



PUB KITCHENS

ENERGY USE SURVEY



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the leisure industry specialists

Introduction



Nationwide Energy is often asked about what is an appropriate level of consumption for a pub kitchen, or for specific pieces of equipment. This can be difficult to quantify without detailed assessment as each kitchen, range of equipment, food offer and customer demands are different. **There are however clear lessons from the following research.**

The following information has been prepared based on a study of 14 Mitchell & Butler's pubs by the University of Reading. These pubs were all large food pubs. During the study, staff were unaware of the monitoring to avoid possible changes in behaviour.

The study focused on the electricity use as this could be accurately measured per appliance. Whilst the pubs were all of the one group, the kitchen equipment fitted and the patterns of use varied.

Consumption

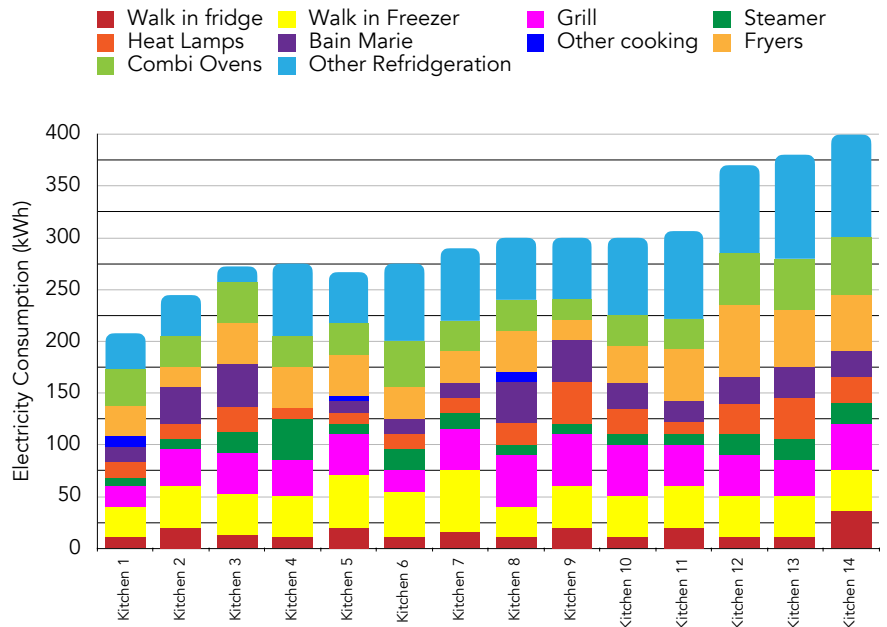


It was found that the kitchen consumed most of the electricity used by the pub, 63% on average.

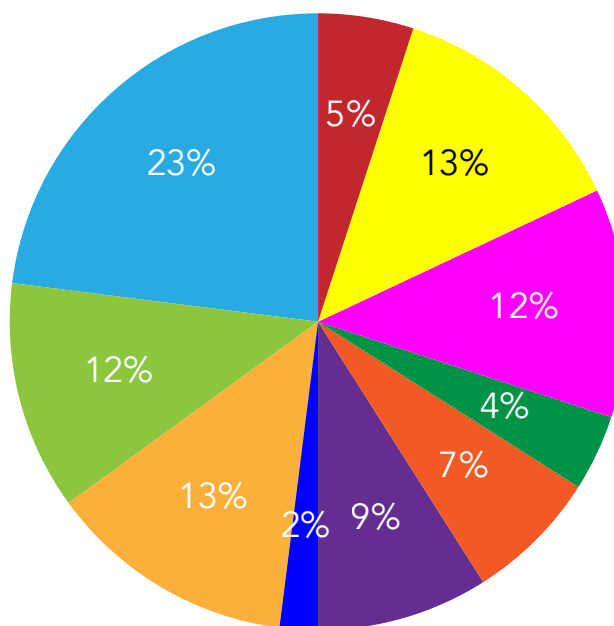
Overall averages were developed regarding categories of use, refrigeration at 41% was the biggest single area.

The pubs had both walk-in fridges and freezers and on average another 6 fridges and 3 freezers on site.

These pubs and kitchens are larger and have a wider range of equipment than most. It is clear from the graph that each had a different level of energy consumption overall and in terms of each appliance.



