

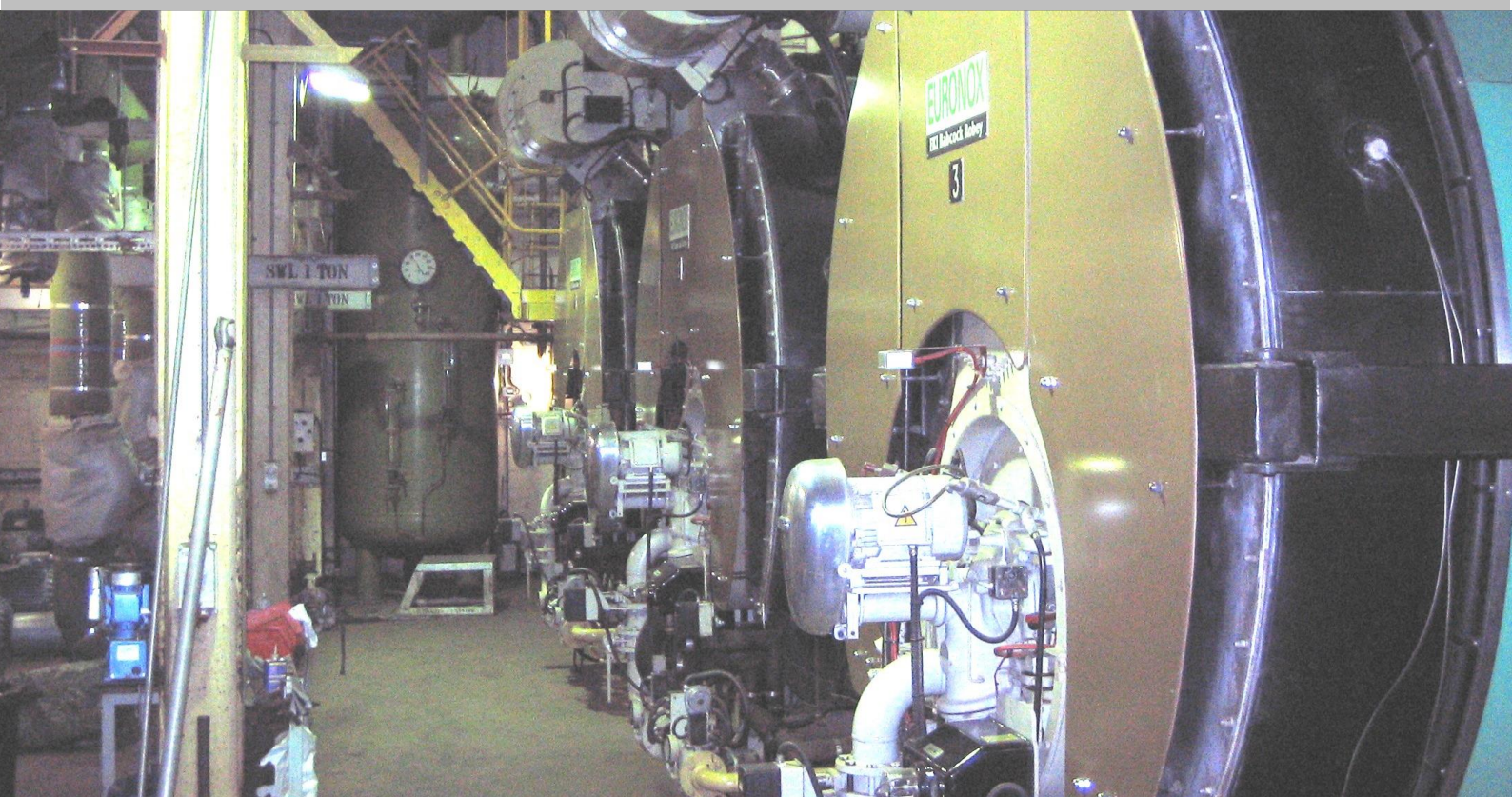


## Energy Report 2002/3 to 2016/17

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# TRENDS IN ENERGY & WATER CONSUMPTION 2003 TO 2017

