For further information on ways to save energy at home contact:

IRISH ENERGY CENTRE
GLASNEVIN, DUBLIN 9

The Irish Energy Centre is a joint initiative of the Department of Transport, Energy and Communications and Forbairt. It is supported by the EU through the Community Support Framework.

Energy Management

HOME ENERGY

IRISH ENERGY CENTRE

Many Irish houses, particularly those built before 1980, are very wasteful of energy. Various cost-effective energy saving opportunities exist which, through reducing fuel and electricity bills, can pay for themselves in a relatively short time.

The implementation of energy conservation measures can also make the house warmer and eliminate cold draughts. On a wider scale, it can reduce polluting emissions, provide employment and reduce Ireland's fuel imports bill.

Most of our energy currently comes from oil, coal, natural gas and peat. These resources are finite, and if we continue to use them at current rates, they will run out within a small number of generations. In the meantime, the burning of these fuels releases pollutants into the atmosphere, contributing to smog, acid rain and in the longer term climate change. By conserving energy in our homes, we can help to conserve fuel resources and promote a cleaner environment.

This leaflet lists the more common energy-saving options under the headings of zero-cost, low-cost, medium-cost and long-term measures. More detailed information on these measures is given in other leaflets in the series.

Zero-cost energy saving measures

Turn down thermostats

Turning down the room thermostat by one degree Celsius (1°C) can reduce annual space heating energy consumption by 10%. Comfort can be maintained by pulling on a pullover instead. However, it should be borne in mind that sick, old, young and inactive people may require higher temperatures than healthy adults.

Hot water cylinder thermostats can be turned down to 60°C, but should not be set at a temperature lower than 60°C.

Use of timers

Timers can be used to provide hot water or space heating at times when these are regularly needed. However, if heat is occasionally not required during these times, because the occupants are away, switching timers to the "Off" setting will save energy.

(If the outside temperature is freezing or if the house will be unoccupied for a few days, a low level of background heating will be sufficient to prevent pipes from freezing.)

Switch off lights / appliances when not needed

If leaving the room for more than a few minutes, lights should be switched off. Switching off lights when daylight in a room becomes adequate will also save energy. Televisions, computers, CD players, etc. should not be left switched on when not needed.

Open fires and fuel-effect fires

Open fires are wasteful of energy. An open fire has an efficiency of only about 15 to 30%, meaning that 70 to 85% of the energy content of the fuel goes up the chimney. This is true both for solid fuel fires and for many fuel effect gas fires. By comparison, efficient heating systems have efficiencies of 70 to 90%. These systems are better value for money than open fires or fuel-effect fires.

Shower and baths

Take a shower rather than a full bath. A typical shower uses only about one-fifth of the energy of a full bath.

Ventilation

Houses need a certain amount of ventilation to provide sufficient fresh air and avoid the build-up of moisture and pollutants. However, excessive ventilation of the house in winter should be avoided by not leaving windows and vents open unnecessarily and by making sure extractor fans are not left running when not required.

Closing curtains at night

Much of the heat loss from houses occurs through the windows, particularly if they are single-glazed. Heat losses from windows can be reduced by closing curtains during the hours of darkness.

Leaking taps

Have leaking taps fixed quickly, especially if they are hot taps. Make sure to turn off water taps fully.

Useful contacts for further information

Irish Energy Centre, Glasnevin, Dublin 9.

National Standards Authority of Ireland, Glasnevin, Dublin 9.

Construction Industry Federation, Federation House, Canal Road, Dublin 6.

Irish Agrément Board, Glasnevin, Dublin 9.

The Irish Agrément Board assesses, tests and certifies building products for compliance with the requirements of the Building Regulations. A complete listing of certified products is available from the Irish Agrément Board.

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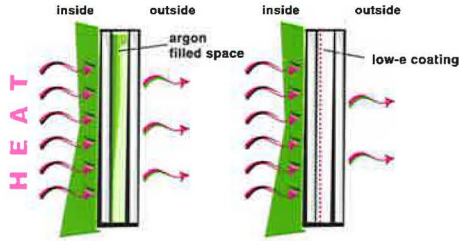
air gap between the panes (12 mm is adequate). Some double glazing units contain a gas such as argon between the panes to reduce heat loss further. The frames should also provide good resistance to heat loss; suitable materials include good quality softwood, temperate hardwood, aluminium with a thermal break and PVC.



