Save Energy - Save Money

GREENER LIVING
BARROW UPON SOAR

This booklet provides ideas to help people save energy and therefore money within their own homes. Included are approximately 160 hints and tips, which may seem a bit overwhelming and some ideas even tedious. Added together, however, these tips will save you a significant amount of energy, money and reduce your carbon footprint. Sadly, there is not a single magic bullet. Some suggestions cost a lot of money but many cost very little or nothing. Much is common knowledge and common sense, and this booklet makes no apology to provide gentle reminders. If you are doing everything stated give yourself an ecological pat on the back. The information has been accumulated from many reliable sources, which are noted at the end of this booklet as well as several contributions from the Barrow Greener Living Team. Any further ideas, suggestions and feedback will be welcomed.

The booklet is divided into easily digestible sections - not necessarily to be consumed in one sitting!

Please consider becoming a member of Barrow Greener Living group (£5.00 annually) and or donating to this voluntary group that hopes to support Barrow to become a more sustainable village. To do this complete the electronic form membership.barrowgreenerliving.co.uk. **By becoming a member of the group you will be eligible to have a home thermal imaging assessment. This shows where you may be leaking heat and thus where you might concentrate to remedy the problem. For this service contact** camera@barrowgreenerliving.co.uk

To contact BGL for other things: info@barrowgreenerliving.co.uk

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Important disclaimer

Whilst every effort has been made to offer true and helpful information obtained from reliable sources, there are a few ideas which are untested and suggested from personal experience. Thus, no warranties of any kind are declared or implied. The Barrow Greener Living Group is composed of local like-minded people (not experts or professionals) therefore, we do not nor cannot accept responsibility for individual actions taken because of reading this booklet. Our aim is simply to support people to start thinking about reducing their energy use.

If you the reader, is unsure of any information contained in this booklet please seek professional advice. **And please do not read on if you do not agree to the above terms and conditions.**

If you do read on then you agree that under no circumstances are the authors responsible for losses or harms, directly or indirectly, resulting from information provided in this booklet including but not limited to errors, omissions, or inaccuracies.

A cautionary note
The savings referred to in this booklet have been taken from reputable sources, however, it is the authors opinion that these will represent the maximum amount a family can achieve. If all the potential savings noted were added together, it would not be surprising if the utility companies would have to pay you to use their electricity! So please take the saving figures quoted as approximate guidance. However, this does not mean that you cannot save money for each of the many tips and ideas. Costs can also quickly change over time, usually in an upward direction, thus this too needs to be born in mind.

Where does our energy money go?

It looks like higher energy prices are here to stay but there are many things you can do to combat higher prices by using less energy. Hopefully, you will find this booklet useful to do just that and to feel good about reducing your carbon footprint whilst saving money.

All political parties in the UK and nearly all governments around the world agree that we should be moving towards a net zero world. A world that stops greenhouse gases. It is possible that as we transition away from fossil fuels the price of energy could become even greater.

In the present, Ofgem has confirmed that the price cap on the unit costs of gas and electricity will increase from 1st January to 31 March 2024. The new rates for East Midlands by direct debit are:
Electricity: Single rate Unit rate: 28.02p per kWh, Standing charge: 50.69p per day.
Gas Unit rate: 7.29p per kWh, Standing charge: 29.60p per day.

According to Ofgem, the average British household has 2.4 people living in it and uses 2,700 kWh of electricity and 11,500 kWh of gas.

This means the average household in the East Midlands will pay £756 for electricity and £838 for gas (plus standing charges of £185 + £108) per year. That is £1887 per year on average.

How do we use energy in the home (don't forget these are approximate figures):

- 43% of your energy is for heating.
- 35% is used by electrical appliances.
- 13% to heat water
- 7% on lighting
- 2% for cooking

Clearly the above suggests what you do to reduce energy waste from heating and electrical appliances will have the greatest impact on your budget. However, any energy savings you make from the above list will add up and this booklet will help you consider each of these areas.