Short Summary



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## OUR ENERGY CONSUMPTION HAS BARELY INCREASED OVER THE PERIOD

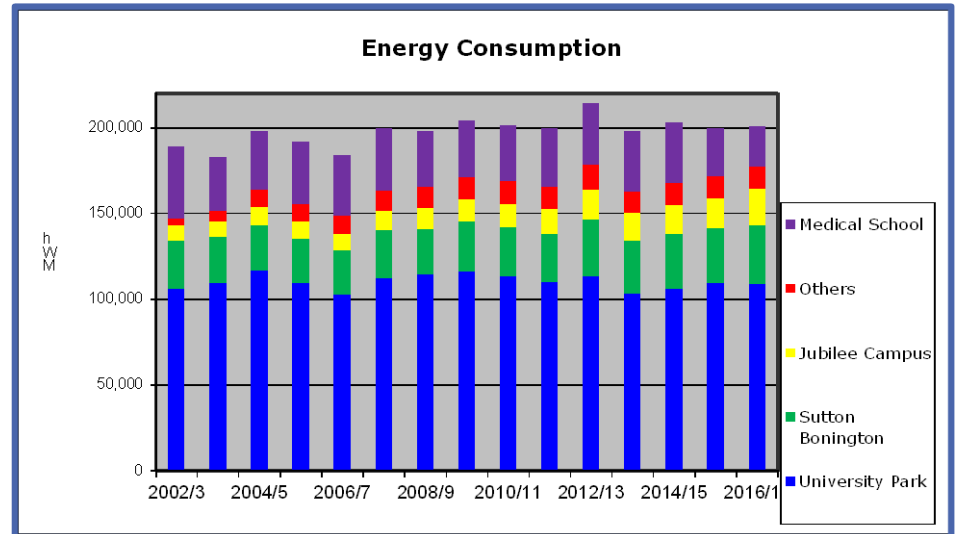
Overall energy consumption is up by 6% since 2002/3, but has decreased by 2% between the 'base year' for carbon reporting of 2009/10 and the present.

This is despite the considerable developments at Jubilee Campus, the acquisition of the King's Meadow Campus, and growth at University Park and Sutton Bonington.



The chimney for the main boilerhouse at University Park

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Floor area increased by 36% over this period

Gross floor area was 491,700m<sup>2</sup> in 2002/3, rising by 26% to 618,870 m<sup>2</sup> in 2009/10, and reaching 668,230 m<sup>2</sup> by 2016/17.

Electricity consumption has risen...

There were considerable rises in the early years, with consumption up 27% between 2002/3 and 2009/10, but only rising another 2% to the present day.

.. but gas consumption is down overall

Whilst there were increases at Jubilee Campus (new buildings) and Sutton Bonington (installation of gas-fired CHP)

these were outweighed by savings at University Park and the Medical School. The total reduction in gas usage is 6% since 2002/3.

Our water consumption is also down, by a total of 2% since 2002/3

Our consumption last year was 805,338 cu.m., but has varied between 700,000 and 900,000 cu.m over the period. This is an area where we could improve performance further, particularly with regards to reducing leakage.

Our renewable energy capacity is now 1,148kW

Most of this is photovoltaic (630kW), and was installed after 2002/3, when we just had 60kW of PV at Jubilee.