Boilers

If the boiler is more than ten years old, it may be worth replacing it with a new energy-efficient device. The most efficient type of boiler available is a condensing boiler. This type of system usually runs on gas, and is particularly suitable for larger houses. New 'high-efficiency' boilers are more efficient than standard new boilers. Combination boilers provide both space heating and instant hot water, and by avoiding the need for a hot water cylinder, they avoid the heat losses associated with the cylinder.

Solar water heating systems

A domestic solar water heating system typically consists of a solar collector, 3 to 4 m^2 in area, mounted on a south-facing roof, and an insulated cylinder to store the hot water until it is needed. A system correctly sized for the Irish climate will provide 50 to 60% of a family's annual hot water requirements. Though still relatively expensive, they use a clean, sustainable energy source. Back-up water heating is provided by a conventional system.

Solar heating

When rooms are heated by the sun, internal doors can be opened to distribute this heat to other parts of the house.

Fridges and freezers

Fridges and freezers should be positioned in a cool place, not next to the cooker or boiler. If possible, they should not be placed where they will be exposed to direct sunlight. Adequate ventilation space should be left between the coils at the back of the fridge and the wall, since if these coils overheat, the efficiency of the fridge will be reduced.

Tips for energy efficient use of fridges:

- Don't leave the fridge door open for longer than required and make sure to close it properly.
- Don't put warm or hot food straight into the freezer; let it cool down first.
- Regular defrosting of fridges and freezers saves energy as well as extending their operating lives.

Washing machine use

The washing cycle selected should have the lowest water temperature required for the items being washed. A full load of washing is more energy efficient than two half loads.

Cooking

Tips for Cooking:

- Put lids on pots and turn down the heat when the water starts to boil. The lids not only keep heat in the pot, but also reduce condensation in the kitchen.
- When making tea or coffee, boil only the amount of water required (but make sure the heating elements of electric kettles are covered).
- A micro-wave oven is more efficient than an ordinary oven.
- Don't let the flames of a gas cooker come round the side of the pot.
- When washing, put the stopper in the sink rather than leaving the hot tap running.

Long-term energy saving measures

(more than £300)

These measures are ideally considered at the same time as related renovation/replacement work.

Cavity wall insulation

The insulation of external walls will provide considerable energy savings. If the house has suitable cavity walls, the application of insulation within the cavity is generally the most cost-effective solution. This must be done by a contractor, and involves blowing or pumping the insulation into the cavity through holes drilled in the outer surface. However, filling the cavity is not recommended for highly exposed rainy regions of the country.

Internal wall insulation

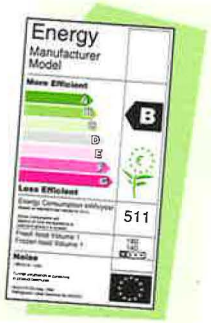
For solid walls, insulation must be applied either internally or externally. Internal insulation involves fixing a layer of insulation to the internal surfaces of external walls, usually with a plasterboard finish. Care must be taken to install a "vapour check" (e.g. polythene sheeting) to seal the insulation against humid air penetration from within the house.

External wall insulation

External insulation is more expensive than internal insulation, since it must be applied with a durable finish to withstand the weather and possible impacts. However, it is more effective at reducing heat loss since greater insulation thicknesses can usually be applied, and since it wraps around the whole wall. In older houses it can also give an attractive facelift.

Low-e double glazing

When replacing windows, low-emittance (low-e) double glazing should be selected. This has a special coating on one of the glass panes to reduce heat loss below that of ordinary double glazing. There should be a relatively large



Energy efficient appliances

Energy efficient appliances such as fridges, freezers, washing machines, cookers, etc. use considerably less energy than standard appliances. When purchasing such appliances, energy-efficient models should be bought. Energy labelling of such appliances provides information on their energy performance to potential buyers.

Block off chimney

Chimneys can be a major cause of draughts and heat loss, even when an open fire is not in use.

In windy weather, air is drawn up through the chimney, and this air is replaced by draughts entering through gaps around doors, windows, etc. Blocking off chimneys which are not used (while retaining a small vent) will reduce air leakage.