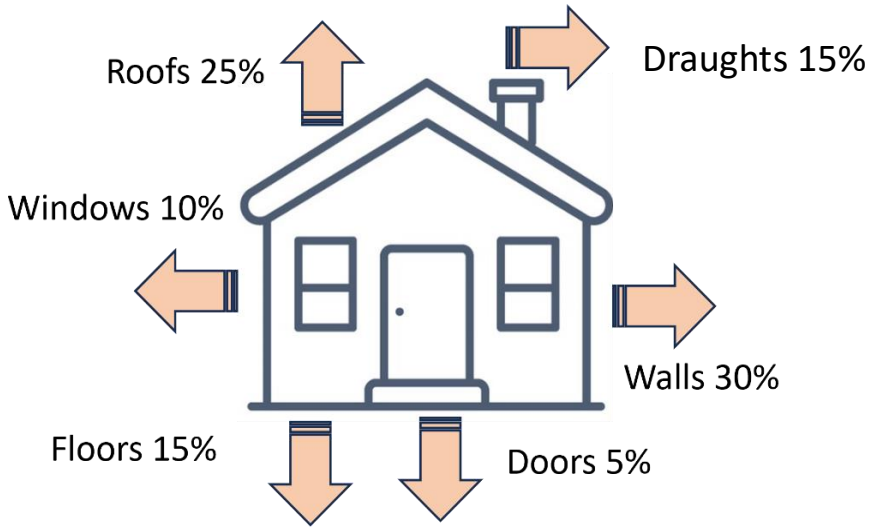
Heat loss from your home

Heat will escape from many places from any home. The more you can do to minimise heat loss the more energy and money you will save. The cheapest energy is the energy you do not use or need to use. The better a home is insulated the slower heat will escape through walls, roofs, windows and floors and the more energy and money you will save. A general point to make about insulation is that once installed it will continue to save you money year after year after year.

It is reported that the UK has the worst insulated housing stock in Europe. We need to change this not least to save energy and money but because it is reported that the Gulf Stream which bathes our shores with warm water is slowing and is predicted to stop. It is reported to be at its weakest in 1,600 years. Scientists cannot say exactly when it will stop, but the consensus is within decades. And when it does, we will experience much colder winters. A new analysis estimates a timescale for the collapse of the Gulf Stream is between 2025 and 2095, with a central estimate of 2050, if global carbon emissions are not reduced.

When the Gulf Stream stops it could mean the UK will be 10 °C colder during the winter months. And if that happens, we really do need to think hard how to prevent heat loss from our homes as they have already done in Scandinavian countries.

The following diagram shows where heat escapes from the average UK house.



How warm to heat rooms?

It is said that the ideal temperature for living rooms is between 18 – 21 °C but it is important to note that older and disabled people will need to have extra layers of clothing on at 18 °C and there are health dangers to these groups at 18 degrees and lower. Presumably, that is why the government provides older people with a £500 heating allowance.

For bedrooms it is suggested temperatures should not be much above 18 °C as this helps to get a good night's sleep.

You do not need to heat the whole house to the same temperature. Think which rooms, what temperature and at what times. This is where smart controls on your heating system will pay dividends.

If you are young, fit and healthy try putting extra layers on and knocking down the temperature a little.

Heating yourself, one room or the building

In a typical household, over half of fuel bills are spent on heating and hot water. Getting the best from your heating system is important and this will be addressed later. Many people in Barrow and nationally have found heating yourself rather than heating the air of the house very effective. This can be achieved by using extra clothes, hot water bottles, micro-wave wheat bags, electric blankets and throws.

Electric blankets and throws are usually based on 100/150 watts and therefore cost approximately 2-5 pence per hour to run. Compare this to an electric heater running at 2000 watts (2kw = 57pence per hour). Thus, an electric blanket or throw can work out to be 1/10th of the running cost. For every pound you might spend running an electric heater you would only spend 10 pence on heating yourself with an electric blanket/throw. Later we shall see that turning down the central heating thermostat by one degree will save approximately £145 per year; two degrees nearly £300 per year. Experiment with turning the thermostat down but turning the electric blanket on both in the lounge and bedroom.

So, put on a jumper before you turn up the heating! For most people, the lowest comfortable temperature to set your heating at is somewhere between 18°C and 21°C. That's without using an electric throw. We, have found, through experience, that you can comfortably sit in a room 16 – 18 degrees with an electric blanket/throw. Take care as there may be good reasons why older and or frail people should have warmer rooms.

An alternative to the above is to consider creating a warm space in your home. This means doing all you can to insulate one room, usually the lounge, as best as you can. It means doing all the things mentioned in this booklet to create one comfortably room so that you can relax at reasonable cost. This will mean you will be able to heat a smaller area in the house such as the lounge without spending a fortune.

