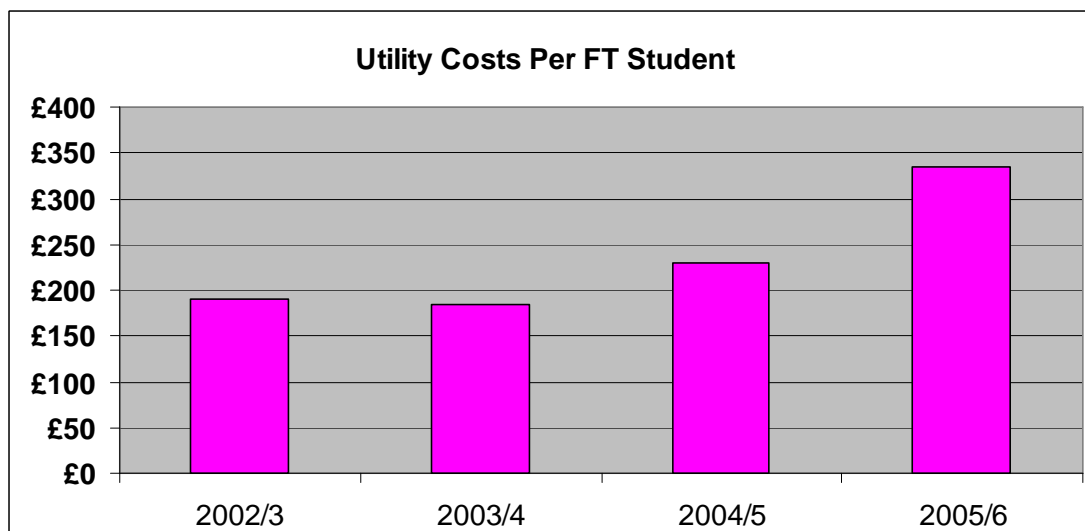


Figure 1.H.4 Graph of last four years energy and water costs per full-time student.

Note: The statistics on student numbers above are provided by the Policy and Planning Unit, Registrar's Department. They exclude students not currently studying in Nottingham.

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

Percentage of Turnover (£ 000)	2002/3	2003/4	2004/5	2005/6	Change '05/6 to '04/5
Utility Costs inc. taxes	£ 4,922	£ 4,953	£ 6,156	£ 9,465	53.8%
Total University Turnover	£ 286,300	£ 303,500	£ 326,400	£ 353,944	8.4%
Percentage	1.72%	1.63%	1.89%	2.67%	41.8%

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

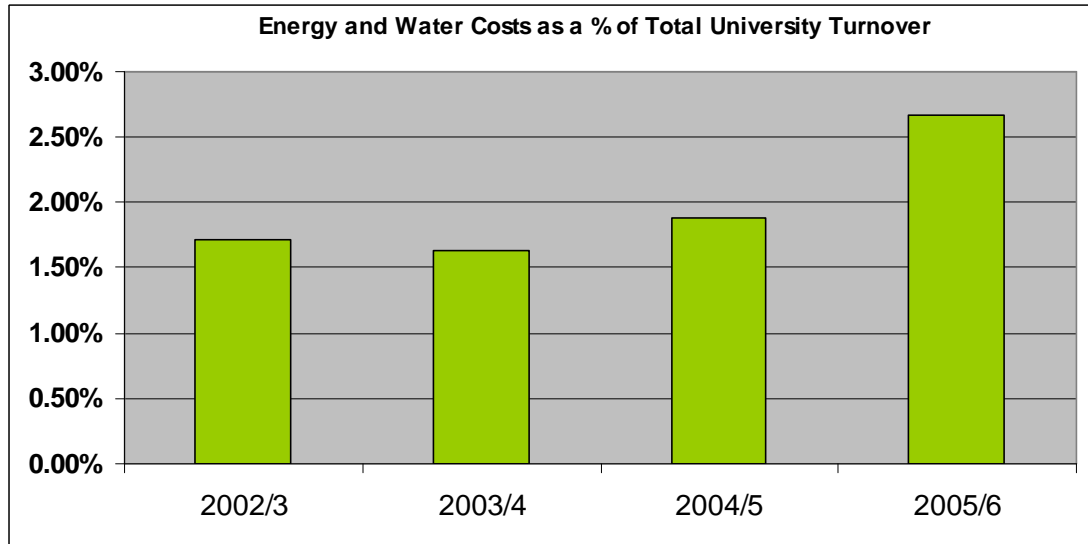


Figure 1.I.2 Graph of last four years energy and water costs normalised by total University turnover.

1.J – Comparison to Other Universities – 2004/5

	Energy use/ student (kWh)	Energy/sq.m (kWh/sq.m GIA) non- residential	Utility Costs/ income
Birmingham	6,634	470	1.75%
Bristol	5,114	443	1.84%
Cambridge	7,518	280	1.02%
Cardiff	2,012	182	1.61%
Edinburgh	7,703	338	1.69%
Glasgow	4,749	335	1.38%
Imperial College	27,247	723	1.90%
King's College London	6,416	363	1.49%
L.S.E	2,468	188	1.09%
Leeds	4,364	333	2.11%
Liverpool	6,468	371	2.07%
Manchester	0	0	0.00%
Newcastle Upon Tyne	5,663	310	1.54%
Nottingham	5,187	455	2.05%
Oxford	8,110	353	0.95%
Sheffield	3,595	281	1.47%
Southampton	4,560	385	1.80%
U.C.L.	5,791	304	1.05%
Warwick	6,307	446	1.52%

Figure 1.J.1 Table of Estates Management Statistics for the 2004/5 financial year.

The statistics in table 1.J.1 provide a range of comparators to other major Universities, as reported in the EMS returns for 2004/5. 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.

Energy use per m² at Nottingham is high compared to other institutions in the Russell Group; this in part reflects the higher utilisation of space at Nottingham. Non-residential space per student is just 11.4m² at Nottingham, compared to an average of 13.6m² for the Russell Group (excluding London institutions, Oxford, and Cambridge). This difference of approximately 19% represents a more intensively used estate.

Utility costs as a percentage of income are high for Nottingham compared to other institutions – 2.05% compared to an average of 1.66% (Russell Group excluding London institutions, Oxford, and Cambridge). Nottingham has higher water costs and an income mix heavily weighted towards teaching. The amount paid per kWh for energy at Nottingham is 2.89 pence against an average of 2.94 pence.

Section 2 – Analysis of Energy Components

2.A - Electricity Consumption

Electricity consumption increased by 4%, due to the increase in the Estate, up a total of 2,634 MWh.

In general, electricity consumption appears to be moderating after efforts on various fronts during 2005/6. Four hundred automatic light switch controls were fitted to small meeting rooms and toilet areas. Considerable time has also been spent on optimising performance of many of our complex buildings. The effects of this can be seen in reduced consumption at sites such as the Jubilee Campus and Derby Medical School. Additionally, the campaign to reduce wastage from fume cupboards has had a significant effect on fan use in air handling units and chillers, as well as the fume cupboard fans themselves.