- Walk in Fridge
- Walk in Freezer
- Grill
- Steamer
- Heat Lamps
- Bain Marie
- Other Cooking Appliances
- Fryers
- Combi Ovens
- Other Refridgeration

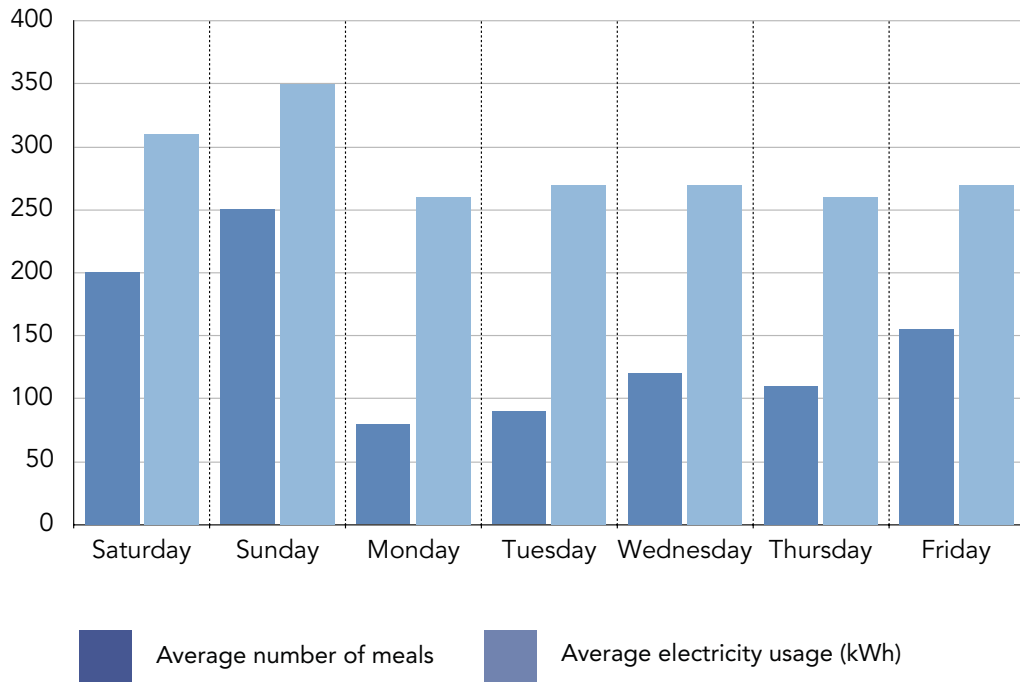


Costs per meal

The amount of energy used was not directly related to the number of meals prepared.

The number of meals on a Sunday could be 3 times what they were on a Monday, however energy only changed by 20%.

Therefore, the typical consumption and cost associated with each meal varies from 46p per meal on a Sunday to £1 per meal on a Monday.



Influencing Costs & Behaviour



Maintenance

The energy efficiency of appliances is a focus of great attention and businesses are often advised to replace older equipment with more energy efficient alternatives.

However, efficiency can also be greatly improved through ensuring it is properly maintained.

The research found that equipment is often poorly maintained and 50% of fridges & freezers were found to be faulty or developing problems. The most common fault was that the digital temperature was incorrect - too cold & wasting energy or too warm & risking food safety.

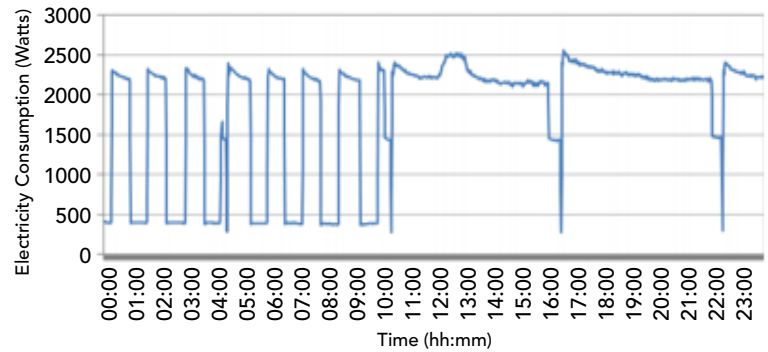
The graphs opposite are of the same walk-in freezer before and after maintenance shows savings of 45% on energy used.

The first graph shows the energy use of the walk-in freezer prior to maintenance. The motor is running for long periods, almost continuously during food service, to return the temperature to the set level.

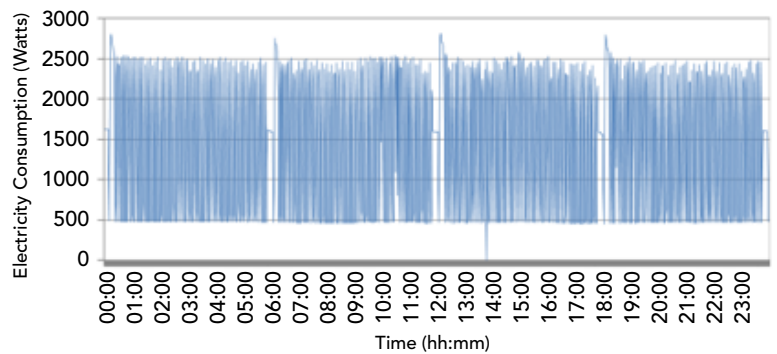
Following maintenance, the freezer motor operates for much shorter periods, including during food services.

As a result a saving of £5.28 per day or £1,927 per annum is achieved.