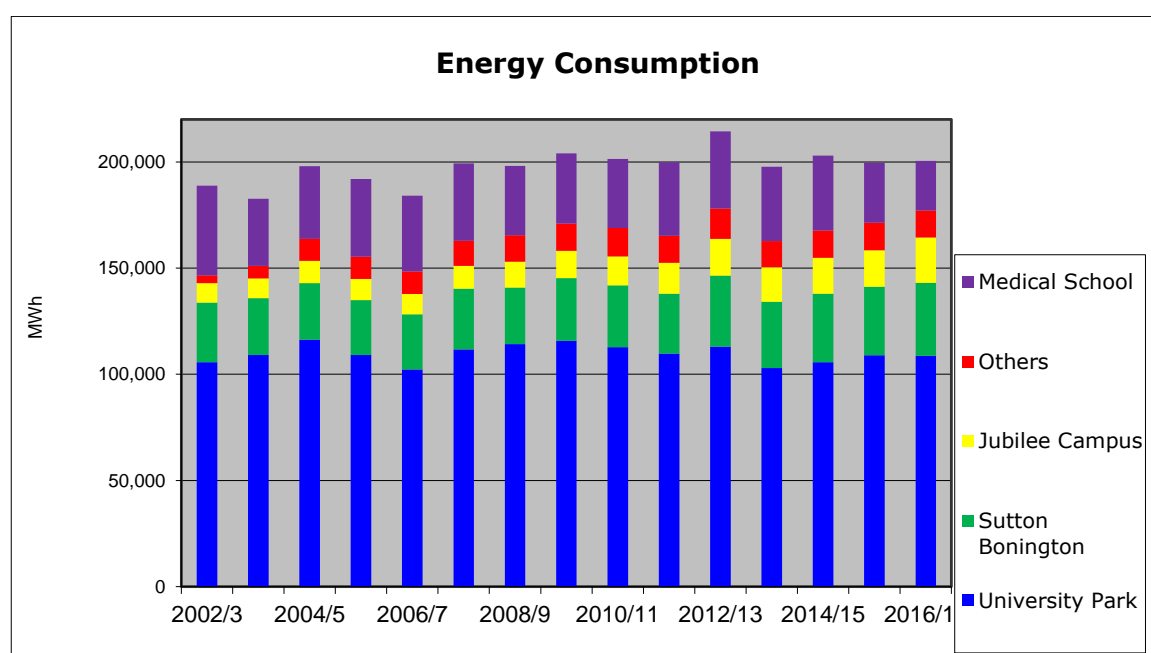
## Introduction

This report aims to show how the University of Nottingham's energy consumption has developed over the last fourteen years. This period has been chosen to show changes in the period leading up to and from 2009/10, which has been chosen as the 'base year' for showing changes in carbon emissions.

## Energy Use

Overall energy use – the total of gas and electricity usage – has remained remarkably constant over the period. This is despite the Estate's floor area increasing from 491,700m<sup>2</sup> in 2002/3 to 618,870m<sup>2</sup> in 2009/10 (an increase of 26%), and to 668,226m<sup>2</sup> by 2016/17 (a further rise of 8%).

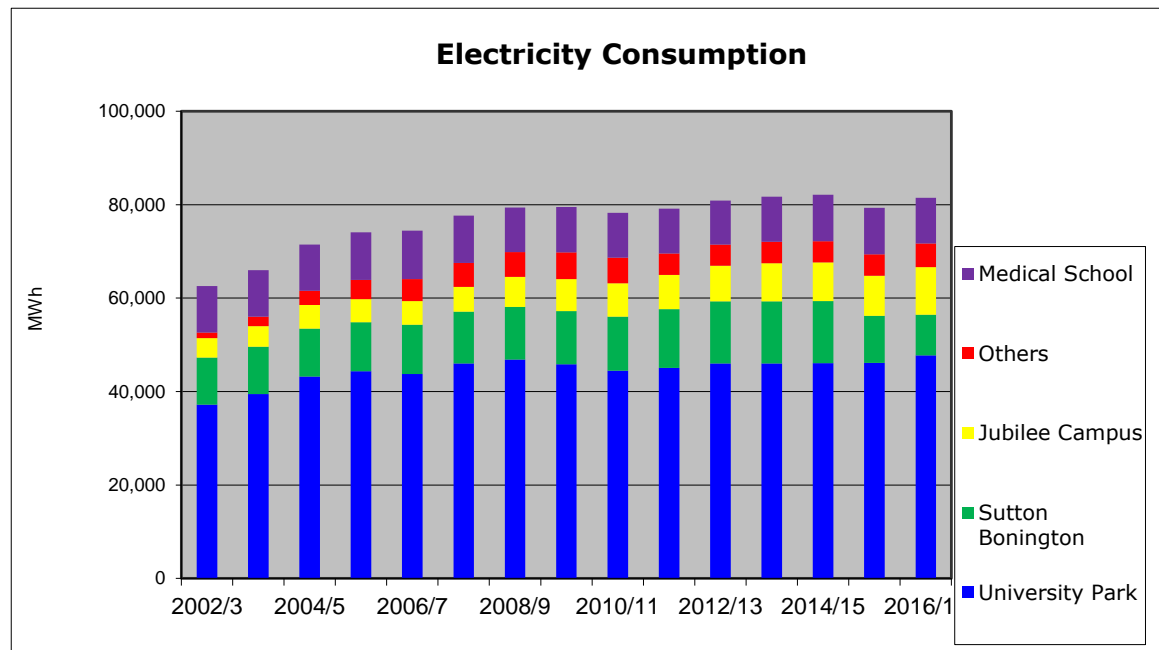
Energy Consumption	MWh	MWh	MWh	Change
	2002/3	2009/10	2016/17	'09/10 to '16/17
University Park	105,755	115,790	108,663	-6%
Sutton Bonington	28,036	29,428	34,402	17%
Jubilee Campus	9,087	12,874	21,309	66%
Others	3,704	12,899	12,806	-1%
Medical School	42,200	33,037	23,283	-30%
<b>Total</b>	<b>188,782</b>	<b>204,028</b>	<b>200,462</b>	<b>-2%</b>