Electricity Consumption	MWh	MWh	MWh	Change
	2003/4	2004/5	2005/6	'05/6 to '04/5
University Park	39,441	43,245	44,380	3%
Sutton Bonington	10,124	10,215	10,475	3%
Jubilee Campus	4,458	5,091	4,912	-4%
Others	2,018	3,020	4,134	37%
Medical School	9,935	9,900	10,204	3%
Total	65,976	71,471	74,105	4%

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

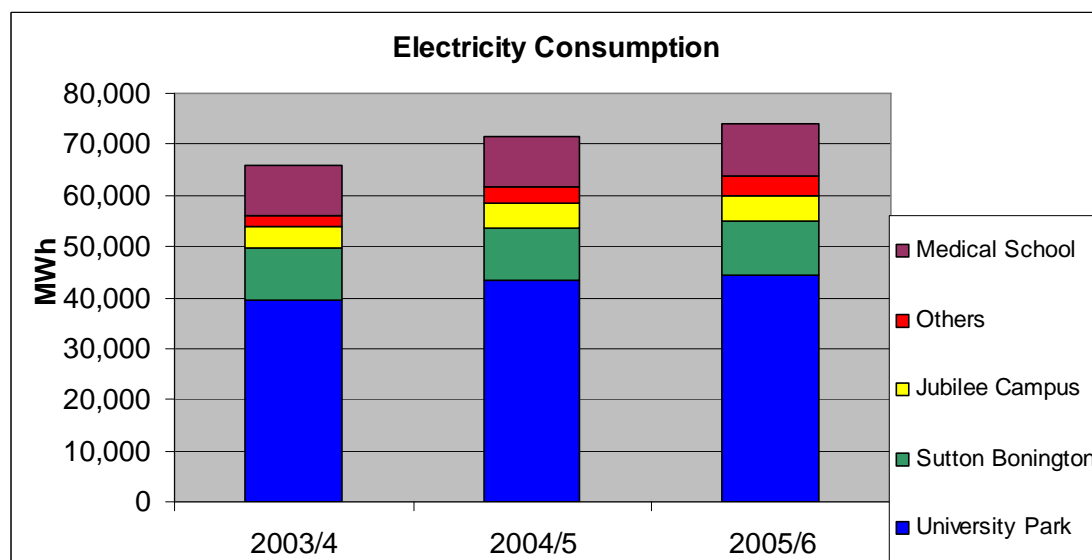


Figure 2.A.2 Graph of electricity usage for the last 3 years split by campus.

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

2.B - Electricity Costs

The main electricity contracts were tendered in August 2005 for a new contract year commencing October 1st 2005. Gaz de France offered the lowest priced traditional contract, averaging 6.64p/kWh – an increase of 43% on the previous contract price of 4.63p/kWh. It was resolved by the Energy Sub-Group on 25th August 2005 to use a 'flexible' contract from Gaz de France, and purchase electricity during the year. Savings of 6.9% were achieved compared to the traditional fixed-price offer over the life of the contract. This equates to a saving of £328,000, and gave an average purchase price of 6.18p/kWh. Note that we were paying an average price of just 2.69p/kWh as recently as September 2004.

The tender for the University's 'sub-100kW' sites (representing 36 smaller properties, such as sports grounds) was issued in January 2006 to commence April 1st 2006. Prices were felt to be particularly high at that time, so the contract was retendered again a month later, and an overall reduction of £10,000 achieved. However, average contract prices still increased from 3.99p/kWh to 7.97p/kWh (100%). The new supplier was Eon, and was 100% CCL-exempt green energy – supplies had previously been with Bizz Energy.

Electricity Costs	2003/4	2004/5	2005/6	Change '05/6 to '04/5
University Park	£ 1,058,896	£ 1,727,374	£ 2,522,336	46%
Sutton Bonington	£ 270,777	£ 406,862	£ 614,473	51%
Jubilee Campus	£ 128,369	£ 205,062	£ 300,457	47%
Others	£ 85,179	£ 158,094	£ 286,388	81%
Medical School	£ 394,000	£ 401,000	£ 463,000	15%
Total	£ 1,937,221	£ 2,898,392	£ 4,186,654	44%

Figure 2.B.1 Table of electricity costs for the last 3 years split by campus.

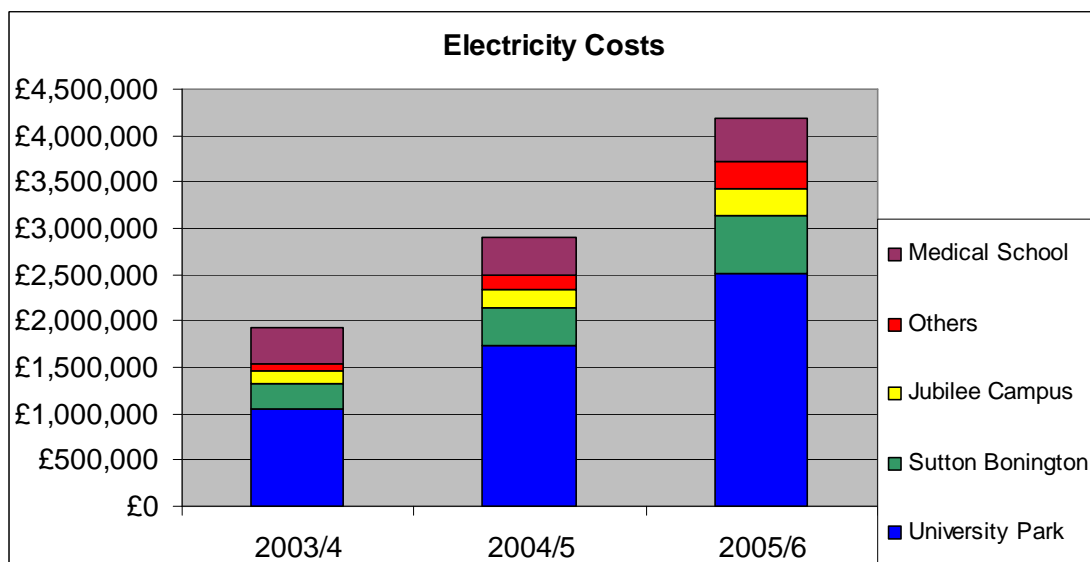


Figure 2.B.2 Graph of electricity costs for the last 3 years split by campus.

2.C - Fossil Fuel Consumption

Consumption of fossil fuels fell by 7% in 2005/6. When degree day adjustment is considered (see 3C) the consumption reduction is 10.8%. The bulk of the savings were made at University Park, where savings of 20% were made at the Central Heating Station. This was achieved from a thorough review of building operating hours, and setting the system temperatures lower during evenings and weekends. A campaign to reduce unnecessary fume cupboard usage was introduced from February 2006 – fume cupboards account for around 20% of our total energy costs. There was also an extended summer shutdown of the system for maintenance, meaning that more hot water was generated electrically during the summer.

Fossil Fuel Consumption	MWh 2003/4	MWh 2004/5	MWh 2005/6	Change '05/6 to '04/5
University Park	69,675	73,024	64,708	-11%
Sutton Bonington	16,558	16,491	15,343	-7%
Jubilee Campus	4,875	5,305	5,027	-5%
Others	3,868	7,383	6,410	-13%
Medical School (Steam)	21,650	24,250	26,312	9%
Total	116,626	126,452	117,800	-7%

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

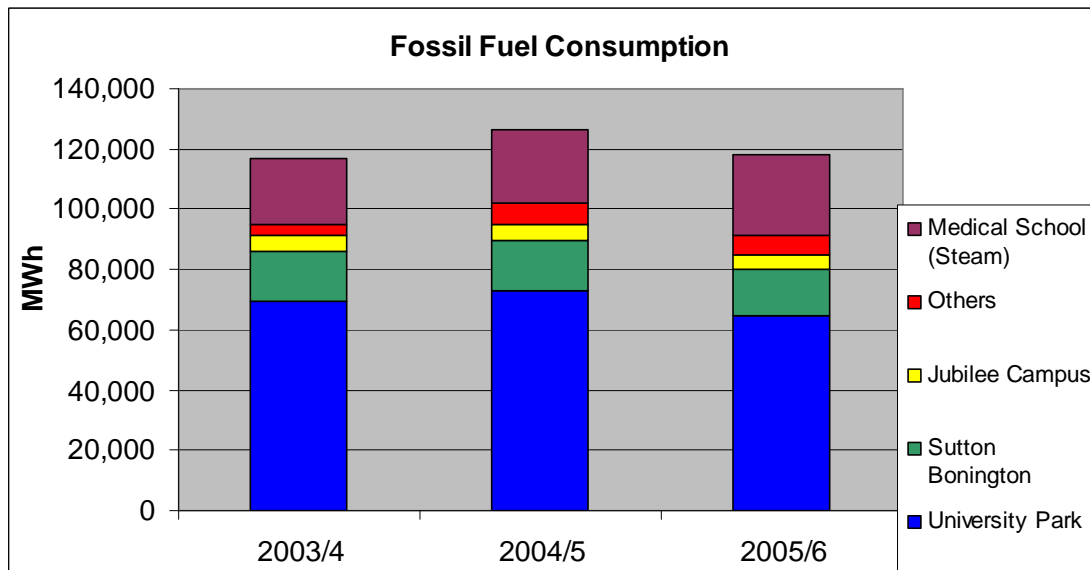


Figure 2.C.2 Graph of fossil fuel usage for the last 3 years split by campus.

