

Useful Simple Projects

T +44 (0) 20 7307 1000

F +44 (0) 20 7307 1001

E info@usefulsimple.co.uk

W www.usefulsimple.co.uk

Morley House
First Floor
320 Regent St
London W1B 3BB

Isleworth and Syon School for Boys

Benchmarking Report

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1. Introduction

The Isleworth and Syon School is a secondary boys school in the borough of Houslow with around 1000 pupils. The main school building is a brick construction completed in 1939. An arts and technology block was added in the 1970s, and some temporary hut-type classrooms were added as recently as about 18-months ago. In addition to the main site, there is also an off-site sports ground with changing rooms called Busch Corner.

In November 2010, Useful Simple Projects carried out an assessment of energy use in the school. This Benchmarking Report provides an assessment of utility data against national benchmarking standards. The basis of this report is drawings and historic energy data supplied by the school.



Figure 1.1 - Aerial Photo of the main school looking East

2. Summary of Utility Data

Comprehensive utility records dated from 1999 were provided by the school for gas, water and electricity. These have been compared against benchmark data for schools. Analysis of this information also provides us with an idea about how much energy might be saved through improvements to the operation of the school and the building fabric as identified in the Isleworth and Syon School for Boys Energy Audit.

2.1 Gas

There are two meters that feed the school, the main meter and the supply to the kitchen. Analysis of the main gas data shows good correlation with weather data. A small demand in summer indicates very low consumption of gas for heating water.

The adjacent graph (figure 2.1) shows significant reductions in energy use over the past few years. This coincides with a change in boiler maintenance and improvements implemented have led to a steady reduction in gas consumption.

The kitchen gas meter also shows good correlation with weather data which suggests that it serves space heating in addition to catering and hot water loads. For good energy management it is important to establish which areas are supplied through the kitchen gas meter.

There has also been a significant reduction in gas to the kitchen gas meter.

Compared with benchmark data, gas use is below average.