## Electricity Consumption

Electricity consumption showed a steady rise from 2002/3 until 2008/89, before levelling off at around 80,000MWh/annum, a level it has broadly remained at ever since. The principal increases were due to the expansion of the Jubilee Campus, and the establishment of the King's Meadow Campus in 2004/5. The period has also seen a huge rise in the use of electricity within offices, teaching spaces and student bedrooms, with the development of computing being the main cause.

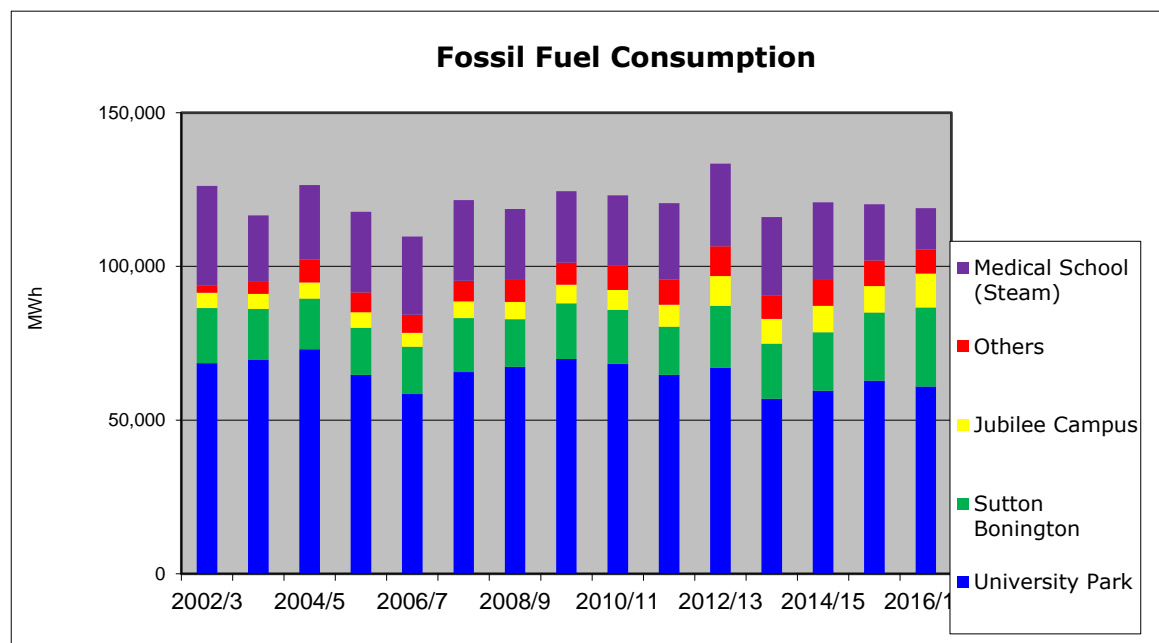
Electricity Consumption	MWh	MWh	MWh	Change
	2002/3	2009/10	2016/17	'09/10 to '16/17
University Park	37,192	45,867	47,737	4%
Sutton Bonington	10,094	11,339	8,699	-23%
Jubilee Campus	4,139	6,854	10,223	49%
Others	1,233	5,709	5,015	-12%
Medical School	9,900	9,758	9,799	0%
<b>Total</b>	<b>62,558</b>	<b>79,527</b>	<b>81,474</b>	<b>2%</b>