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

2.D - Fossil Fuel Costs

Gas prices increased again during 2005. The University's existing firm gas contract ended on 31st May 2005, when the price was 0.9791p/kWh. A short four month summer contract at 1.4949p/kWh (up 53%) was then undertaken as a stopgap, to see if the price rise was temporary. However prices remained high, and the best price available in August 2005 for a traditional one-year contract commencing 1st October 2005 was 2.615p/kWh (up 167% on the last full year). This offer was rejected, and it was decided by the Energy Sub-Committee (Aug 25th) that a new form of 'flexible' contract would be used. With this type of contract the price paid varies according to the market price of gas during the year. Whilst this method carries a risk that prices can increase, it was felt that the fixed prices included an unusually high risk premium. In the event the contract (with Gaz de France) was a success, with a 10.3% saving (£272,000) being achieved compared to the quoted fixed price contract. Prices varied from month to month, but the overall average received was 2.346p/kWh.

Fossil Fuel Costs				Change
	2003/4	2004/5	2005/6	'05/6 to '04/5
University Park	£ 642,615	£ 685,857	£ 1,507,478	120%
Sutton Bonington	£ 162,124	£ 168,360	£ 349,059	107%
Jubilee Campus	£ 47,884	£ 55,188	£ 116,892	112%
Others	£ 42,717	£ 87,803	£ 148,485	69%
Medical School (Steam)	£ 485,000	£ 567,000	£ 849,032	50%
Total	£ 1,380,340	£ 1,564,208	£ 2,970,946	90%

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

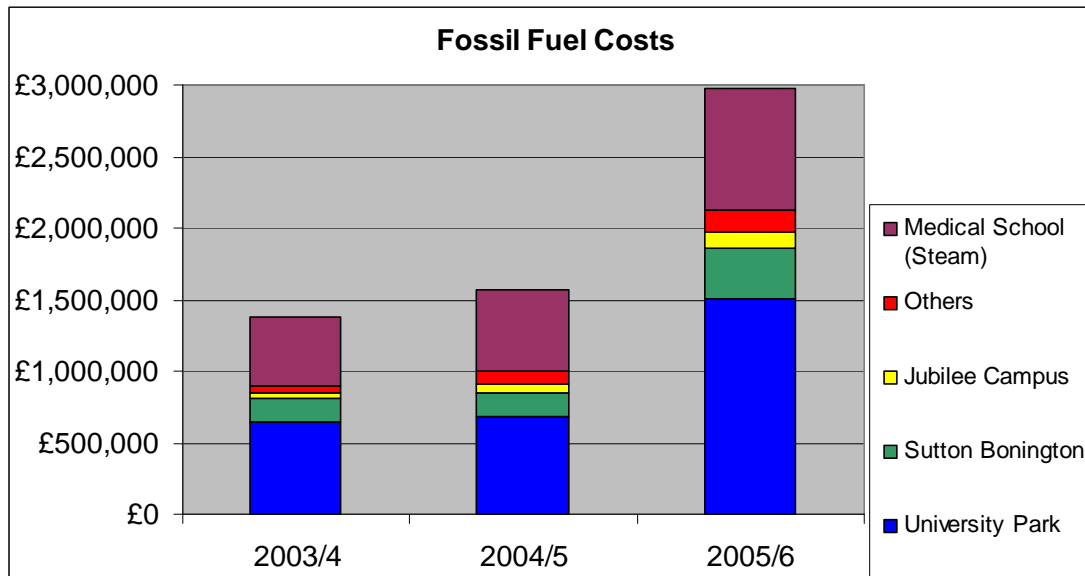


Figure 2.D.2 Graph of fossil fuel costs for the last 3 years split by campus.

Note: 'Firm' gas is the standard gas supply used by the majority of smaller buildings in the UK. However many larger installations use an 'interruptible' supply. Whilst this is slightly cheaper, Transco reserve the right to stop the supply for several days a year, forcing users to switch to an alternative fuel source, such as oil.

2.E - Water Consumption

Water consumption for the year has shown an overall reduction of 8% on the previous year. There was an investment of twenty thousand pounds in urinal controls, which were installed between December 2005 and February 2006. These devices incorporate a PIR detector and timer and prevent urinals flushing continually when there is no usage. A significant leak was also detected and fixed at University Park.

Plans to develop a borehole for potable water at University Park with Severn Trent had to be suspended after levels of some trace elements in the water were found to be high. Whilst the levels of contamination were treatable, the economics of the scheme would have been seriously affected, and it was decided by the Energy Sub-Group to stop the proposals at this stage before capital costs were incurred.

Water Consumption	cubic m.	cubic m.	cubic m.	Change
	2003/4	2004/5	2005/6	'05/6 to '04/5
University Park	560,942	608,444	546,497	-10%
Sutton Bonington	117,749	148,732	162,052	9%
Jubilee Campus	86,762	86,869	76,534	-12%
Others	16,938	37,975	22,987	-39%
Medical School	54,352	43,570	43,118	-1%
Total	836,743	925,590	851,188	-8%

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

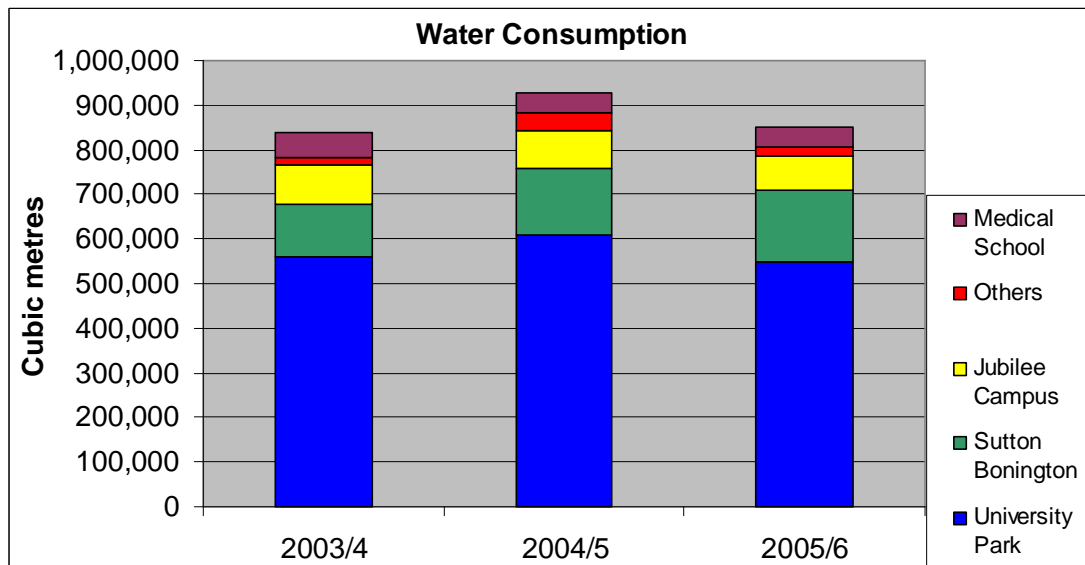


Figure 2.E.2 Graph of water usage for the last 3 years split by campus.

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

2.F - Water Costs

Severn Trent increase their prices for water supply and sewerage by an average of 16% over the year to 31st July 2006.

Prices for winter water at large sites (ECO 250 Tariff) rose 19% in April 2005 to 38.28p/m³, and then 2.4% in April 2006 to 39.21p/m³. Summer water (May to September) also rose 2.4%, from 72.77p/m³ to 74.54 p/m³. On unmetered sites, water costs rose by 3.8%, from 81.87 to 85.02 pence.

The most significant increases in April 2006 were in used water, which rose by 11.1%, from 48.8p/m³ to 54.22p/m³ in April 2005. Surface water drainage, which is usually based on site area, went up 9.9%, for instance from £81,777 to £89,873 at University Park. On unmetered sites, used water costs rose by 6.3%, from 79.76 to 84.77 pence.

