

# Home energy efficiency guide

## Introduction

The Hanleys Energy Action Team (HEAT), part of the parish council's Hanley Carbon Neutral initiative, has been investigating reducing carbon emissions from the energy we use. The most effective way we can all contribute to this aim is by reducing the energy we use, through making our homes more energy efficient, and by using energy sources that have lower or zero carbon emissions. This guide provides advice on how you might achieve this in your home.

Your property's current energy efficiency and how it might be improved can be seen on its Energy Performance Certificate (EPC). See the EPC national register: <https://find-energy-certificate.digital.communities.gov.uk>.

## Why Save Energy?

Energy used in the home is expensive, and becoming more so, but it is also the source of a significant amount of carbon emissions. As a rural parish, with many older and larger properties and no mains gas for heating, our estimated carbon emissions of 2.5 tonnes/person/year are significantly higher than the UK average of 1.5 tonnes/person/year.

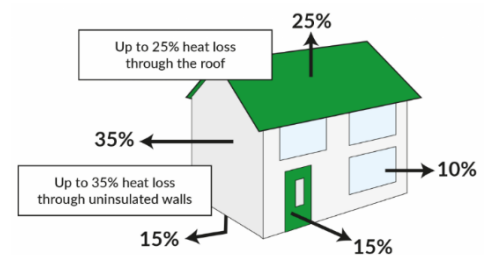
## What You Can Do: The Easiest Actions You Can Take To Reduce Carbon Emissions

- Wash clothes at lower temperatures, and dry washing outside whenever possible
- Fit LED lightbulbs
- Only heat the property when it is occupied and don't overheat it. Using SMART control systems that allow greater and remote control may help with this.
- Switch to a green energy supplier, see [www.moneysavingexpert.com/utilities/cheap-green-energy](http://www.moneysavingexpert.com/utilities/cheap-green-energy).

## What You Can Do: Insulation and Draught Proofing

### Draught proofing *(cheap and effective)*

Draughts can be a major source of heat loss. Draughtproofing can be easy, cheap and effective. Draught-strips and draught-proof letter boxes are useful for external doors. Double foam sausages can be useful for internal doors ([www.easylife.co.uk](http://www.easylife.co.uk)). Gaps in skirting boards, and floorboards can be sealed using a product called "Stopgap" ([www.stopgaps.com](http://www.stopgaps.com)). Unused chimneys can be sealed with a chimney balloon ([www.chimneyballoon.com](http://www.chimneyballoon.com)).



### Loft Insulation *(essential and easy)*

It is important that lofts are well insulated (at least 200mm/8 inches), as 25% of heat loss can be through the roof. The loft must be well ventilated above the insulation to reduce condensation risk. Insulation efficiency is reduced when it is squashed, so either remove items stored in the loft or put on a raised platform ([www.loftleg.com](http://www.loftleg.com)).

### Sloping Ceilings *(often forgotten)*

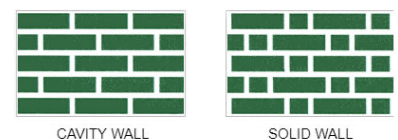
Sloping ceilings built before the 1980s may not be insulated and can be a major source of heat loss. They can be insulated by fixing insulation board-backed plasterboard onto the existing ceiling.

### Window Reveals and Dormer Windows *(often overlooked)*

Where there is no room for insulated plasterboard either Aerogel ([www.aerogel.uk.com](http://www.aerogel.uk.com)) or Sempatap (<https://www.mgcltd.co.uk/sempatap-thermal/>) may be used.

### Cavity Wall Insulation CWI *(very effective if done well)*

Up to 35% of the heat in your property can be lost through its walls. Homes built after the 1930s mostly have cavity walls. Cavity walls built since the 1980s were probably insulated when built. If your property is pre-1980s and has cavity walls it is important to check if they have been insulated. A pattern of drill holes in the mortar joints is a tell-tale. An insulation surveyor would check this at little or no cost and advise whether cavity walls are suitable for insulation injection.