## Fossil Fuel (principally gas) Consumption

Gas consumption is slightly down over the period, peaking at 133,417 MWh in 2012/13, which was an unusually cold year. Much of our investment in energy saving measures over the period of this report was targeted at reducing energy used for heating. These measures were predominantly BMS (Building Management System) controls, a computer-based system that remotely monitors and controls our buildings' heating systems. The University now has one of the largest BMS systems in the country.

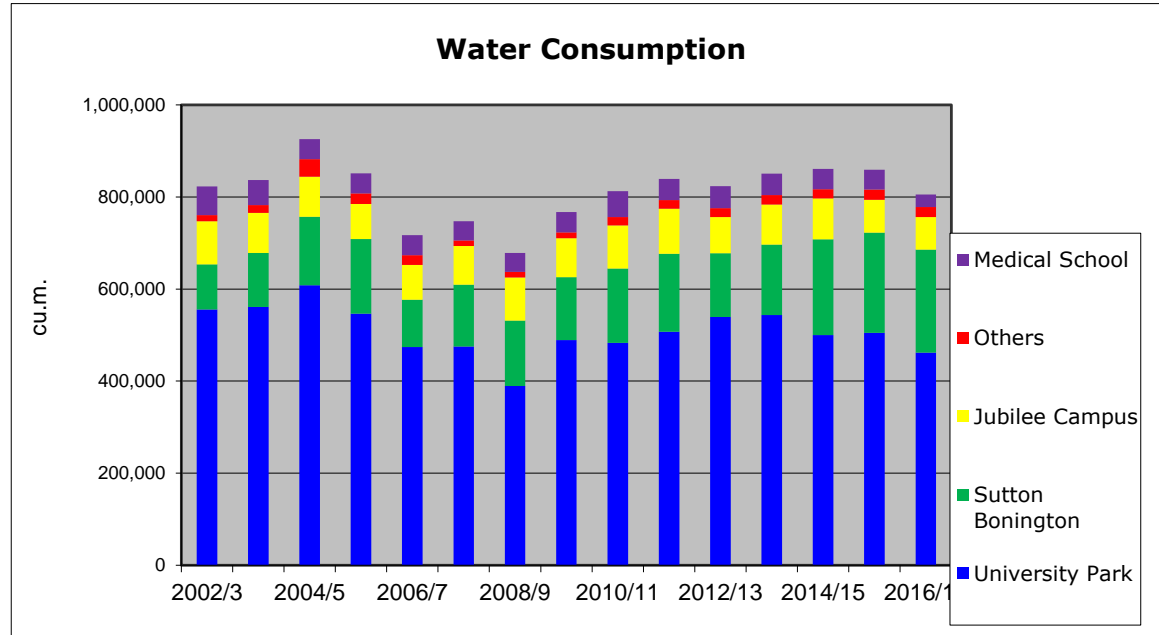
Fossil Fuel Consumption	MWh	MWh	MWh	Change
	2002/3	2009/10	2016/17	'09/10 to '16/17
University Park	68,562	69,923	60,925	-13%
Sutton Bonington	17,943	18,089	25,703	42%
Jubilee Campus	4,948	6,020	11,086	84%
Others	2,471	7,190	7,791	8%
Medical School (Steam)	32,300	23,279	13,484	-42%
<b>Total</b>	<b>126,224</b>	<b>124,501</b>	<b>118,989</b>	<b>-4%</b>



## Water Consumption

Water consumption has been quite variable over the period, varying between 678,000m<sup>3</sup> in 2008/9 and 926,000m<sup>3</sup> in 2004/5. Our performance on water consumption is still largely dependent on our usage at University Park and Sutton Bonington – the other sites, including all of Jubilee Campus, still use relatively little water. Leakage from our own internal water mains still remains the major problem, and although some improvements have been seen at University Park in recent years, usage has increased at Sutton Bonington.