Water Costs	2003/4	2004/5	2005/6	Change '05/6 to '04/5
University Park	£ 536,487	£ 630,741	£ 667,544	6%
Sutton Bonington	£ 103,344	£ 150,165	£ 186,052	24%
Jubilee Campus	£ 156,061	£ 119,337	£ 113,003	-5%
Others	£ 19,372	£ 46,965	£ 51,225	9%
Medical School	£ 48,317	£ 58,500	£ 66,200	13%
Total	£ 863,581	£ 1,005,708	£ 1,084,024	8%

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

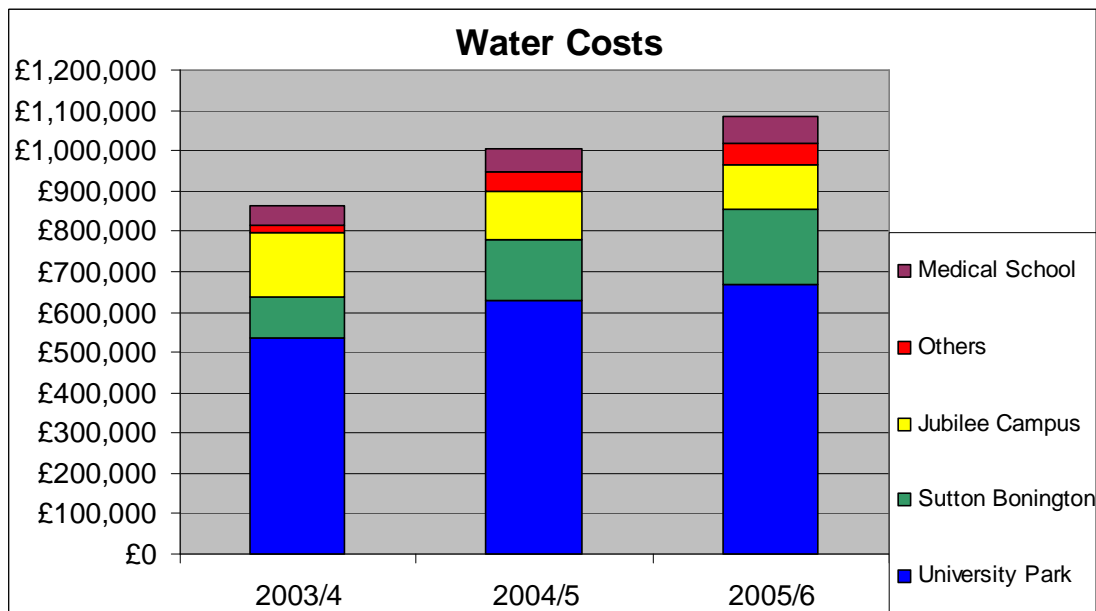


Figure 2.F.2 Graph of water costs for the last 3 years split by campus.

Note that 'Summer' water prices relate to the calendar months May to September, 'winter' relates to October to April.

Section 3 – Environmental Considerations

3.A - Carbon Dioxide Emissions

University Park is included in the EU Emissions Trading Scheme – the calendar year of 2005 was the first year of operation of the Scheme. The University beat its target of 13,569 Tonnes by 1,014 Tonnes (7.5%), emitting 12,555 Tonnes of CO₂ from the campus. Note that this scheme only covers fossil fuel emissions from University Park and covers the calendar year, unlike the tables and graphs here which show the University's financial year.

Overall emissions of carbon dioxide from all sources increased during 2005/6, as the proportion of 'green' electricity we were able to procure reduced. This was principally due to the main 'half-hourly' electricity contracts not having a flexible green product available for this year. This decision was endorsed by the Energy Sub-Group of 25th August 2005, and the policy remains to actively seek 'green' sources of electricity at the tender stages.

CO2 Emissions	Tonnes	Tonnes	Tonnes	Change
	2003/4	2004/5	2005/6	'05/6 to '04/5
University Park	30,198	18,658	28,419	52%
Sutton Bonington	7,499	3,581	6,721	88%
Jubilee Campus	2,693	2,188	2,740	25%
Others	1,586	2,205	2,640	20%
Medical School	8,386	8,013	8,509	6%
Total	50,362	34,645	49,030	42%

Figure 3.A.1 Table of CO₂ emissions for the last 3 years split by campus.

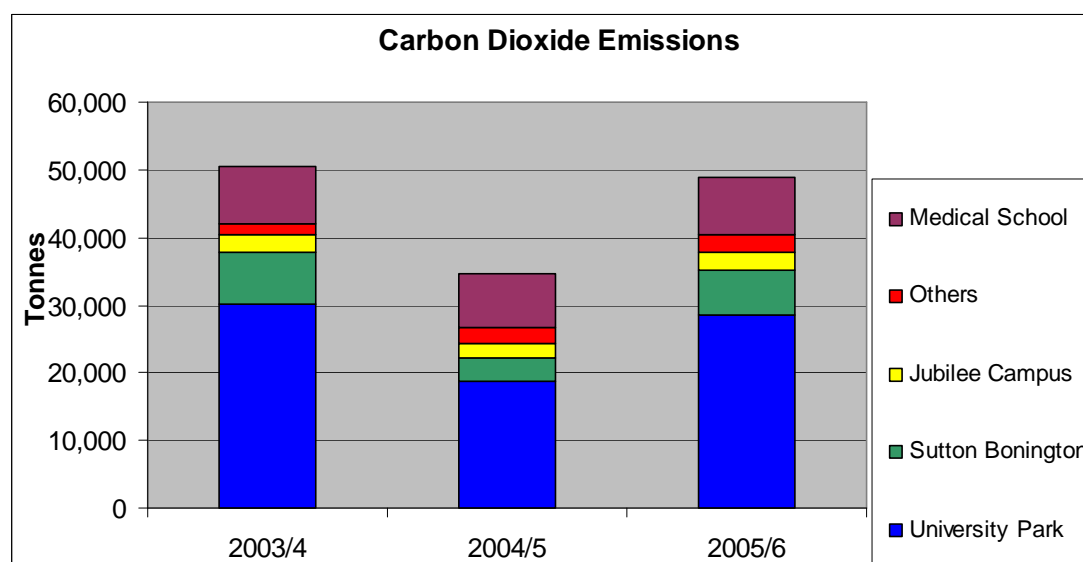


Figure 3.A.2 Graph of CO₂ emissions for the last 3 years split by campus.

Conversion factors used are supplied to us by the Carbon Trust - units are Tonnes of Carbon Dioxide emitted per MWh of energy consumed. Note that DEFRA (the Department for Environment, Food and Rural Affairs) are now recommending that for electricity a constant conversion value is used until 2010, although real emissions vary year on year due to the different mix of fuels used in power stations nationally.

Carbon Dioxide (CO₂) is released into the atmosphere when fossil fuels are burned, and is considered the most important of the 'greenhouse' gases – gases that are thought to be responsible for a man-made warming of the atmosphere. The UK government has a target of reducing national CO₂ emissions by 12.5% from 1990 levels by 2010.