Planning a warm space (retro fitting one room)

Things to consider:

- Heavy duty (lined) curtains and secondary glazing or triple glazing
- Plug any gaps/draughts around windows and skirting boards
- Make sure the internal door fits well and is draught proof
- Heavy duty carpet and underlay
- Ensure radiators are not hidden behind furniture
- Insulate the floor underneath floor boards
- Internal insulation to external walls

Bedrooms should be cooler for a good night's sleep. People tend to move around in kitchens thus these rooms can also be cooler.

The walls of your home

The problem

Uninsulated homes lose more than 30% of their heat through external walls if they have some form of cavity between two layers of brick. Solid walls, with no cavity, lose up to 45% of heat.

Action to save energy and money

The big advantage of insulation is that not only will it keep more heat in the house, but it will help reduce the dramatic fluctuations in room temperature. When temperature fluctuate from warm/hot, when the central heating is working, to cold/draughty you tend to feel the cold more. This is when you are tempted to turn the thermostat up.

External Insulation

External insulation requires an application of 100mm expanded polystyrene insulation (EPS) board to external walls followed by a primer then render. It costs between £7,400 and £13,000 to install for a typical, semi-detached property, according to the Energy Saving Trust.

About one third of UK homes have solid walls (National Insulation Association). Fitting external insulation will typical save £225 per year on heating bills.

Internal Insulation

Insulating internal walls tends to be cheaper than external insulation but it has a greater disruption on occupants while it is being applied. Internal solid wall insulation usually involves fitting ready-made rolls or boards of insulating material to the inside of the external walls of the house. It requires plug sockets, radiators and fitted furniture to be moved and you will need to redecorate.

Walls will need to be carefully prepared before internal wall insulation can be fitted. Any damaged plaster needs to be either repaired or removed, and bare brickwork should be treated to eliminate areas where air can escape.

The extra thickness of insulated walls will reduce floor space; however, as mentioned, this option is usually cheaper than external wall insulation and can be installed on a room-by-room basis.

Cavity Wall insulation

Cavity wall insulation, costs about £610 for a typical detached property. Annual savings on heating bills are around £280 per year according to the Energy Saving Trust. An installer will drill a series of holes in the walls of the house, and mechanically blow insulation into the cavity through a hose. Once done, they will fill the holes and make good.

Poorly filled cavity wall insulation can result in cold spots and internal condensation. Therefore, it should be carried out by a trained professional.

Properties, typically those built before 1940, rely on the cavity to stop rainwater penetrating to the inside wall. In this case you will need to either insert a vertical damp proof course or not fill the cavity.

In any house, cavity wall insulation will reduce ventilation, preventing moisture from being removed. So, if you have cavity wall insulation make sure you also have trickle vents, airbricks, or extractor fans. Ventilation needs serious consideration when it comes to any form of wall insulation.

Holes in external walls

Fill any holes around pipes that lead outside, such as extraction pipes on white goods. Silicone filler bought from any DIY shop should be fine for small gaps, while larger gaps may require expanding polyurethane foam. Disused extractor fans and large outlets can be filled with bricks or concrete, then sealed. If you have an unused cat flap, consider blocking it up.

Planning an extension

There are things to consider:

- Ideally living spaces should be on the south of a building, they will benefit from solar gain (the sun providing additional heat on bright days).
- Rooms such as toilets and bathrooms on the north side with smaller windows, resulting in less heat escaping from the window.
- Insulate floors, walls, and the roof to a high standard.
- Underfloor heating if possible.
- Triple glazing.

Glazing and Doors

The problem

It is understood that approximately 15% of heat escapes from doors and windows. Gaps around doors and glazing can be a significant cause of heat loss in the home. A badly fitted letter box and even the hole for a mortise key will add to the problem.

Action to save energy and money

Draught Proofing

Prevent heat escaping through gaps in windows or doors with draught proofing. Cutting out draughts stops heat escaping and cold air entering your home. First, check the closing action of doors and windows to make sure they close neatly and properly with no awkward angles. This will make any draught excluders fit better and be more effective.

Fitting draught-proofing strips to windows and doors can be a quick DIY job costing around £50. It will cost around £270 for a professional to draft proof the whole house and doing this will save you around £60 a year on your energy bills. You will also feel warmer and be more comfortable possibly being able to turn the heating down a degree. Door brushes are a very useful addition to the bottom of doors to minimise gaps.

A good start to find out where all the heat leaks are at home is to call in the service of the Barrow Greener Living thermal imaging team. You will see where the weak spots are and then you will be able to remedy the problem.

