

Electricity

All Eco n'Home participants were provided with advice about reducing their electricity consumption, particularly regarding reducing standby losses.

This abstract highlights some of this advice and gives examples about initiatives in each of the partner areas.

How do we consume electricity in the home?

Eco n'Home is a 3-year project taking place under the SAVE field of the European Commission's "Intelligent Energy Europe" programme.

Project partners are from France, Belgium, Germany, Italy, Portugal, and the United Kingdom.

Aim: reduce energy consumption and carbon dioxide emissions in a minimum of 1000 households. Target reduction of 10 to 20% in energy per household followed and 1 tonne in emissions.

1970s	Today	
Television	Televisions	Home security system
Vacuum Cleaner	Video players	Broadband connection
Electric bar heaters	DVD player/recorder	Halogen bulb light fittings
Hi-fi music system	Portable music players	Personal care products
Hairdryer	Mobile phones	Power tools
Electric kettle	Hairdryers	Electric blanket
Washing machine	Hair irons	Portable fan
Iron	Electric toothbrushes	Vacuum cleaner
Electric blanket	Wireless telephone / answering machine	PC computer and monitor
Radio	Electric kettle	Printer, scanner, fax
Sewing machine	Smoothie maker	Digital camera
Cooker	Magimix	Set top box
Cassette Player	Ice-cream maker	Electric shaver
Fridge	Digital radio	Steam iron
DIY appliance	Mini hi-fi systems	Juicer
Toaster	Washing machine	Strimmer
Occasional lamps	Tumble dryer	Microwave
	Dishwasher	Electric oven / hob
	Playstation / games console	Extractor fan
	Cappucino maker	Fridge freezer
	Digital clock / radios	Drinks Cooler
	Electric lawnmower	

Although the energy efficiency of electrical appliances has improved by around 2% year on year since 1970, our appetite for new gadgets has far outstripped this improvement (UK Energy Saving Trust 2007). The list above, taken from the Trust's "Rise of the Machines" report, shows this extraordinary growth. The implications of this mass ownership include the carbon emissions associated with production, distribution and disposal, and the energy consumption over the lifetime of the product. In addition, many gadgets are built without a manual on/off switch, resulting in them being permanently left on stand-by.

Measuring consumption and standby losses

In order to assess the level of electricity consumption in the participating households, the project partners collected information, via a questionnaire, on the number, type and rating of all appliances, including lighting.

MVE, FLAME and Gefosat (France) and EEA (Italy) installed electricity monitor plugs to measure the consumption of the main electrical appliances. They also measured standby losses during the visit. The monitor plugs enabled the participants to see how much their appliances were consuming and to make some behavioural changes.

LEA (UK) asked their householders to record their weekly electricity meter readings and used this as a means to educate about reducing electricity consumption. Each householder was also given 6 free low-energy light bulbs (CFLs). This method generally worked well, although there were problems with missed readings (i.e. due to holidays, sickness etc).

MEA (UK) left energy monitor plugs with each household to enable them to measure the electricity use of appliances operating on standby and large appliances e.g. refrigerators, together with instructions and forms to record data. It was not possible to gather data on all electrical appliances because in some cases sockets were not accessible or did not exist and in others, the household did not provide the data as instructed. However, householders were made aware that they had a wasteful habit or appliance and that they needed to take action.

E-ster (Belgium) sent their householders a set of 2 robust electricity meters with a list of appliances to measure for a period of 1 week each. This list was based on their answers to the questionnaire. E-ster also measured standby losses during the visit. **Kliba (Germany)** also provided electricity meters for their householders.

Ageneal (Portugal) asked for copies of electricity bills and recordings of monthly electricity readings. In some cases, householders were given instructions on how to read the meters. Participants were asked to use an energy meter (called SEM 16) to record the energy consumption of their main electrical appliances. The use of the meter enabled people to realize the contribution of each electrical appliance to the total energy consumption of their home and how energy savings can be achieved through a change in habits. One of the main barriers was that not all the participants were able to finish the measurements, mainly because some electrical appliances weren't easily reached. In these cases, average values were obtained from the manufacturers.

Ways to reduce electricity consumption

1. Reduce purchase of electrical appliances

A simple way to reduce electricity consumption is not to buy so many appliances and gadgets.

2. Be a “wise shopper”

All consumers have considerable purchasing power and can choose electrical appliances that have good environmental credentials. They can also lobby for environmentally-friendly alternatives to high consumption appliances to be stocked by high street stores, and for gadgets to be produced without a built-in standby function.

3. Lighting

Switching to energy saving light bulbs can save up to £60 (approx 90 Euros) on electricity over the bulb's lifetime. They also last around 10 times longer than ordinary light bulbs. Other ways to reduce lighting consumption is to switch off unnecessary lights, or to install daylight tubes to provide natural daylight to dark rooms.

4. Good housekeeping

Not leaving equipment such as mobile phones on charge for longer than necessary reduces electricity consumption. Other "quick-wins" include replacing old kettles with eco kettles, not leaving appliances on stand-by, running a washing machine at 30°C rather than 40°C, and drying clothes outside.

5. Make the switch to green power

Once demand for electricity is minimised to as little as possible, householders can then consider the supply of their electricity. There are two main options: firstly to switch energy suppliers to one providing a green tariff; and secondly, to generate electricity through domestic-scale renewable energy techniques.

a. Green tariff

Electricity is generated by the burning of fossil fuels, which is a major contributor to climate change. However, most energy suppliers offer 'green' electricity tariffs, which support renewable energy. A green supply tariff means that some or all of the electricity purchased is 'matched' by purchases of renewable energy that the energy supplier makes on the householders' behalf. These could come from a variety of renewable energy sources such as a wind farm or hydroelectric power station.

b. Renewables

Householders can generate their own electricity by installing solar photovoltaic systems or domestic-scale wind turbines. PV systems can provide homeowners with up to half of their total power needs, but the costs of installation are high. In addition, PV panels generate electricity when they are working the hardest – during the day, and therefore are not suitable for families who are not at home until the evenings. Domestic wind turbines, similarly, can be expensive and can affect the structural integrity of the building if not properly sized. Professional advice should always be undertaken when considering installing a renewable energy system.

**Further information is available on the project website:
www.econhome.net.**