



Higher cost options which could give long-term benefits

- **RENEWABLE ENERGY & FUTURE HEATING OPTIONS**

Consider generating your own electricity with solar PV panels or tiles installed on the roof of your house or on your garage. Instead of exporting unused solar power back out onto the grid, you could install an ApolloGEM or iBoost unit which redirects unused solar power into the immersion heater in your Hot Water cylinder, giving you free hot water. You could even invest in batteries to store your unused power from the daytime to use in the evening. Going one step further, installing electric far-infrared radiant heating panels (eg Herschel panels), on your walls or ceilings is highly energy efficient. The lifetime cost of using these panels is lower than heat pumps and very close to gas central heating, and could be even cheaper if powered by the solar PV on your roof or by your battery unit.



However, whatever technology you look at, the best heating options will be those that use the energy where it is created and in the form that it's been created. For example, if we generate solar power on our roof, it's most efficient to simply use that as electricity within our homes. And if we choose to use that power for heating, then radiant heating from modern electric heaters (e.g. far-infrared panels) which directly warms our bodies up, is most efficient. It is very inefficient to use solar power to heat the *water* in a central heating system, which then heats the *air* in our home, which then warms us up!

In most cases, it's best to only make high-cost changes to our home's heating system when the current system is at the end of its life (this applies to double-glazing too). For the vast majority of us, our best options are to insulate our homes as much as possible and to minimise the amount of heat we use. This will bring massive benefits financially and also cut our carbon emissions. It will also ensure that whatever system we switch to next, it will not be unnecessarily over-sized or excessively costly to run.

New renewable technologies are continuing to emerge and develop at pace now. But every home is different in the UK, so there is not likely to be a "one size fits all" solution. Much of the new technology is still very expensive, so before you decide on any major refit, do plenty of careful and wide-ranging research on the products and installers you might use, as you will want your new system to work effectively, efficiently and reliably. It will be essential to make a really good decision as the cost of putting right a bad decision could be extremely high.



So while we each continue to mull over what *will* be the best future heating solution for our home, we can still focus on making all the small changes. These will definitely make a big difference to our bills and, if we all do the small things, it will also really help the planet!

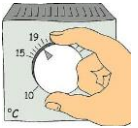
TOP TIPS

for reducing winter energy costs in your home



Zero cost ideas

- **CURTAINS:** At sunset, close all curtains and blinds to retain the warmth generated indoors by any sunshine there's been during the day.
- **CLOSE INTERNAL DOORS & UNUSED ROOMS:** Closing internal doors will cut down uncomfortable draughts. In rooms that aren't being used, close blinds and curtains, turn the radiator down or off and, critically, close the door to prevent moisture from elsewhere causing condensation on the cooler walls. Closing off conservatories in winter prevents draughts and will help keep your home warmer.
- **WEAR MORE CLOTHES:** Dress in layers - like mountaineers! They wear many thin layers of clothing underneath their outer clothing in order to retain warmth. So dig out those vests and thermals. And "long underwear" with long sleeves and legs will keep you toasty warm. A thick pair of socks over a thin pair works well, especially with thick fleecy slippers, and tucking your trousers into your socks will stop cool air chilling your ankles. Remember to put on a jumper or cardigan before leaving a warm room - it's a lot cheaper than turning up the heating elsewhere, and our bodies are amazing and can quickly adjust to the slightly less warm temperature – it only takes a couple of minutes.
- **TURN DOWN THE HEAT:** Turn down your central heating thermostat. A 1°C reduction could currently save the average household about £300 per year, and you'll hardly notice the difference in temperature. A 2°C reduction could save around £600 per year. And keeping more active, rather than sitting down a lot, will also help you keep warm!
- **CONTROL THE MOISTURE:** Moisture control in the home is vital in winter to prevent mould growth on cool walls and ceilings (the Energy Saving Trust website gives advice):



- ✓ After a bath or shower, immediately wipe down all wet surfaces - tiles, shower cubicle etc – a window-cleaning "squeegee" rubber blade works really well. Even if there is an extractor fan running, open the window but keep the door shut. When the condensation has gone, close the window, turn off the fan and shut the door again. This dramatically reduces the amount of moisture getting into the rest of the house and helps prevent mould problems in bedrooms.



- ✓ When cooking and using hot water in the kitchen, always turn on the extractor fan or hood, put lids on pans, and close the kitchen door to prevent moisture migrating into other parts of your home. Before draining boiling water from a saucepan, turn on the cold tap - then pour the hot water directly into the stream of cold water. This will significantly reduce the steam produced.



- ✓ For drying clothes, choose a dry, breezy day, even if it's cold, and hang your washing outside. Even in winter, this will partially dry your laundry and reduce the amount you need to dry it in the tumble drier. If you hang wet laundry indoors, ensure you open the window and shut the door of the room, to stop moisture getting elsewhere and causing mould on cool walls/corners.