### **Internal and External Wall Insulation** *(more expensive but worth considering)*

If you cannot insulate your wall cavities or want to add additional insulation to an insulated cavity wall, or have solid walls, you could consider internal or external wall insulation. External wall insulation is best if the whole property is insulated, giving a full “tea cosy” effect to the house with minimal cold bridging. Internal wall insulation is better if you just want to insulate one or two rooms that have particular heat loss problems. Ideally if fitting internal wall insulation, you should also insulate the internal walls where they meet the newly insulated external walls. The use of breathable products is advised, for example cork or Pavatherm ([www.pavatex.com/en/products/wall/pavatherm](http://www.pavatex.com/en/products/wall/pavatherm)).

### **Floor Insulation** *(worth considering)*

Properties built since the 1980s should have insulated floors. Insulating between joists, or digging up solid floors is disruptive/expensive but thinner insulation, such as Sempafloor ([www.mgcltd.co.uk](http://www.mgcltd.co.uk)) can be laid on existing floor.

### **Replacing Windows/ Secondary Glazing** *(expensive but worth considering)*

New windows are an expensive option, although if you have single glazed windows that need replacing or suffer from condensation or draughts, then it is worth considering. Secondary glazing is a cheaper option that can be very effective. There are magnetic versions available, see <https://www.magneglaze.co.uk>.

If your building is listed you must have permission for changes. Any permanent change affecting the character or appearance is likely to be refused but permissions have been gained for solar panels or secondary glazing that are seen as temporary. We recommend consulting [www.historicengland.org.uk/advice/your-home/saving-energy](http://www.historicengland.org.uk/advice/your-home/saving-energy).

## **What You Can Do: Heating**

### **Heat Pumps**

Electricity is rapidly becoming a low carbon fuel but electric boilers and radiators are expensive to run. Heat pumps are a good way of reducing costs and carbon impact by extracting energy from the surrounding environment.

Heat pumps work in the same way that fridges extract heat from their interior but in reverse, extracting heat from outside the property to heat it, and can either use the surrounding ground or air as their heat source. Air source heat pumps are cheaper and simpler to install but not as efficient as ground source heat pumps in colder weather as the ground temperature is less variable than the air temperature. The ground source can be either through pipe loops laid underground, or through boreholes. Air source heat pumps are more common; there are 34 in the Parish already.

Heat pumps work better in well insulated buildings, so consider making insulation improvements first. They also work well with underfloor heating or larger radiators, as they circulate lower temperature water than a standard boiler does. For properties with larger heat demands it is worth considering a hybrid system, combining a heat pump with a back-up conventional system ([www.vaillant.co.uk/homeowners/products/the-aerothrm-hybrid-heat-pump-system](http://www.vaillant.co.uk/homeowners/products/the-aerothrm-hybrid-heat-pump-system)).

### **Alternatives to a heat pump include:**

**A wood pellet boiler.** Uses compressed wood pellets as a fuel. Storage space for the pellets needs to be considered, and good quality pellets must be used, so the feed mechanism works properly.

**High Heat Retention Storage Heaters (HHRSHs).** Normal storage heaters lose heat to the room whether it is wanted or not. HHRSHs hold on to a significant amount of heat if it is a warm day or you are not at home, giving substantial savings and more control than standard storage heaters. If fitting HHRSHs, a dual electricity meter is needed and we also recommend a new hot water tank with foam cover and dual immersion heater.

### **More Information**

For more information, see [www.actonenergy.org.uk](http://www.actonenergy.org.uk) ,[www.cse.org.uk/resources](http://www.cse.org.uk/resources). You can calculate your carbon footprint at [www.carbonsavvy.uk/action](http://www.carbonsavvy.uk/action).

#### **Disclaimer**

*While reasonable steps have been taken to ensure the information in this guide is accurate at the time of writing, we recommend that you take further professional advice before committing to any expenditure. HEAT cannot be held liable for any loss or damage that results from work undertaken on the basis of the information presented in this guide. Any specific businesses/products are mentioned as examples only; others are available. HEAT has no affiliation with these businesses.*