

More cooking options.

34 % less energy and
53 % lower water consumption.

Research by Zurich University provides evidence of significant savings for kitchens using multifunctional cooking appliances.

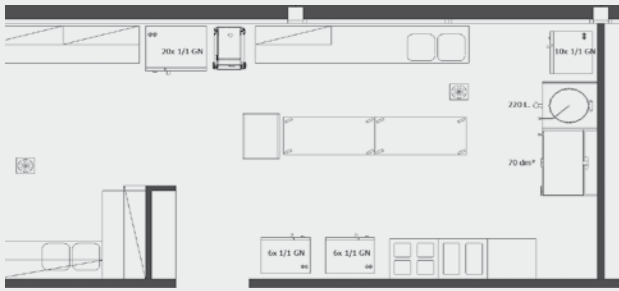
There is huge pressure on commercial kitchens to reduce costs by using less energy and reducing consumption of other resources, including water and raw materials. At the same time, there is pressure on kitchen space while customer demand is increasing – so operators need to produce better quality food, and more of it, from less space. To overcome these challenges, caterers are looking for innovative kitchen technologies that minimise the use of resources, offer maximum flexibility and performance, and meet the highest demands in terms of food quality.

Until now, the standard for energy efficiency (DIN 18873, <http://grosskuechen.cert.hki-online.de/en>) has been the only decision aid for buyers of commercial cooking appliances, except for manufacturer information. So the specific savings resulting from upgrading to new kitchen technology are unclear. For this reason, FRIMA International AG, as the market leader in multifunctional cooking technology and part of the RATIONAL Group decided to undertake a project with Zurich University for Applied Sciences, under the supervision of Prof. Dr.-Ing. Heinzelmann and SV Schweiz (Swiss catering and hotel management corporation). The aim of the project was to record the efficiency of multifunctional cooking technology under real conditions, with a 'before and after' comparison based on the most accurate possible measuring equipment.

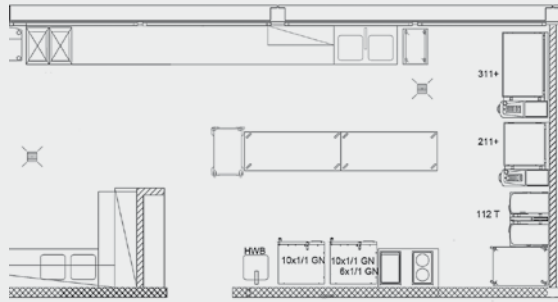
The staff restaurant of ABB Schweiz AG (manufacturer of energy and automation technology) in Dättwil-Baden operated by SV Schweiz was selected for the research project.

In spring 2014, the restaurant produced around 380 lunches daily, using the cook-and-hold method, with a menu choice of four different dishes. At the start of the project in April 2014, conventional technology was still being used and measurements of energy and water consumption were taken over a period of eight weeks. The number of main meals, the menu, food waste and over-production were also logged. The measurements showed the following requirement per main meal served: 0.58 kWh of electricity and 2.72 litres of water. (Dish-washing requirements were not considered in this study.)





Kitchen with **conventional** cooking technology before the renovation in 2014 (for approx. **450 meals**)



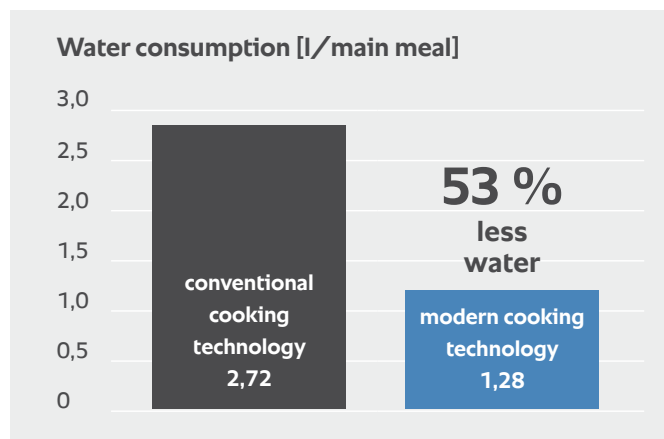
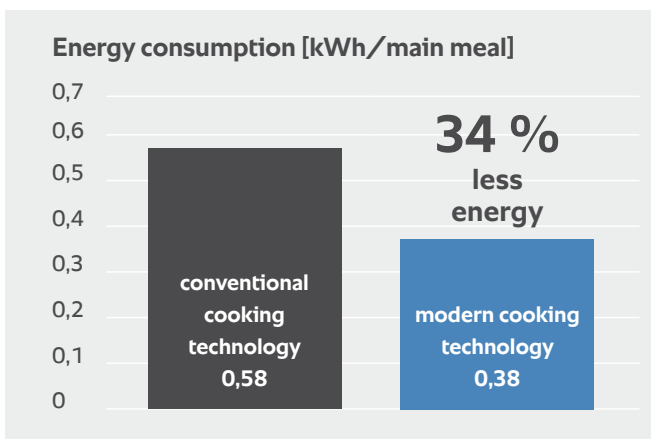
Kitchen with **modern** cooking technology after the renovation in 2015 (for approx. **700 meals**)

The kitchen renovation and installation of modern cooking technology from FRIMA and RATIONAL began in summer 2014. Measurements of energy and water consumption were then taken again, in order to enable the 'before and after' comparison. The measurements showed a significant reduction in consumption per main meal. Energy consumption dropped by 34 %, meaning only 0.38 kWh per main meal was now required. This corresponds to a reduction in annual CO₂ emissions of 1.8 tons. For water, consumption was only 1.28 litres per main meal, which was 53 % less than before.

Resource consumption per main meal

The project proved that modern cooking technology can optimise the use of resources, reducing energy and water consumption significantly. What's more, the staff restaurant was also able to increase the range of meals it offered, thanks to the expansion of cooking options.

"Thanks to these cost savings we were able to create an attractive front-of-house cooking concept, with a pizza oven and a pasta machine and boiler, without needing any extra budget," says Anton Bucher, Project Manager Planning & Construction SV Schweiz. "This creates a culinary experience and an attractive atmosphere, not only for our guests but also for the restaurant staff themselves."



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