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

CO2 Emissions	Tonnes	Tonnes	Tonnes
2005/2006	Electricity	Fossil Fuels	Total
University Park	16,125	12,294	28,419
Sutton Bonington	3,806	2,915	6,721
Jubilee Campus	1,785	955	2,740
Others	1,422	1,218	2,640
Medical School	3,510	4,999	8,509
Total	26,648	22,382	49,030

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

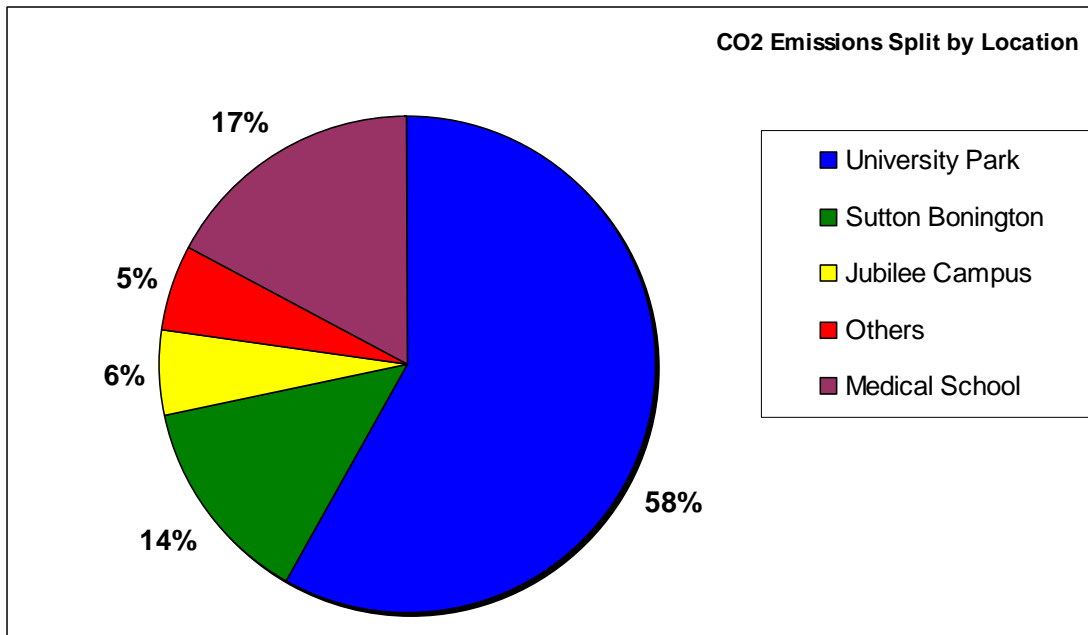


Figure 3.B.2 Graph of CO₂ emissions split by campus

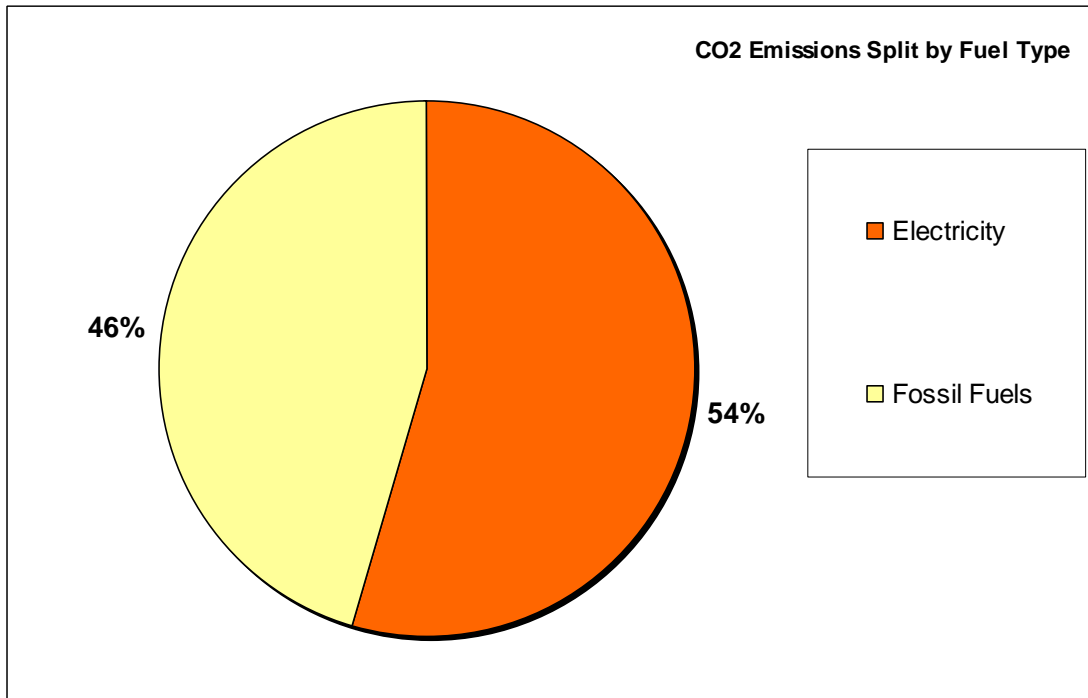


Figure 3.B.3 Graph of CO₂ emissions split by source fuel type

3.C - Weather Data – Degree Days

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 2003-04	Deg. Days 2004-05	Deg. Days 2005-06	'05/6 to '04/5 Change
Aug	35	24	18	33	83.3%
Sep	76	68	52	52	0.0%
Oct	162	194	154	90	-41.6%
Nov	270	232	241	280	16.2%
Dec	338	343	310	345	11.3%
Jan	362	332	309	353	14.2%
Feb	312	293	325	328	0.9%
Mar	283	281	265	337	27.2%
Apr	217	176	198	215	8.6%
May	137	112	139	114	-18.0%
Jun	74	45	55	43	-21.8%
Jul	35	39	30	12	-60.0%
Total	2,301	2,139	2,096	2,202	5.1%
				Weather modifier (75%)	3.8%

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

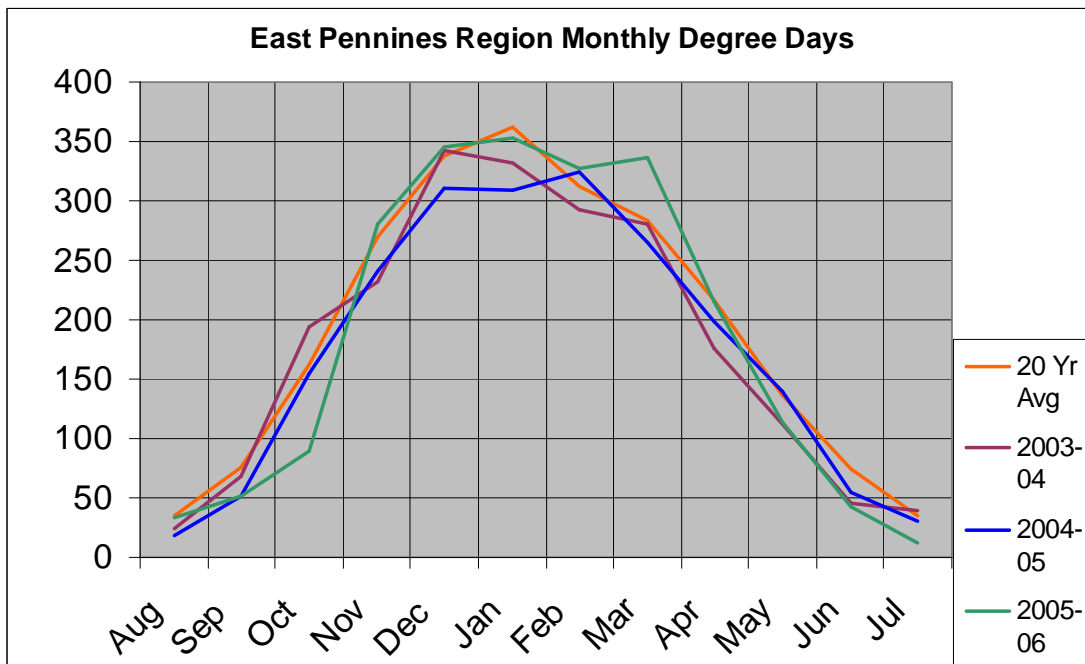


Figure 3.C.2 Graph showing last three years monthly degree days and average degree days

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. Using this information indicates consumption of fossil fuels should have increased by about 4% as 2005/6 was colder than 2004/5.

3.D - Conclusions

There have been successes in achieving reductions in both energy and water consumption, which have helped to minimise the effect of higher energy prices. Additional resources have been directed at energy management, and in increased funding of energy conservation projects.

This strategy will continue, under the direction of the University Environment Committee's Energy Sub-Group.