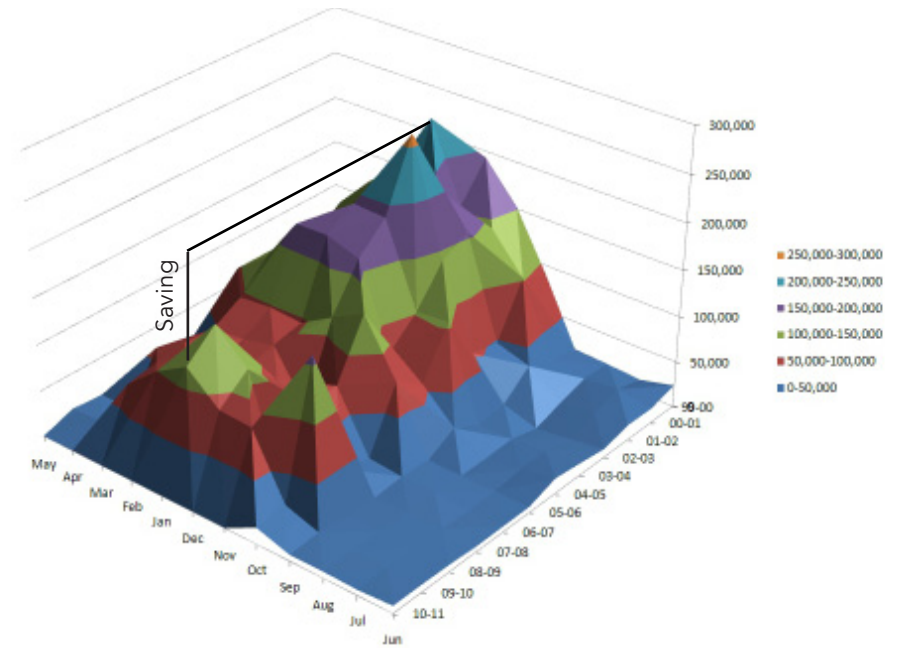


Figure 2.1 - Main Gas Consumption, kWh by Year and Month

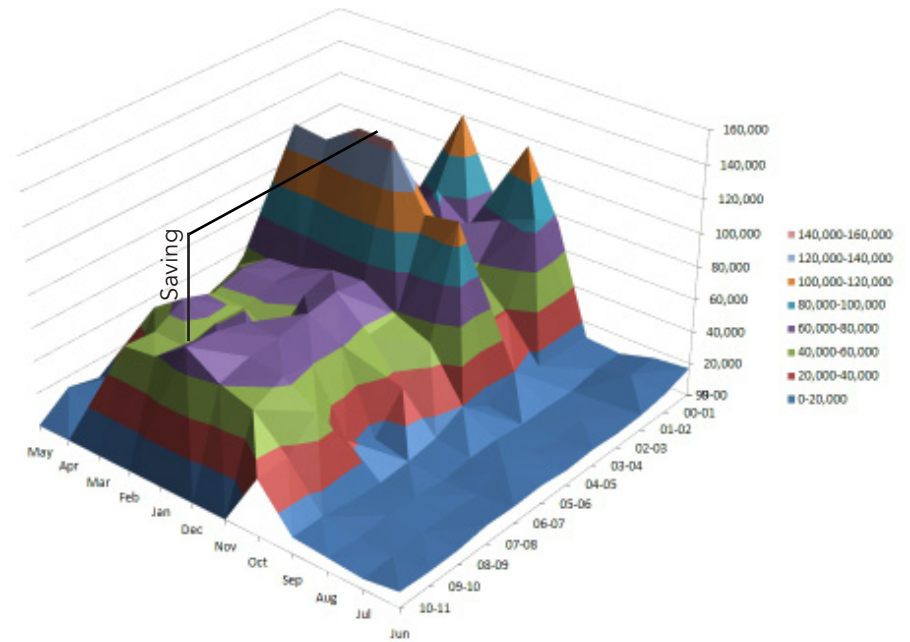


Figure 2.2 Kitchen Consumption, kWh by Year and Month

2.2 Electricity

The electricity load for the school is relatively high when compared against benchmark data. The graph adjacent shows the annual consumption over the past 10 years. Further analysis of the data over the course of the year shows that there is a relatively high base load costing about £4,300 annually (refer to Figure 2.4). This is equivalent to the base load of 56 homes and so is not insignificant. The 'lumpy' nature of the graph shows an erratic demand.

2.3 Water use

Consumption was found to be higher than benchmark averages. It was not possible to ascertain from the survey why water consumption should be especially high and since there is no sub-metering we are unable to determine the main source of consumption. Guidance on consumption within schools identifies toilet use as the principal demand.