Doors

Save up to £20 per year by installing an energy efficient external door. Probably only cost effective if you are thinking of replacing the door. In days gone by people hung a heavy curtain at the back of external doors to keep the cold out. A drought proof letter box cover costs approximately £10. Better still have an external letter box and fill your old letter box with insulation. A keyhole cover for a mortise lock cost about £3. And the good old fashioned door draught excluders really do help. Now this is going to sound patronising … in winter only keep the front door open for the shortest time … told you.

Let's not forget either that internal doors can also be draft proofed to keep specific rooms warmer such as the lounge. Keep internal doors closed to stop warm air moving to colder areas. The law of nature will always want to balance temperatures between rooms … you cannot stop this, but you can slow it down by drought proofing and keeping internal doors closed. If you do this make sure you monitor the quality of air in rooms you spend any time in and humidity levels.

Secondary glazing

Secondary glazing involves fitting an additional pane of glass, acrylic sheet, or plastic film over the window internally. How sophisticated it is will depend on whether you want to open the window (you can get secondary glazing that slide open) or not. And of course, cost will be an issue. No matter what type, it will be effective to reduce energy bills and except for the plastic film option it will also reduce noise.

Triple glazing

Although triple glazing costs more than double glazing (10 to 20 per cent more expensive), it can be 20 to 30 per cent more energy efficient. Some manufacturers report that triple glazed windows are as much as 40 per cent more thermally efficient than standard A-rated double-glazed window, and 60 per cent more than C-rated double-glazed windows. The combination of the additional pane, dual airtight cavities and warm edge spacers help reduce thermal conductivity across the panes, meaning less heat is lost.

If triple glazing is not possible secondary glazing with Low-E glass is a good option.

No matter what type of glazing ensuring good fitting windows is essential to minimise cold spots and draughts. Window fitters do not consider this as a cost-benefit for themselves, so you need to say and observe to get a good job done.

Thermal curtains

Drawing the blinds at dusk can reduce heat loss by 13-14 per cent and curtains from 15-17 per cent. Close curtains at dusk to keep the heat in but curtains lined with a layer of heavy material can reduce heat loss from a room through the window at night and reduce draughts. Substantial savings can be made by using different types of curtains. However, the driving factor shown in studies was not the actual curtain weight or type, although this was important, but how well it was fixed at the perimeter. At best this arrangement creates a layer of stationary air that adds to the insulative effect of the window covering. The way in which a curtain is fitted to the window will affect the amount of heat transferred, with greater reductions in air movement providing the best results. The effect of this layer of air is dependent on its width, with a wider air gap providing improved thermal resistance to the window. Ideally there should be a pelmet. Curtains on poles which leave gaps at the top and sides do not work nearly as well.

An unscientific experiment. **Hypothesis:** Thermally lined curtains are worth the money. **Method:** One thermometer placed near to the curtain in the lounge. At the same height a second thermometer was placed between the thermal curtain and the window. The curtain covers the external wall and window - floor to ceiling, wall to wall. Triple glazing. 6C outside. **Results:** 2.7C warmer in the lounge. And slightly higher humidity (5%) between the curtain and window. **Discussion:** The thermal curtain acts as an insulation layer and barrier to slow heat loss from the lounge. The curtain minimizes air flow (as indicated by humidity) and therefore reduces heat loss. Professional experiments by others indicate that it is both the lining and the coverage of the curtain that are important factors to minimize air movement and heat loss. In conclusion, the additional thermal layer in the curtain is worth the money.

Roof windows are the weakest point for heat loss in any home. If at all possible, consider insulated blinds.

Floors

The problem

Up to 15% of heat can leak through the ground floor of your home, particularly if you have ventilated floor joists. Suspended floors, usually floorboards, rest on joists above a cold space which is correctly ventilated with fresh air to prevent the timber rotting. If there is a room above an unheated space, such as a garage or cellar, insulation may also be beneficial. Stone or concrete floors can be particularly problematic.

Holes in floors, such as cracks or gaps around skirting boards or where pipes poke through, will also let draughts and cold air in.

Action to save energy and money

Suspended floors

The space underneath floorboards can be insulated using rigid boards, mineral wool, or spray foam. The Energy Saving Trust estimates that it will save up to £75 a year. Costs are in

the region of £520 – £1,300 depending on the size of the room, the material used, access issues and the type of floor being insulated. You can save more if you fill all the gaps between the floor and skirting board. Filling these gaps with a tube of sealant is a cheap, quick and an easy solution. Insulating your floor and filling cracks in skirting boards will save money.