Our terms of reference are to:-

- Promote energy conservation schemes which offer attractive payback periods
- Review the best long term strategies for energy provision, considering issues such as decentralisation and combined heat and power
- Continue to use innovative purchasing strategies to obtain the best value energy supply contracts
- Actively seek offers of 'green' electricity
- Liaise with our building users to ensure correct hours of operation of heating and ventilation systems are maintained
- Revisit controls settings in our existing buildings to optimise energy usage and reduce waste
- Explore opportunities for new and renewable energy technologies in new building developments
- Promote energy awareness campaigns throughout all of the University's buildings and Schools (see our website at <http://www.nottingham.ac.uk/estate/environment/>)

Section 4 – Appendices

4.A - Appendix A – Electricity Data

Electricity Invoices			2005/6	2004/5	% change	2005/6	2004/5	% change	
Main Campus			kWh	kWh	kWh	£	£	£	
University Park	1000	S4	44,330,935	43,179,653	3%	2,519,398	1,724,226	46%	
Lenton Lodge	2251	##	27,293	38,339	-29%	1,425	1,704	-16%	
Lenton Eaves Cottage No.2	2243	##	17,595	24,351	-28%	1,122	1,195	-6%	
Redcourt Lodge	2222	N0	804	1,129	-29%	125	178	-30%	
Lenton Eaves Cottage No.1	2243	##	3,855	1,630	137%	266	71	275%	
Total of 5 accounts			Totals	44,380,482	43,245,102	3%	2,522,336	1,727,374	46%
Electricity Invoices			2005/6	2004/5	% change	2005/6	2004/5	% change	
Sutton Bonington			kWh	kWh	kWh	£	£	£	
Sutton Bonington Campus	6800	S4	10,187,245	9,773,749	4%	597,429	388,952	54%	
Eviton House (68 College Road)	5891	N0	100,000	209,493	-52%	7,000	7,089	-1%	
New Dairy		##	98,399	66,913	47%	4,091	2,630	56%	
Animal Research Unit (MLC)	5433	##	25,640	27,501	-7%	1,043	773	35%	
St.Michael's House (Flats 1-5)	6841	N0	18,107	26,362	-31%	844	1,042	-19%	
St.Michael's Flats Nos 6&7	6842	N0	10,967	4,887	124%	561	340	65%	
Field 25	5671		0	20,000	-100%	500	1,000	-50%	
45 College Road	6815	N0	8,959	1,121	699%	486	173	181%	
Manor Farm - Pump House Kingsto	6910	##	8,145	14,462	-44%	446	765	-42%	
Manor Farm - Soar Irrig. Pump	6910	##	3,864	0	-	394	133	196%	
New Dairy		##	5,691	3,766	51%	350	237	48%	
40 College Road	6811	N0	5,461	6,974	-22%	302	412	-27%	
Manor Farm - NU Press 2	6910	##	3,044	0	-	246	0	-	
24 College Road	6805	N0	3,497	4,663	-25%	240	332	-28%	
50 College Road	6819	N0	3,288	4,559	-28%	235	329	-29%	
St.Michael's Close (Flats 10-15)	6840	N0	3,077	5,753	-47%	226	384	-41%	
Manor Farm - NU Press 1	6910	##	1,878	0	-	159	0	-	
Bunny Farm	6860	##	-4,153	11,028	-138%	114	612	-81%	
44 College Road	6814	N0	-212	5,128	-104%	80	354	-77%	
St.Michael's Flats Nos 8&9	6843	N0	-8,336	28,512	-129%	-273	1,305	-121%	
Total of 18 accounts			Totals	10,474,561	10,214,871	3%	£614,473	£406,862	51%
Electricity Invoices			2005/6	2004/5	% change	2005/6	2004/5	% change	
Jubilee Campus			kWh	kWh	kWh	£	£	£	
Jubilee Campus	7000	S4	3,944,260	4,245,536	-7%	236,234	167,964	41%	
Newark & Southwell Halls	7000	S4	776,420	780,472	-1%	50,152	33,377	50%	
Jubilee Sports Centre	7301	S4	168,616	34,611	387%	13,008	2,196	492%	
Triumph House	6701	##	22,673	30,053	-25%	1,063	1,525	-30%	
Total of 4 accounts			Totals	4,911,969	5,090,672	-4%	£300,457	£205,062	47%
Electricity Invoices			2005/6	2004/5	% change	2005/6	2004/5	% change	
Others			kWh	kWh	kWh	£	£	£	
King's Meadow Campus	6901	S4	2,046,139	750,000	173%	143,525	50,000	187%	
Clinical Sciences (City Hospital)	3325	E3	1,044,970	1,075,000	-3%	76,000	50,900	49%	
Derby Medical School	3561	S4	821,186	888,124	-8%	54,351	43,287	26%	
14-22 Shakespeare Street	6101	##	63,605	82,530	-23%	3,144	3,543	-11%	
Unit 5, William Lee Buildings	6885	##	28,608	31,505	-9%	1,522	1,409	8%	
Unit 6, William Lee Buildings	6883	##	26,210	30,305	-14%	1,406	1,390	1%	
Grove Farm - Changing Rooms	6122	##	22,900	13,049	75%	1,405	600	134%	
Unit 8, William Lee Buildings	6884	##	25,226	26,344	-4%	1,363	1,257	8%	
8 Peachey Street	6102	##	15,809	23,148	-32%	883	1,143	-23%	
Clumber Lodge	6900	N0	19,706	26,485	-26%	862	1,191	-28%	
Sports Ground - Highfields	6311	##	7,967	37,207	-79%	749	1,481	-49%	
Grove Farm	6123	##	9,072	4,565	99%	686	345	99%	
Grove Farm - Old Farmhouse	6121	##	3,102	10,334	-70%	467	572	-18%	
Boat House	6321	##	-70	21,844	-100%	25	976	-97%	
Total of 14 accounts			4,134,430	3,020,440	37%	£286,388	£158,094	81%	
Electricity Invoices			2005/6	2004/5	% change	2005/6	2004/5	% change	
Medical School			kWh	kWh	kWh	£	£	£	
Medical School			7,920,000	7,650,000	4%	365,000	318,000	15%	
Embedded Units (Q.M.C.)			2,284,000	2,250,000	2%	98,000	83,000	18%	
Totals			10,204,000	9,900,000	3%	£463,000	£401,000	15%	