Boiler maintenance

Boilers become less efficient in use, due to factors such as a build-up of dirt on heat transfer surfaces, and control settings becoming less precise. Regular maintenance of heating systems, in accordance with manufacturers' instructions, will ensure that the equipment continues to operate efficiently.

Factory-insulated hot water cylinder

If replacing the hot water cylinder, a cylinder with factory-applied insulation should be considered. Such insulation is more effective at retaining heat than a lagging jacket, is less easily damaged and cannot be pulled out of place.

Low-cost energy saving measures

(up to £100)

These measures will typically recoup their cost within 1-2 years or less.

Insulating the hot water cylinder

Uninsulated hot water cylinders should be insulated with a lagging jacket. The lagging jacket should be checked from time to time to ensure that it has not been pulled out of place.

Pipework coming out of the cylinder should be insulated to a distance of at least one metre from the cylinder. If water is heated by a boiler, the two pipes between the boiler and cylinder should be insulated if they are accessible.

Draught seal doors, windows and other gaps

Doors and windows should be draught sealed. Other gaps in the building may exist, for example, at letter-boxes, between floorboards, around skirting boards, around attic hatches, where floor joists meet external walls and where pipework penetrates external walls. These gaps should be sealed against draughts as far as practicable.

The installation and use of controllable trickle vents can ensure adequate ventilation in calm weather, while avoiding excessive ventilation in cold windy weather.

Fuel-burning appliances need a supply of fresh air for safety, and kitchens, bathrooms and drying rooms need ventilation at times to avoid condensation. These factors should be borne in mind in draught-sealing the rooms in question.

Improve heating and hot water controls

Fitting a timer to the hot water cylinder will allow water to be heated only at the times when it is regularly

needed. When valves need replacing, fitting thermostatic radiator valves (TRVs) to radiators will allow the temperatures of different rooms to be controlled individually.

Energy efficient lamps

Compact fluorescent lamps (CFLs) use only one-fifth of the electricity of ordinary (tungsten filament) light bulbs for the same light output. CFLs or fluorescent tubes should be used in rooms in which lamps are used most (e.g. for an average of two hours or more per day).

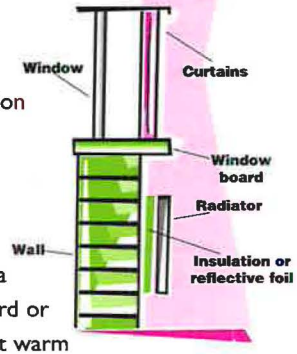
Insulating curtains and window-boards

Insulating curtains, containing a thick layer of material and/or a reflective layer, are better than ordinary curtains at preventing heat loss through windows at night.

Curtains should rest lightly on the window-board to prevent circulation of air behind them, particularly if there is a radiator mounted on the wall below the window. The window-board can be extended if required.

Radiators

A reflective foil, backed by insulation if space permits, should be fixed behind radiators mounted on external walls.



If the radiator is mounted below a window, a projecting window-board or shelf above the radiator will direct warm air into the room, reducing heat loss through the window.

Medium-cost energy saving measures

(£100 to £300)

These measures will typically recoup their cost within 3-4 years or less.

Attic insulation

Uninsulated attics should be insulated to a depth of 150 mm or more. If there is currently less insulation than this, it may be worth adding more. When insulating attics, care should be taken to protect water tanks and pipes from freezing and to ensure adequate ventilation of the roof space.

Floor insulation

With wooden floors, insulation may be installed between the joists under the floorboards, held in place with wire mesh. With all floors, an insulating underlay under the carpet will reduce heat loss.

Central heating controls

It may be worth replacing an old central heating control system with a completely new control system. The new system should include a programmer, and room and hot water cylinder thermostats. It should provide independent control of heating and hot water, and should switch off the boiler when no heat is needed to avoid cycling losses. Optimisers ensure that the boiler is switched on at the latest possible time to raise the building temperature to the desired level. It also switches it off at the earliest possible time to reduce unnecessary space heating after it is required. These and more sophisticated controls may be worth considering, particularly for larger dwellings.

Room heaters

When buying heaters, make sure that they are the right size for the rooms they are to heat, and that they have thermostatic controls. Remember that electric heaters, other than storage heaters, consume electricity at the most expensive charge rate.