If you have a cellar, you can avoid lifting the floorboards by insulating from below. Rooms upstairs do not require insulation if they are above a heated room.

Solid floors

Solid floors are generally stone or concrete. You can insulate a solid concrete floor underneath or above the concrete using rigid insulation foam. If you are insulating on top, you will lose a bit of height in the room and will have to cut the bottom off any doors. Insulating underneath will mean digging down. New rules state that you must put in insulation when replacing a floor, according to Building Regulations.

Carpeted floors are usually the warmest floor type. The nature of carpet makes it a good insulator. However, a thick, layer of underlay will further improve any insulating qualities. You may think of rugs as decorative, but they can also make a difference to the warmth and comfort of a room, especially if you have gaps in floorboards. There are lots of second-hand rugs available if you're looking to keep costs down, and this is an environmentally friendly choice too.

Roof, ceilings and chimney

The problem

25% of heat loss from a typical house goes through the roof. This is mainly through ceilings directly underneath the loft. Chimneys can also be a big cause of heat loss. Think about it this way, as heat rises and escapes upwards it will suck cold air in from below or through gaps in doors, floorboards, and windows. The more you can stop heated air escaping with good insulation and plugging any holes and gaps the less cold air will be drawn into the property.

Action to save energy and money

Apply loft insulation to a depth of at least 270 mm costing £5.00 per sq. meter. In addition, as heat rises, it will escape through small gaps around the loft hatch. Insulate these gaps by using foam strips, as you would for doors or windows. Not forgetting to put insulation on top of the loft hatch. Plug any gaps around pipework that go through ceilings. The usual payback time for loft insulation is only 2 years.

It is important to remember that, as with ventilation under wooden floors at ground level, the attic space above insulation should also be well ventilated to prevent damage to the roof timbers. This can be achieved by leaving ventilation gaps at the edge of the roof void. Simply

stated, ensure the insulation covers the ceilings of rooms below but leaving some gaps where the roof joins the external walls. This will ensure the attic is breathing well and humidity is good. You could place an electronic temperature/humidity device in the loft space to monitor humidity … below 65% would be good.

Chimneys act like funnels that suck warm air upward out of rooms and thus pull cold air in. To minimise energy (and money) escaping up the chimney consider a chimney balloon for approximately £20 with potential savings of £90 annually. Pigeons sit on chimneys and poorly insulated roofs for a reason!

Central Heating

The problem

There are many things you can do to ensure you are getting the most from your central heating system. It needs to start with the age and efficiency of the boiler and a question to ask … is my home suitable to move towards an Air Source Heat Pump or should I buy a modern efficient gas boiler. However, you cannot separate heating and insulation. The more you insulate the better your heating system will function. It is a false economy to simply obtain the most efficient boiler without considering insulation first.

It remains unclear when gas boilers will be banned, however, it is likely that the first phase of banning gas boilers will apply to all new builds.

Action to save energy and money

Boiler

Gas is still a cheaper fuel than electricity, so if you have gas central heating it is generally advisable to use this over individual electric heaters. The exception may be if you only want to heat one room for a short period of time. Some electric heaters are available with a thermostat, and some have a timer – you can use these to avoid using more energy than you need. Making sure to turn off when leaving the room. If you heat more than one room with electric heaters, you will probably be better off using the central heating.

An old gas or oil boiler, when replaced with an A-rated condensing boiler could save you over £355 per year in energy bills if you live in a semi-detached house and a whopping £540 for a detached property. Currently, the Government has a scheme to support the replacement of boilers over 15 years old. Another important consideration about the boiler is matching it to the size of your property… too big or too small may mean it is less efficient and in the long run costs more to run.

The flow of water from and to the boiler

Load compensation controls lower the flow temperature your boiler so that it is running at to a level that's sufficient to reach the temperature set on your thermostat, reducing heat wastage. Try turning your flow temperature down to 60°C but dial it back up if your home cannot easily get to the temperature set on your thermostat. If you have a boiler with a water tank, it probably will not be as efficient as a combi boiler. Don't adjust the flow temperature beneath 60°C without consulting an engineer because these systems work differently and storing water in a cylinder introduces hygiene risks such as legionella.

Condensing boilers work most efficiently when water returning to the boiler is below 55°C so, again it is best not to set the temperature too high. Always, check with a qualified person any alterations you make.