4.B - Appendix B – Fossil Fuel Data

Gas Invoices			2005/6	2004/5	% change	2005/6	2004/5	% change
Main Campus			kWh	kWh	kWh	£	£	£
Central Heating Station	1000	##	29,424,276	36,830,608	-20%	£683,274	£317,774	115%
Rutland Hall & Sherwood Hall	2191	##	3,193,447	3,355,938	-5%	£90,772	£33,822	168%
Hugh Stewart Hall	2181	##	2,489,463	2,413,024	3%	£57,733	£24,376	137%
Cripps Hall	2171	##	2,350,540	2,689,005	-13%	£53,897	£27,122	99%
Derby Hall	2121	##	2,077,816	2,351,562	-12%	£48,563	£23,614	106%
Bio-Molecular Sciences	1353	##	1,853,722	1,973,492	-6%	£43,787	£19,870	120%
Lincoln Hall	2151	##	1,624,931	1,538,214	6%	£38,178	£15,471	147%
Lenton & Wortley Hall	2141	##	1,649,854	1,686,290	-2%	£37,736	£17,152	120%
Nightingale Hall	2161	##	1,580,473	1,551,047	2%	£37,199	£15,625	138%
Willoughby Hall	2211	##	1,548,480	1,535,468	1%	£31,874	£15,538	105%
Jesse Boot Conference Centre	1481	##	1,384,625	1,244,902	11%	£30,809	£12,816	140%
Florence Boot Hall	2131	##	1,169,694	1,216,369	-4%	£27,597	£12,301	124%
Tower, MRI etc	1271	##	1,149,048	1,265,298	-9%	£26,258	£12,875	104%
Cavendish Hall	2111	##	1,098,916	1,034,618	6%	£26,147	£10,469	150%
Swimming Pool	1571	##	1,158,326	1,130,524	2%	£25,218	£11,640	117%
Ancaster Hall	2101	##	991,639	1,027,223	-3%	£22,721	£10,438	118%
Boots Science Building	1581	##	958,352	1,156,775	-17%	£21,965	£11,993	83%
Institute of Hearing Research	1401	##	989,560	819,966	21%	£21,511	£8,550	152%
Architecture	1433	##	498,581	852,483	-42%	£14,683	£8,347	76%
Sports Centre, Main Campus	1221	##	584,477	602,110	-3%	£13,668	£6,012	127%
Trent, Law & SS etc	1101	##	555,850	660,366	-16%	£13,192	£6,540	102%
Staff Club Lenton Mount	1181	##	509,283	492,472	3%	£11,433	£4,987	129%
Arts Centre & School of Music	1501	##	447,240	489,621	-9%	£10,136	£5,037	101%
D.H.Lawrence Lakeside Pavilion	1631	##	420,318	363,791	16%	£10,092	£3,695	173%
Wolfson Building	1421	##	359,319	490,174	-27%	£8,327	£4,917	69%
Lenton Hurst	2411	##	324,246	401,407	-19%	£7,463	£4,068	83%
Cripps Hall Kitchen	2171	##	313,360	283955	10%	£6,592	£2,957	123%
Redcourt	2221	##	333,719	294,002	14%	£6,572	£2,977	121%
Cripps Health Centre	1231	##	284,649	263,175	8%	£6,468	£2,680	141%
Portland Building Extension	1111	##	219,350	241,827	-9%	£5,041	£2,433	107%
MMEM (Production Engineering)	1371	##	209,559	157,837	33%	£4,907	£1,582	210%
Sports Centre, Fitness Centre	1221	##	235,368	101,122	133%	£4,627	£1,443	221%
New Studio (Built Environment)	1439	##	228,542	168,664	36%	£4,364	£3,145	39%
Lenton Close Annexe (Cripps Hall)	2175	##	182,293	185,777	-2%	£4,150	£1,879	121%
Sustainable Research Building	1436	##	185,569	109,177	70%	£4,016	£1,078	273%
Lenton Grove (History)	1211	##	170,309	203,982	-17%	£3,998	£1,998	100%
Sherwood Hall Kitchen	2200	##	179,121	183,918	-3%	£3,958	£1,870	112%
Paton House (Built Env.)	1441	##	151,624	170,590	-11%	£3,557	£1,699	109%
Lincoln Hall Kitchen	2151	##	151,775	162,473	-7%	£3,405	£1,653	106%
Lenton & Wortley Hall Kitchen	2141	##	126,590	89,591	41%	£2,737	£927	195%
Cavendish Hall Kitchen	2111	##	122,184	117,890	4%	£2,622	£1,211	117%
Cavendish Hall Extension	2115	##	107,982	108,746	-1%	£2,300	£1,143	101%
Rutland Hall Extension	2195	##	100,345	109,021	-8%	£2,172	£1,151	89%
Rutland Hall Kitchen	2191	##	97,179	84,434	15%	£2,081	£827	152%
Playgroup	1411	##	87,769	73,004	20%	£2,041	£723	182%
Lenton Eaves (UNSSC) - Gas	1461	##	90,000	0	-	£1,800	£0	-
China House (Lenton Fields)	2163	##	97,000	90,000	8%	£1,760	£880	100%
Orchards	1161	##	68,749	73,286	-6%	£1,650	£719	129%
Portland Building Bar	1111	##	68,286	67,960	0%	£1,398	£698	100%
J.Boot C.C. Annexe (Cottage)	1482	##	60,408	61,407	-2%	£1,384	£618	124%
Former Warden's House, Cavendis	2113	##	54,647	56,663	-4%	£1,233	£579	113%
Warden's House Sherwood Hall	2207	##	53,476	51,772	3%	£1,227	£522	135%
Lenton Lodge	2251	##	47,979	51,948	-8%	£1,145	£510	125%
Warden's House Rutland Hall	2194	##	42,836	54,628	-22%	£1,032	£543	90%
Warden's House Ancaster Hall	2105	##	38,529	37,483	3%	£874	£389	125%
Lenton Firs Lodge West	2241	##	35,911	28,196	27%	£837	£282	197%
1 Nightingale Close (Nigh.Hall Warc	2321	##	36,841	40,880	-10%	£831	£410	103%
Warden's House Florence Boot Hal	2133	##	34,483	31,838	8%	£766	£327	134%
Paton Cottage	####	##	28,614	24,455	17%	£658	£247	166%
Squash Courts (Sch of Built Env.)	1223	##	42,566	43,595	-2%	£606	£430	41%
5A Wortley Hall Close (Eco-House)	2296	##	19,856	18,786	6%	£283	£44	543%
Sherwood Hall Laundry	2200	##	7,777	8,758	-11%	£153	£89	72%
Total of 62 accounts	Totals		64,707,721	73,023,587	-11%	1,507,478	685,712	120%

4.B - Appendix B – Fossil Fuel Data continued

Gas Invoices			2005/6	2004/5	% change	2005/6	2004/5	% change
Sutton Bonington			kWh	kWh	kWh	£	£	£
Sutton Bonington Campus	6800	##	9,214,579	10,015,554	-8%	£208,663	£101,981	105%
Plant Sciences	5711	##	2,444,601	2,700,473	-9%	£58,949	£27,568	114%
Animal Houses Boilerhouse	6800	##	2,588,200	2,585,629	0%	£56,881	£26,630	114%
The Elms (Environmental Science)	5161	##	185,342	154,862	20%	£4,418	£1,558	184%
Sports Pavilion Sutton Bonington	5621	##	93,710	104,625	-10%	£2,212	£1,040	113%
Main Building (Sutton Bonington)	5011	##	93,484	95,221	-2%	£2,173	£967	125%
Hathern House, Bon. Hall (4)	5831	##	95,295	95,062	0%	£2,094	£940	123%
Sports Hall Sutton Bonington	5221	##	84,964	95,053	-11%	£2,050	£940	118%
Eviton House (68 College Road)	5891	##	74,117	140,026	-47%	£1,726	£1,405	23%
Food Sciences Building	5701	##	59,791	59,505	0%	£1,227	£631	94%
St.Michael's Flats Nos 6&7	6842	##	50,422	43,430	16%	£1,207	£439	175%
Bonington Hall Laundry & Gym	5881	##	54,114	51,344	5%	£1,192	£525	127%
Food Hall	5081	##	47,563	52,122	-9%	£1,071	£553	94%
Bonington Hall Warden's House	5842	##	38,893	41,012	-5%	£903	£409	121%
Portakabins (T.C.R. unit)	5301	##	57,993	89,501	-35%	£829	£1,100	-25%
St.Michael's House Flat 1	6841	##	24,477	20,867	17%	£561	£210	167%
St.Michael's House Flat 4	6841	##	21,763	17,991	21%	£501	£182	175%
24 College Road	6805	##	20,552	21,687	-5%	£490	£213	130%
St.Michael's Flats Nos 8&9	6843	##	32,771	23,292	41%	£470	£235	100%
52 College Road	6820	##	19,591	17,002	15%	£456	£168	171%
St.Michael's House Flat 5	6841	##	17,016	5,350	218%	£414	£54	667%
St.Michael's House Flat 2	6841	##	13,500	15,361	-12%	£318	£155	105%
St.Michael's House Flat 3	6841	##	9,663	18,497	-48%	£233	£187	25%
North Laboratory	5091	##	947	27,311	-97%	£21	£270	-92%
Total of 24 accounts	Totals		15,343,348	16,490,777	-7%	349,059	168,360	107%
Gas Invoices			2005/6	2004/5	% change	2005/6	2004/5	% change
Jubilee Campus			kWh	kWh	kWh	£	£	£
Newark Hall	7130	##	1,334,531	1,184,313	13%	£30,390	£12,025	153%
Southwell Hall	7120	##	703,900	596,352	18%	£16,092	£6,005	168%
Computer Sciences (DCS) & The A	7040	##	625,451	868,098	-28%	£14,746	£8,805	67%
Melton Hall	7110	##	542,810	633,775	-14%	£12,299	£6,483	90%
The Exchange (CTF)	7030	##	456,864	470,458	-3%	£10,939	£4,673	134%
Dearing Building (FOE)	7050	##	389,591	417,149	-7%	£9,190	£4,178	120%
Computer Sciences (DCS) & The A	7040	##	344,324	381,146	-10%	£8,116	£3,842	111%
New Business School	7080	##	294,807	472,422	-38%	£7,021	£6,364	10%
Business School (SMF)	7020	##	264,721	281,194	-6%	£6,349	£2,813	126%
Jubilee Sports Centre	7301		70,000	0	-	£1,750	£0	-
Total of 10 items			5,026,999	5,304,907	-5%	116,892	55,188	112%
Gas Invoices			2005/6	2004/5	% change	2005/6	2004/5	% change
Others			kWh	kWh	kWh	£	£	£
King's Meadow Campus	6901	##	2,825,631	3,382,946	-16%	£64,308	£40,940	57%
Clinical Sciences (City Hospital)	3325		1,517,401	1,786,980	-15%	£35,000	£18,100	93%
Derby Medical School	3561	##	929,196	1,105,112	-16%	£22,415	£11,072	102%
Grove Farm - OIL	6122		225,884	277,976	-19%	£7,945	£7,328	8%
Clumber Lodge	6900	##	356,864	218,544	63%	£6,700	£2,207	204%
14-22 Shakespeare Street	6101	##	239,154	267,061	-10%	£5,782	£2,635	119%
8 Peachey Street	6102	##	90,655	99,271	-9%	£2,174	£1,003	117%
Sports Ground - Highfields	6311	##	84,196	79,986	5%	£1,412	£2,062	-32%
Unit 5, William Lee Buildings	6885	##	65,697	53,296	23%	£1,336	£1,072	25%
Sports Ground - Highfields	6311	##	30,034	87,223	-66%	£745	£880	-15%
Unit 6, William Lee Buildings	6883	##	45,081	24,663	83%	£668	£502	33%
Sports Ground - Highfields	6311		0	159	-100%	£0	£2	-100%
Total of 12 accounts			6,409,793	7,383,217	-13%	148,485	87,803	69%
Steam Used			2005/6	2004/5	% change	2005/6	2004/5	% change
Medical School			kWh	kWh	kWh	£	£	£
Medical School	(Steam)		21,418,475	19,750,000	8%	£685,857	£465,000	47%
Embedded Units (Q.M.C.)	(Steam)		4,893,437	4,500,000	9%	£163,175	£102,000	60%
Tota			26,311,912	24,250,000	9%	£849,032	£567,000	50%