Water Consumption	cubic m.	cubic m.	cubic m.	Change
	2002/3	2009/10	2016/17	'09/10 to '16/17
University Park	555,738	489,239	461,955	-6%
Sutton Bonington	97,625	136,755	223,538	63%
Jubilee Campus	94,094	84,248	70,940	-16%
Others	13,284	13,190	22,006	67%
Medical School	62,000	43,705	26,900	-38%
<b>Total</b>	<b>822,741</b>	<b>767,138</b>	<b>805,338</b>	<b>5%</b>

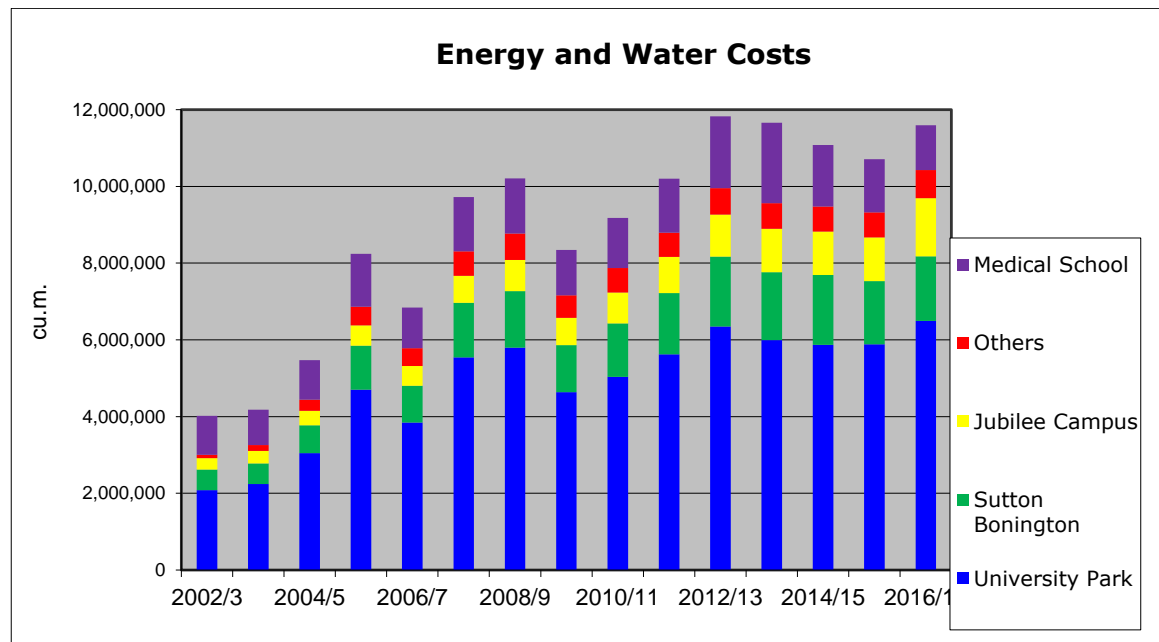


## Energy and Water Costs Summary

Costs increased rapidly in the early years of this report, increasing from £4.0 million in 2002/3 to £10.2 million in 2008/9. They have been relatively stable in the last five years, within a range of £10.7 million to £11.8 million.

Note that these figures exclude VAT and Climate Change Levy.

Energy and Water Costs				Change
	2002/3	2009/10	2016/17	'09/10 to '16/17
University Park	£2,077,626	£4,633,050	£ 6,492,810	40%
Sutton Bonington	£ 539,512	£1,229,968	£ 1,688,096	37%
Jubilee Campus	£ 296,760	£ 713,875	£ 1,513,842	112%
Others	£ 90,482	£ 585,856	£ 733,452	25%
Medical School	£1,013,500	£1,180,000	£ 1,167,173	-1%
<b>Total</b>	<b>£4,017,880</b>	<b>£8,342,749</b>	<b>£11,595,373</b>	<b>39%</b>







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