Prior to Maintenance



After Maintenance



Use equipment as required

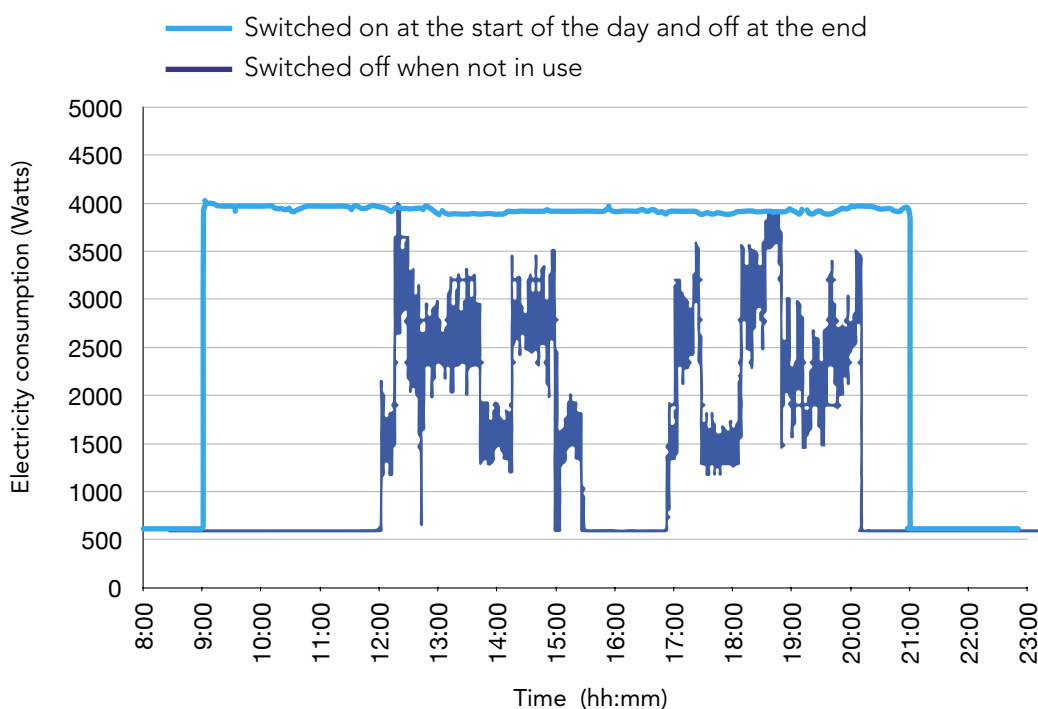


Even greater savings can be made by only using equipment when required. Switching it off or reducing the temperature at other times improves energy efficiency and can substantially lower costs.

The following graph shows the different use of a grill.

In the first pub, with the light blue line, it is switched on at the start of the day and off at the end.

The second pub, with the darker line, demonstrates a very efficient approach with the temperature being reduced or switched off when not in use.



The more efficient pattern showed a 71% saving on electricity, equivalent to £7.86 per day or £2,869 per annum.

Operating Costs



Without detailed monitoring it is very difficult to reach firm conclusions about the energy efficiency and running costs of any specific kitchen. The data provided in the research does allow general conclusions to be reached. The following information regarding daily consumption has been provided, with a costing based on a currently competitive 30ppkWh.

While it is acknowledged that not all kitchens will have equipment of this type, or size, some appliances will be found in every kitchen. The earlier "Cost per meal" graph showed that energy use didn't change very much when more or fewer meals were prepared and this suggests that appliances are on in some pubs, regardless of how heavily used they are. Consequently, any appliance in use, regardless of the number of meals produced may reflect similar costs unless it's used as required.

Appliance	Av Daily Consumption (kWh)	Av Daily Cost @ 30ppkWh
Walk in Fridge	13.81	£4.14
Walk in Freezer	39.17	£11.75
Grill	36.89	£11.07
Steamer	11.99	£3.60
Heat Lamps	20.7	£6.21
Bain Marie	27.19	£8.16
Other Cooking Appliances	6.08	£1.82
Fryers	40.82	£12.25
Combi-Ovens	35.71	£10.71
Other Refrigeration	70.13	£21.04
Daily Total	302.49	£90.75

Conclusions



Whilst many pub kitchens will be smaller than those in the sample, significant savings should be readily achievable for many.

The findings demonstrate that the equipment, patterns of use and efficiency in kitchens vary significantly even when part of a large chain. Substantial savings can be achieved by ensuring that equipment is maintained and operating efficiently.

In the study repairing a defective walk-in freezer saved 45% on energy use, which equates to **£1,927** annually.

Potentially greater savings can be made by ensuring that patterns of use reflect demand rather than operating at full power regardless of customer numbers. Taking the example of the most and least efficient use of the grill, calculating savings based on the average use would mean that a saving of **£2,869** could be achieved annually.

Looking at the list of equipment in the study a small number of high consumption appliances such as fryers, combi-ovens, grills and refrigeration equipment offer significant scope to substantially reduce consumption and costs. Ensuring equipment is maintained and its operation matched to demand can deliver substantial savings, regardless of the kitchen size.

If you would like more information or to arrange a no obligation survey, please contact Nationwide Energy Consultant's Appointments Co-ordinator:-

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Reference

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