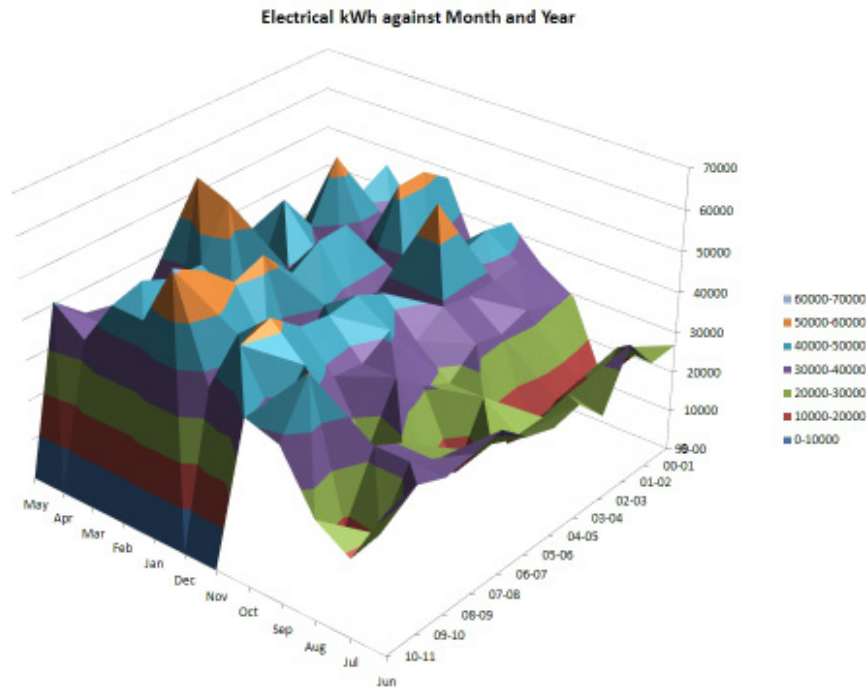


Figure 2.3 - Electricity consumption, kWh by Year and Month

Electricity, kWh

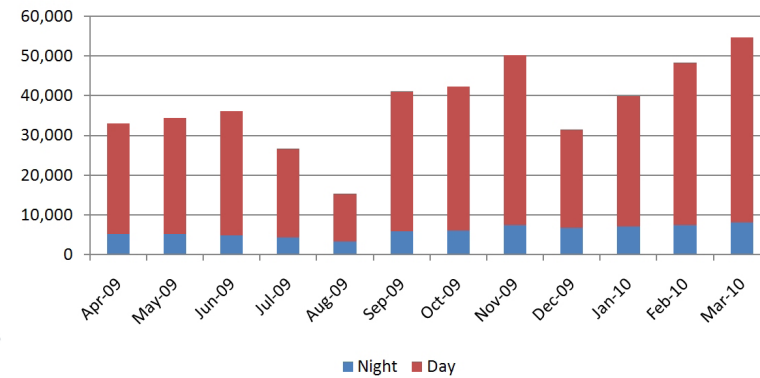


Figure 2.4 - Monthly electricity consumption, showing high baseload

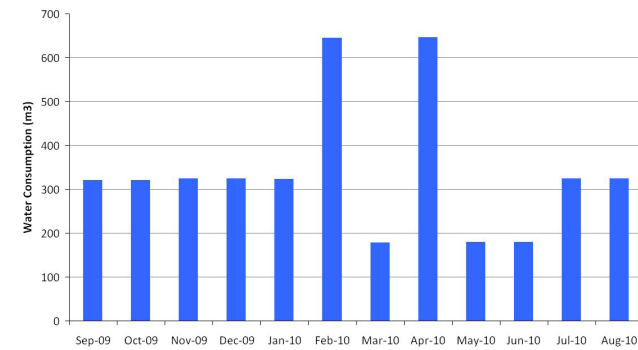


Figure 2.5 - Monthly Water Consumption

Annual Water Use (m³/pupil)

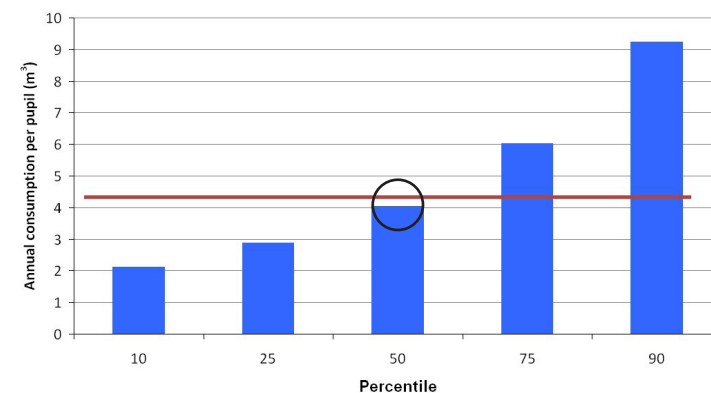


Figure 2.6 - Comparison with Benchmark Data - Consumption is above the median class

3. Comparison with Benchmark Data

The adjacent graphs compare consumption of electricity and gas with national benchmark data from measurements taken across a range of schools in 2003. These show that electricity consumption is higher than the average and in the upper quartile of all schools. The active management of the gas systems means the schools has a lower than average consumption in the lower 30 percentile. The combination of the slightly higher than average electricity consumption and a slightly lower than average gas consumption is that the school is in the median class in respect of carbon emissions and cost of energy per pupil.

This is good news, but the school should not be complacent in regard to its overall performance. It should be noted that this data is from 2003 and so we expect the benchmark data to improve in light of policy drivers and initiatives to reduce energy consumption. Further, given the nature of the UK school building stock, the average performance is probably quite low.

The results of the survey have identified a number of opportunities for substantial reduction in energy consumption. Continuing to report and analyse data in this way will help to drive and promote energy conservation, and will allow the school to set new standards for energy consumption.

