

# SUSTAINABILITY AND ENERGY EFFICIENCY IN SCHOOL KITCHENS

**Current estimates indicate that the catering industry is one of the largest energy consumers in the commercial market, using approximately two and a half times more energy per square meter of floor area than the average commercial building.**

Rising fuel and water costs are changing the catering landscape forever, so reducing consumption must be integral to a sustainability strategy both from a cost and from an environmental perspective.

With energy costs averaging around 10% of operating costs, the energy cost per meal for most school caterers lies between 22p and 25p. (Average meal cost in the independent sector is £2.59, including food, labour and associated costs, not including energy. Average cost in the state sector is £2.20).

For a school producing 600 meals daily x 190 school days per year, the minimum energy cost for meal production is therefore around £25,000. Anything that increases energy efficiency and productivity will have a positive effect on profitability and the sustainability of the school meals operation.

## **What can be done to improve sustainability in the school kitchen?**

### **1. Maintain a healthy setup**

Regular and routine maintenance checks can significantly reduce the energy costs of catering operations. They also improve the lifetime of equipment and are important for maintaining food safety and hygiene standards.

Regularly service equipment to ensure heating elements, burner jets, thermostats, seals, valves and switches are in good working order. Just 1mm of limescale in a boiler adds upwards of 12% in energy costs to run that unit.

Equipment should therefore be frequently cleaned to remove deposits, scale and corrosion which affect heat transfer. A regular maintenance programme for all cooking equipment should be developed and implemented.



## 2. Specifying new equipment

One of the main reasons that catering operations waste energy is because staff quite rightly concentrate on servicing client demand.

Any *technology that can be implemented to make the most efficient use of energy should help to generate savings and improve the kitchen environment*. It will also work to provide better control and reduce kitchen temperatures.

(SOURCE: *Carbon Trust Sector Guide Sector guide CTV035, Food preparation and catering, Increase carbon savings without compromising on quality*).

## 3. What should the new kitchen look like?

Developments in catering technology deliver more reliable cooking while minimising energy and water consumption.

Insulated, thermostatically controlled **cooking kettles**, coupled with intelligent management systems produce substantial savings in terms of energy consumption and carbon footprint.

They replace larger and less efficient equipment such as cooking ranges, bratt pans and boiling tables, even food mixers.



Kettles are more efficient than traditional methods for producing food and save energy compared with conventional cooking. Kettles save space, cutting the need for ventilation and reducing the overall size of the kitchen building.

Kettles also reduce the need for other equipment because they are so versatile and multi-tasking. New kitchens can be built on a smaller basis, with less equipment, a smaller initial carbon footprint, but with more productivity.

### **MORE EFFICIENT**

Cooking kettles are much like your saucepan at home, with some notable differences and improvements. Hackman Metos cooking kettles are available in sizes from 40 to 400 litres. Stirring, chopping, blending and whipping can all be done for you automatically. Nothing will burn because the temperature control is so precise and because the contents are kept moving automatically.

Once up to temperature, the insulation built into the kettles ensures energy consumption drops to the minimum required to maintain temperature and keep the contents moving. Unlike conventional cooking where energy is wasted up the sides of pan or out of the flues of ovens, the energy consumed by a kettle is directed only into the food.

## MULTI-TASKING, MORE PRODUCTIVE

Head chef, King's School Grantham, Stewart Scrapps: "The kettles are basically big saucepans, which free up the stove space. I don't need pots on the stove any more, so there is less chance of burning."

"When the kettles are cold in the morning, we can mix pastry, crumble or sponge mix. They are as good as an industrial mixer and really put the air in. Then we can turn the heat on and make rice pudding or custard. The steam jacket means no chance of burning."

For lunch service, dishes such as pork stroganoff, paella, mashed potato and pasta come from the kettles while two combination ovens produce vegetables, roast meats and potatoes.

"The temperature in the kettles gets up to 110degC – nearly frying, perfect for sealing meat. For cheesecake it has an aerator attachment and we can also make bread dough and prove in it."

Good menu planning is crucial to getting the highest volumes from the equipment. Half a batch of tomato soup, for example, is reserved for turning into a tomato sauce for a chicken and pasta dish. One large batch of white sauce could become cheese sauce, mushroom soup and sauce for a chicken dish.

"Cooking times can reduce considerably. Rice pudding would normally take 1.5-2 hours conventionally but in the kettle it takes 40 minutes from scratch."

King's Grantham is also providing a meals service for nearby schools, using insulated food containers for delivery. This takes advantage of the high productivity of the kitchen, while providing a valuable stream of revenue.



## **ENERGY SAVING/SUSTAINABILITY**

Unfortunately, there are no supporting figures showing how much energy, water, labour etc., the Hackman Metos kettles save, compared with conventional equipment.

But there can be no doubt that the kettles offer more energy and space efficient cooking – and substantial labour savings – compared with traditional cooking ranges.

## **ENERGY CONSUMPTION**

**For the record, this is the energy used by a Hackman Metos Proveno 80 tilting cooking kettle to cook a batch of fresh mashed potato.**

The unit is cooking 30 kg of mash, an optimum load for this size of kettle. Cook time is 73 minutes and the energy consumption total is: 8.8 k/W

Energy consumption per kg is: 0.29 k/W

Energy cost (electric) at 13p k/Wh = 3.7p per kg or £1.14 per 30kg load.

The vast majority of the energy consumed by the kettle goes directly into the food.

This compares with a maximum energy efficiency of 40% by the traditional gas cooking ranges found in many school kitchens.

Induction ranges are vaunted for their efficiency, achieving around 85% efficiency. This is almost certainly less energy efficient than the kettles and then there is the issue of labour efficiency, where the mixing and stirring ability of the kettle wins hands down – literally!