Try this interactive guide Walkthrough - Money Saving Boiler Challenge

Radiators

Check radiators are working properly. Do they have cold spots at the top of the radiator? If yes, there is probably air trapped in the radiator which needs to be bled. This is a relatively simple job but needs care. You can easily see how to do this on the internet. Make sure you check the pressure of your heating system afterwards. There is usually a pressure gauge on or close to the boiler. If it's too low, you can increase it using the filling valve/tap connected to your boiler until the pressure is back in the 'green'. This is usually somewhere between 1.0 and 1.5 bar. If you're unsure, there should be instructions in your boiler's manual. If you are not confident to do this yourself, get a professional to help as sometimes water can gush out!

Placing radiator foil behind radiators can reflect up to 95% of energy back into the room and cuts heat loss through the outside wall by 45%. This means that less energy is used to heat the room to the desired temperature, resulting in lower energy bills. There is no need for removal of radiators or for a professional installer. Radiator foil can be cut to size with normal kitchen scissors, and it disappears from view once installed. Five radiator foils will cost around £20 to £30, but you could save £40 a year on your bills. You can buy radiator reflector panels in most DIY stores. These are also a good option if you rent but check with your landlord before installing.

To get the maximum benefit from your heating, avoid overworking your system by blocking radiators with furniture and or curtains. It's best to move a sofa or other heavy furniture away from radiators, and remove radiator covers.

Thermostatic radiator valves (TRV) fitted to individual radiators allow you to control temperatures in each room. To work well they need a free flow of air to sense the temperature in the room, so they shouldn't be obstructed by furniture, curtains, or a radiator cover. Installing thermostatic radiator valves could save £55 a year if used well.

Underfloor heating

Underfloor heating works like having a big radiator under the floor. Hot water at 35-45 degrees passes through coils under the floor, the heat rises to warm the room. Because of

the lower temperature it is suitable for connecting to Air Source Heat Pumps. At its best underfloor heating should be matched with good insulation, better airtight houses, and left on for extended periods.

Pipes

It really helps to insulate hot water pipes as it targets heat to where it is required. Ensure the white condensate pipe exiting the boiler and going outside is insulated as these pipes can freeze during cold spells and stop the boiler from working.

Thermostats

Set the thermostat to the lowest comfortable temperature (typical 18 and 21 degrees). On cold days people often turn the thermostat up but, it's not the overall temperature of the system that's the problem. It takes longer to warm up because it is starting at a lower temperature. So, put the heating on a bit earlier. It is a false economy to keep turning up the thermostat. If you can't achieve the temperature you want this may be because more heat is leaking out than you can put in. Your house is saying, stop the draughts and I need more insulation.

Turning your thermostat down by just 1 degree could save you £145 a year on energy bills if you have just a single thermostat for the whole house and no thermostats fitted to each radiator.

Please bear in mind that thermostats also need a free flow of air to sense room temperature, so make sure they're not blocked by curtains, furniture, and keep them away from heat sources such as radiators or sunlight.

Wireless thermostats can be moved from room to room as needed and usually placed in the room you want to heat. Programmable thermostats let you plan for the heating to come on and go off at different times of the day. This is useful if you are working so that you are not heating the house during the day when no one is at home. Some boilers have this built in.

Smart controls

It's better to turn your gas boiler off and on when you need it and use it to heat the rooms, you're in rather than having it on low all the time. If you leave the house for a few hours, turn your heating off. It's cheaper to re-heat your home than it is to keep it on low all day when you're not there. Possibly using an electric throw or blanket until the room heats to a comfortable temperature. So, make sure your heating comes on about 30 minutes (maybe longer) before you wake up, and goes off 30 minutes before you go to bed. This will help to reduce heat wastage. Let your duvet do its job. Installing and using a full set of heating controls is key in allowing you to warm the rooms you're in, to the temperature you need.

Smart controls automate your system, so your boiler only comes on at optimum times. If you don't already have a room thermostat, programmer or thermostatic radiator valves,

installing them (and using them well) could save a typical household around £180 on energy bills each year, according to the Energy Saving Trust.

Weather compensation controls adjust your boiler's output according to need, based on a sensor that detects how cold it is outside.

The in-home digital display on your smart meter shows you what energy you're using, when, and how much it costs. Seeing and understanding how you're using energy can help you make changes to reduce your energy use and lower your bills. If you don't have a smart meter yet, contact your energy provider – they should be able to arrange an appointment or let you know when they will be installing them in your area. This won't cost you anything.