4.C - Appendix C – Water Data

Water Invoices			2005/6	2004/5	% change	2005/6	2004/5	% change
Main Campus			cubic m.	cubic m.	cubic m.	£	£	£
Water and SWD	1000	##	0	0	-	364,652	343,430	6%
TE and Sewerage	1000	##	0	0	-	302,892	287,311	5%
Main Supply, S.Ent	1000	##	512,491	561,659	-9%	0	0	-
Nightingale Hall	2161	##	10,540	10,900	-3%	0	0	-
Science Area	1000	##	8,316	14,890	-44%	0	0	-
Jesse Boot Conference Centre	1481	##	6,862	6,782	1%	0	0	-
Jesse Boot Conference Centre	1481	##	3,257	3,872	-16%	0	0	-
Lenton Hurst	2411	##	1,070	1,200	-11%	0	0	-
Lenton Eaves (UNSSC)	1461	##	905	740	22%	0	0	-
Architecture	1433	##	726	1,665	-56%	0	0	-
Lenton Grove (History)	1211	##	506	1,839	-72%	0	0	-
Redcourt	2221	##	437	399	10%	0	0	-
Paton House (Built Env.)	1441	##	421	3,456	-88%	0	0	-
Beeston Lane Gardeners' Compour	1511	##	360	309	17%	0	0	-
Lenton Lodge	2251	##	314	452	-31%	0	0	-
Playgroup	1411	##	239	238	0%	0	0	-
5A Wortley Hall Close (Eco-House)	2296	##	53	43	23%	0	0	-
Total of 17 accounts	Totals		546,497	608,444	-10%	667,544	630,741	6%
Water Invoices			2005/6	2004/5	% change	2005/6	2004/5	% change
Sutton Bonington			cubic m.	cubic m.	cubic m.	£	£	£
S B Campus Water DD	6800	##	0	0	-	105,000	77,300	36%
SB Trade Effluent & Sewerage	6800	##	0	0	-	77,000	57,091	35%
St.Michael's Close	6841	##	1,997	10132	-80%	3,445	15,207	-77%
Bunny Farm	6860	##	555	600	-8%	589	550	7%
Trough, Kegworth	6910	##	0	0	-	18	17	6%
Landcroft Lane meter	6800	##	145,500	112,000	30%	0	0	-
College Road meter	6800	##	14,000	26,000	-46%	0	0	-
Total of 7 accounts			162,052	148,732	9%	186,052	150,165	24%
Water Invoices			2005/6	2004/5	% change	2005/6	2004/5	% change
New Campus			cubic m.	cubic m.	cubic m.	£	£	£
Jubilee Campus Payments	7000	023	0	0	-	66,000	81,901	-19%
Newark Hall	7130	##	14,658	14,746	-1%	27,010	23,577	15%
Southwell Hall	7120	##	9,333	7,672	22%	18,811	13,465	40%
Triumph House	6701	##	416	24	1633%	912	215	324%
Triumph House	6701	##	0	0	-	198	147	35%
Charnock Ave Sports Pavilion	7201	##	29	7	314%	72	32	125%
Jubilee Campus Water volume	7000	##	52,098	64,420	-19%	0	0	-
Total of 8 items			76,534	86,869	-12%	113,003	119,337	-5%
Water Invoices			2005/6	2004/5	% change	2005/6	2004/5	% change
Others			cubic m.	cubic m.	cubic m.	£	£	£
King's Meadow Campus	6901	##	5,814	8,000	-27%	27,324	14,000	95%
Clinical Sciences (City Hospital)	3325	W3	13,262	22,317	-41%	17,000	23,500	-28%
Sports Ground - Highfields	6311	##	1,280	845	51%	2,217	1,277	74%
Grove Farm - Changing Rooms	6122	##	961	0	-	1,070	173	518%
14-22 Shakespeare Street	6101	##	559	618	-10%	983	962	0
Unit 6, William Lee Buildings	6883	##	48	63	-24%	668	650	3%
Clumber Lodge	6900	##	629	5373	-88%	648	4783	-86%
Unit 5, William Lee Buildings	6885	##	116	77	51%	508	410	0
Boat House	6321	##	185	511	-64%	321	700	-54%
8 Peachey Street	6102	##	107	97	10%	293	241	22%
Unit 8, Edison Village (Synergy Hou	6891	##	26	74	-65%	142	201	0
Unit 8, William Lee Buildings	6884	##	0	0	-	51	68	-25%
Total of 12 accounts			22,987	37,975	-39%	51,225	46,965	9%
Water Recharges			2005/6	2004/5	% change	2005/6	2004/5	% change
Medical School			cubic m.	cubic m.	cubic m.	£	£	£
Medical School			32,318	32,770	-1%	53,000	47,000	13%
Embedded Units (Q.M.C.)			10,800	10,800	0%	13,200	11,500	15%
			43,118	43,570	-1%	66,200	58,500	13%

4.D – Appendix D – Major areas of work during 2005/6

- Installation of Urinal flush controls (all campuses)
- New heating controls at Lenton Hurst (University Park)
- Improved temperature control of absorption chillers at Nottingham Medical School
- New automatic lighting controls in meeting rooms and toilets (all campuses)
- Installation of capacitors in University Park Substations to reduce wasted electrical power
- Installation of inverters on fans at Maths & Physics air handling units
- Major recommissioning of BMS energy controls at North Lab, Sutton Bonington
- Use of BMS to restrict electrical wastage at fan coil units at New Business School, Jubilee Campus
- Replacement of failed heating control valves, King's Meadow Campus
- Reduction in heating and electrical consumption from awareness campaign over costs of running fume cupboards, with particular reductions in Chemistry building and Boots Science building (University Park)
- Replacement of single-glazed windows with double glazing in halls of residence