

The Better Tomorrow Plan Case study

We Do Energy & Emissions

OUR COMMITMENT: We will reduce our carbon footprint in all the countries where we operate and at clients' sites by 2020.



Key figures (2008 - 10)

- ➔ 450 Endocubes fitted
- ➔ Approximately 570,000 kWh less electricity per year
- ➔ Save more than 230 tonnes of CO2 per year

United Kingdom

Endocube

As part of the Better Tomorrow Plan commitment to reduce the carbon footprint, Sodexo promotes **Endocube**, an energy-saving device that can economize as much as **30% of the energy consumption of food refrigeration units**.

Creating value for our clients

The benefits of fitting the Endocube include:

- Huge **reductions in CO2** emissions
- A significant **reduction in electricity** bills
- Food monitoring leads to **safer food and less product damage**
- Reduced wear and tear on equipment leading to **extended life of equipment**

General context

Climate change is known to be the result of **human activity with energy use and food production** being two of the most significant contributors. Sodexo's business operations directly affect energy use and emissions through the use of equipments, such as refrigeration units, at our clients' sites.

Refrigeration units work by monitoring circulating air temperature in a fridge or freezer. If the air temperature rises then the compressor switches on to cool the air down again. Air temperature rises far quicker than food temperature so, as a result, **refrigerators work harder than necessary** to maintain stored products at the right temperature. This in turn leads to **excessive electricity consumption**.

The Endocube technology

- The Endocube is not an electrical or mechanical device; it is **simply a plastic box containing a product simulation wax** which mimics food temperature at around **10mm below the surface** and which fits over the thermostat on commercial refrigeration units.
- **The installation takes approximately 15 minutes** without interruption to the operation of the refrigeration unit. When fitted over the thermostat sensor on the compressor, the **Endocube reduces the number of times the compressor is activated** because fluctuating air temperatures can no longer switch the unit on as it is the food temperature that is now being monitored. Refrigeration cycles are less frequent and last longer, while food temperature is kept constant.



Trial results

- Weekly energy reduction: **53.10 kWh**
- Annual energy saving: **2,761 kWh**
- Reduction CO₂ emissions: **1,1 tonnes**



Endocube benefits

- Energy savings
- Reduced wear and tear on equipment
- Fewer breakdowns
- Safer food as the food temperature is being controlled automatically
- Few maintenance needed

Implementation process

A **trial of the Endocube** was conducted in 2008 at **Stoke Mandeville Hospital** on two double door refrigeration units. The energy consumption was measured for one week **without the Endocube** and then repeated **with the Endocube**.

Refrigeration unit	kWh without Endocube	kWh with Endocube	Difference (kWh)	Energy saving (%)
Unit 1	110.72	88.09	-22.63	20.43
Unit 2	124.92	94.45	-30.47	24.39

A second trial was conducted in 2009 at one of Sodexo's Corporate Services sites to re-confirm that the Endocube resulted in energy savings.

Refrigeration unit	kWh without Endocube	kWh with Endocube	Difference (kWh)	Energy saving (%)
A freezer	139.20	76.85	62.35	44.79
Double door fridge	77.27	63.07	14.20	18.37
Single door fridge	90.12	79.14	10.98	12.18

Endocube Compatibility

The Endocube can be fitted to:

- Upright fridges and freezers
- Walk in fridges and freezers
- Dairy decks
- Deli bars
- Salad wells

The Endocube cannot be fitted to:

- Domestic fridges and freezers
- Blast chillers
- Chest fridges and freezers
- Ice making equipment



Moving forward

With over 450 now fitted, Sodexo expects refrigeration units to use approximately 570,000kWh less electricity and **save more than 230 tonnes of CO₂ a year.**

Today, the Endocube is still being installed in refrigeration equipment across the UK & Ireland by Sodexo.



More information

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