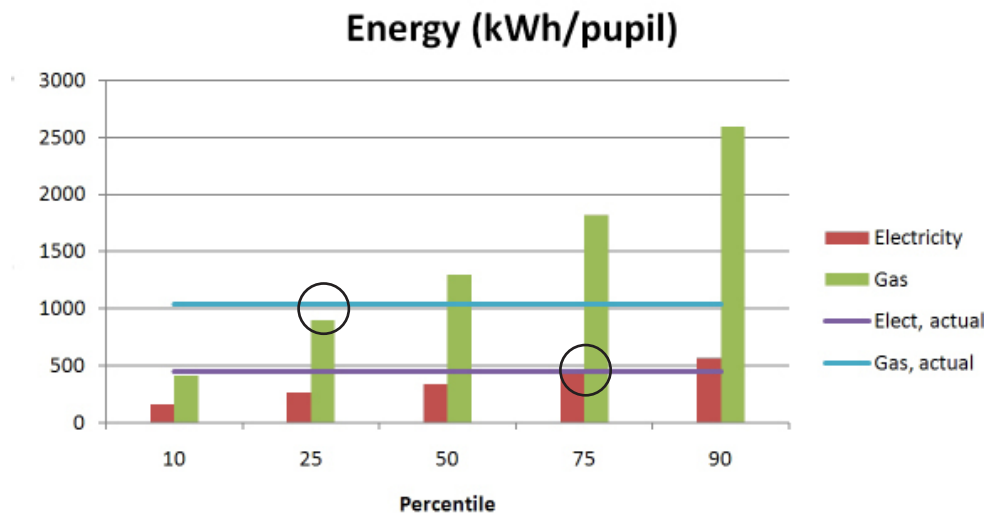


Figure 3.1 - Per pupil, electricity is at the threshold of the upper quartile and gas usage sits in between the lower quartile and the median (approximately in the best one-third of secondary schools).

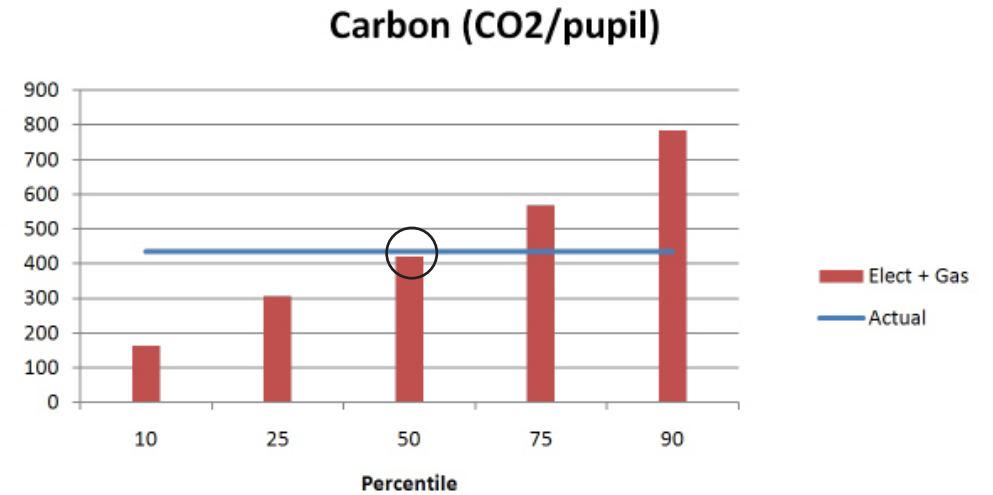


Figure 3.2 - In terms of CO2, the school is almost exactly at the median class.

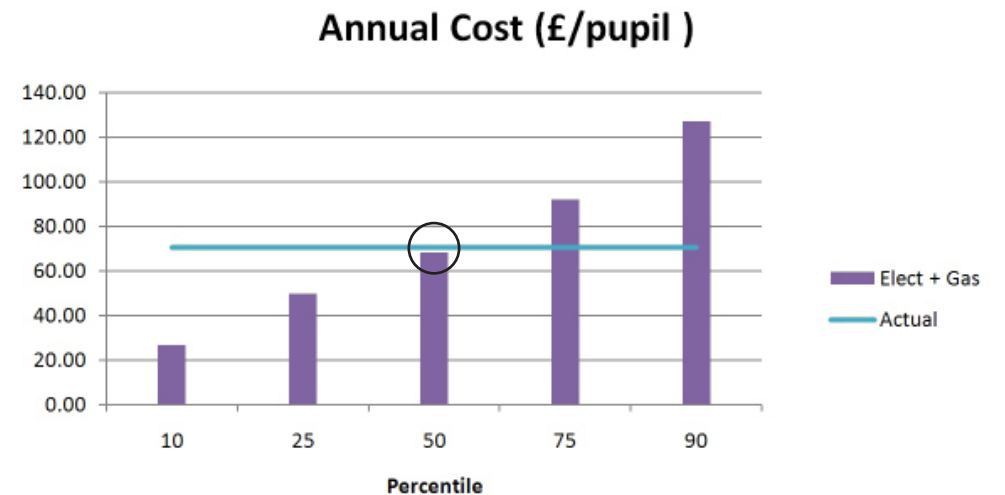


Figure 3.3 - In terms of cost, the school is almost exactly at the median class.