Minimal cost ideas



- **CHIMNEYS:** An open fireplace or a wood-burning stove (whether in use or not) in your home is likely to make your home feel draughty. This is due to the 'stack effect' when cold air is drawn in from outside as the warm air exits up the chimney or flue. The Energy Saving Trust gives good advice on what you can do, e.g. install a chimney balloon.

- **DOORS:** Put a draught-excluder "sausage-dog" roll across the bottom of draughty doors, especially external doors and French-windows or patio doors. You can even make your own by stuffing an old pair of jeans, trousers, or leggings with rags, old t-shirts, newspapers and old bubblewrap.



- **DOORS:** Hang a heavy curtain across inside any external doors. They are often draughty due to the door-seals and hinges wearing. If the door has a letter-box, cat-flap, or open key hole, check that the flap or cover seals well. Fit new brushes/seals if needed. Our [video](#) on our website shows how to make a textile cover for your letter-box or cat-flap.

- **DOORS & WINDOWS:** For double-glazing, check rubber seals and hinges every year and repair/adjust/replace as needed, or get a good installer or double-glazing repair company to do this for you. For leaky, badly-fitting wooden windows or doors, fill any gaps with draught-excluder strip.



- **WINDOWS:** If you haven't got them on all your windows already, fit curtains. Make sure they have thermal or black-out lining and are long enough to tuck behind any radiators positioned below your windows. This will keep your rooms a lot warmer as the heat can no longer get to the windows. Double or even triple-glazed windows lose heat more quickly than insulated walls and this sets up draughts, and the bigger the windows the worse the draughts. Fitting blinds or net curtains between your curtains and the windows will make an even bigger difference. Internal shutters are great, but expensive!



- **RADIATORS ON EXTERNAL WALLS:** To reflect heat back into the room, stick aluminium foil-covered corrugated cardboard behind your radiator, or buy foil-covered bubble wrap or foil-covered foam sheets from a DIY store.



- **REDUCING YOUR HEATING BILL:** EndoTherm liquid added to your central heating water provides 10 to 15% savings. It's endorsed by the Energy Saving Trust and increases the heat released from your radiators. A 3 to 4 bedroom house needs a 500ml bottle which costs about £25. You can easily install it yourself or ask a plumber, but they may charge. It will need replacing if you have to drain your heating system for repairs etc.



- **REDUCING YOUR HEATING BILL:** The neodymium Boostaboiler unit is a unique UK product which is proven to give an average of 12% savings on your heating bills. You simply fix it to the fuel supply pipe on your boiler and it starts working immediately and needs no maintenance. You can get more information, and a discounted price with free p&p via our website at www.schoolsenergyproject.org.uk



Medium cost ideas

- **POWER-FLUSHING:** Power flush your heating system every 10 years to clear sludge and to help your radiators work more efficiently. Look for a good, trustworthy contractor.

- **FIT TRVs:** If you haven't got them already, fit TRVs (thermostatic radiator valves) to all radiators in your home. These control the temperature in each room so the heat isn't on full continuously, and this will save you a lot of money. The latest TRVs can actually be set to maintain a specific temperature in each room. The "Just Right" temperature range for the occupied parts of a home is between 18°C and 21°C.



- **INSULATING WALLPAPER:** A room with cool walls can be improved by putting up thick insulating wallpaper, such as Wallrock KV600. But first, check any cold walls that you're planning to cover are not caused by moisture ingress. A thermal imaging camera will usually confirm the situation (if you're local, we can lend you one). Insulating wallpaper only needs to be put on the cooler external walls in a room, not the warmer internal walls. Make sure you fit it right into the window recesses, so that there are no cold patches to attract condensation and mould. Using Wallrock liner paper (e.g. Fireliner) on top conceals the joins and gives the wall a great look and gives improved fire-resistance.



- **LOFT INSULATION:** Top up your loft insulation to at least 270mm and ensure you insulate the loft-hatch too. There are now many more user-friendly insulation materials that make DIY insulation tasks much easier (e.g. Supaloft, Thermafleece wool or hemp insulation). You may even decide to convert your loft to a warm space and insulate between the sloping rafters instead - but do plenty of careful research first (and check with your mortgage lender) to ensure you choose the right insulation material and installation method as mistakes are often expensive to correct.



- **CAVITY WALL INSULATION:** If your home hasn't already got cavity wall insulation, it is worth seriously considering it and doing your research, as the benefits are significant – a third of your home's heat is lost through the walls if they are not insulated. The Energy Saving Trust (www.energysavingtrust.org.uk) gives more information.

- **INSULATING THE FLOOR:** If you plan to lay a new floor, ensure you take the opportunity to put down ample insulation underneath before you start laying your laminate or other flooring. If you are fitting a new carpet, choose a good quality thermally-insulating underlay. This will help reduce heat losses, especially where a room is over a cold integral garage.



- **DRYING THE LAUNDRY:** When outdoor clothes-drying isn't possible, there are now many highly efficient condensing tumble drier models available that consume very little power and don't need an external vent. Doing your research could pay off and also bring an end to condensation and mould around the house, and without a huge electricity bill.