Servicing the boiler

Make sure to have your boiler routinely serviced, usually annually. This costs £90 on average. If a boiler isn't maintained, it can become less efficient, meaning it uses more energy to heat your home. Sometimes a build-up of sludge in pipework can make it harder for the boiler to heat the whole house. Regular maintenance extends the life of your system. Rented accommodation should have an annual service by law.

If your boiler is set up to be as efficient as possible it could save you 10% on your bills

General Management of Central Heating

Closing internal doors and using draught excluders reduces the amount of heat moving to colder areas of your home, such as the hall. This helps keep the heat in the rooms you use most often and makes them feel more comfortable. If there's a gap at the bottom of the door, block it with a draught excluder. You can make one stuffed with used plastic bags or bits of spare material. But again, check the air quality of the rooms you spend most of your time.

Bedrooms are typically cooler rooms in the home. Using an electric blanket or hot water bottle can be a cost-effective way to get some added warmth for a short period of time. Just remember to follow all safety instructions and take special care when handling hot liquid.

The motto being … only heat rooms to the temperature and time required.

Hot Water

The problem

The domestic hot water system uses a substantial amount of energy (approximately 13% for the average home) and there are many things to consider to achieve the most benefit for the least money.

Action to save energy and money

Hot water tanks and pipes

Most hot water these days is delivered by a combi-boiler which does not have an external water tank. It produces hot water as required in the boiler. If you do have a hot water tank, ensure it is well insulated to at least 3" thick. Thicker would probably be better and with no gaps. Tank insulation costs from £15.00 and could save around £25-£35 a year. Use economy 7 cheap night rate to heat water, this will save £400 per year if you heat water for one hour during the day at more expensive rates.

A hot water cylinder should have a thermostat to switch off the boiler once it reaches the required temperature. This should be set at 60 degrees, not lower to prevent the risk of legionnaire's disease, however, not much hotter because you will only have to cool it down with cold water to wash.

When hot water runs through copper pipes it loses heat to the air around because copper is a good conductor of heat. But do you really want to heat up your attic space or the floor cavity underneath your lounge? Insulating pipes will reduce this heat loss and can be a DIY job. You can buy foam insulation collars for around £1.50 per metre, cut these to size, and fit to any exposed hot water pipes. Insulating all the exposed hot water pipes in a typical semi-detached house will cost around £15 and can save you £9 a year.

If you are going on holiday don't forget to turn off the electricity to the hot water tank.

Showers

Water heated by gas will often be cheaper than that from electricity. Whether gas or electric high-volume power showers can use more water in less than five minutes than running a bath! So, fit an eco-shower head which will save you approximately £55 per year. Your shower will still feel powerful, but it will reduce the amount of hot water used. Equally, turning down the flow of discharge from the shower also works. And consider the temperature of water being discharged. Does it need to be boiling hot? By the way, how many showers a week do you really need?

You could also keep tabs on how long you spend in the shower. Use a timer to keep your shower to four minutes or under. This can save a typical household £95 a year on their energy bills and it could save you another £60 on your water bill if you have a water meter.

Fitting an aerator on hot taps will also save money.

Washing in the sink

Again, this may seem a bit extreme but try washing hands and face in cold water – invigorating and easier in the summer.

Washing up

Make sure you're washing up in a bowl rather than in the larger capacity sink and certainly not under a free-running tap.

Now this may seem a bit extreme! Scrape off all food from your plates; rinse in cold water; finally wash items in warm soapy water contained in a bowl. It makes the hot soapy water go a long way.

Other heating systems

There are several other forms of heating which need to be mentioned. Currently, green electricity (wind and solar) is cheaper than gas to produce but by the time gas has been put through the market (OPEC) , sold to utilities, and suppliers it is much cheaper. Don't forget taxpayers around the world subsidise the oil industry massively.

Electric heaters

If you heat more than one room with electric heaters, you will probably be better off using central heating.

Electric Storage Heaters

Electric storage heaters have an input which controls the amount of heat stored during off peak hours at night, and an output which controls the heat released during the day. The input has the biggest influence on running costs. The output switch should be turned down/off during the night or when you are not at home, to avoid wasting heat. They work best in rooms/houses which are well insulated and few draught problems.

Automatic storage heaters have an inbuilt sensor to monitor air temperature. The heater will automatically charge according to settings. Whilst combination storage heaters have a built-in convector heater used to top up heat on cold days.

Get the most from the Economy 7 fact sheet at www.cse.org.uk/resources

Infrared heaters

Infrared heaters are a relatively new addition to home heating, and it reported they are most useful as additional to an existing heating system. They provide a quick and qualitative increase in temperature to a localized area. Compared to electric convector they do not heat the air in the room, instead the heat hard surfaces and objects, including bodies. Studies have shown that heating specific areas at specific times is cost effective compared to convection heaters. At best they are a directional heat source. An advantage is that they can be placed on ceilings and walls.

Air Source Heat Pumps

A heat pump uses technology like that found in a refrigerator or an air conditioner unit, but in reverse. Extracting heat from the air outside, then amplifying and transferring the heat to

where it is needed. Current models are 3-5 times more energy efficient than gas boilers, and global heat pumps sales have been growing at double-digits the past few years. Obtain reliable information and great places to find information on ASHP are:
https://www.ofgem.gov.uk/
https://www.heatgeek.com/about/
https://www.cse.org.uk/resource/home-energy-fact-sheets/

The Boiler Upgrade Scheme (BUS) is a government scheme helping people access grants towards the cost of heat-pumps as renewable alternatives.

It is very important to gain independent advice from several suppliers before you buy.

Wood Burners
Look great and are effective as a heat source. They can be cheap to run if you have access to a seasoned wood supply. Although there are no immediate plans to ban wood burners given their links with carbon emissions and other atmospheric pollutants it would not be surprising if new legislation was implemented in the future.

Log burners require a permanent vent in the room. That's ok if you are using it but is a draught source if not. It is against regs to cover it.

Solar panels and batteries

Let's not pretend; solar energy is a substantial investment (£7,000 + battery is usual for a typical solar system). It can be argued that it is a better investment than keeping hard earnt savings in the bank earning very little. Instead, put that money to work and let it produce energy for you. Sadly, not every house is ideal for panels. The strength and size of the roof, shading, roof orientation and sometimes permission all need consideration.

Solar panels are now guaranteed to last 25 years; batteries and inverters for 10 years. In this time, it's unlikely your system would need much maintenance. Inverters cost around £800 to replace. Inverters convert direct current, that comes off the roof, into alternating current which can be used in the home. This is all good news because it is estimated that your own solar power plant sitting on your roof is likely to pay for itself after 7/8 years. After that you get free electricity, and the grid will pay for what you do not use. Think about that, at least 3 years of free electricity guaranteed and with a bit of luck another 10 years of free electricity.

A useful bit of kit is called a PV diverter which sends any surplus electricity to heat a water tank (costing approximately £800).

Ideally, on sunny days you should use washing machines, dishwashers, ironing, electric cars etc. rather than letting all that free electricity trickle to the grid.

A match made in heaven is to add a battery with photovoltaic panels. Why?

- Instead of exporting surplus electricity to the grid it is usually better to save it in a battery and use it later. Ideally when electricity is most expensive.
- Even when the sun is not shining you can save electricity from the grid when it is cheaper and use it when it is more expensive.
- Modern batteries will last, very often, longer than the usual 10-year guarantee. They are likely to degrade by say 3-5% over 10 years. They do not suddenly stop working after this but can go on for many years.

Great information about Solar Panels and batteries at
https://www.cse.org.uk/resource/home-energy-fact-sheets/

Lighting

The problem.

Lighting makes up 15% – 20% of the average household electricity bill. If you replace all the bulbs in your home with LED lights, you could save up to £40 a year, with the extra bonus of not having to replace light bulbs so often. Old filament light bulbs are now more expensive than modern LED bulbs.

Action to save energy and money.

Do you remember an adult in your life asking you to turn off lights? They were onto something back then. These were the early pioneers to save energy and save money. So, do not forget to turn off lights when not required this can save the typical household around £15 per year. You can install timers or sensors to help with this. Installing timers will help make lighting in your home more efficient and reduce your energy bills.

And match the number and type of lights you have in one room to the activities undertaken.

By replacing a traditional, 100w incandescent lightbulb with an LED bulb you can save up to £7 per bulb, per year. Replacing a 50w halogen downlighter with an LED bulb you will save up to £3 per bulb, per year.

Low wattage lights are great for children who want a night light on.

Table lamps are just as hungry for energy as other lights, and it all depends on the kind of bulb you are using. Change to LED.

Dimmer lights save money – the dimmer the light the less energy it uses.

Electrical goods

Products like cookers, tumble dryers and kettles use a lot of energy and therefore cost you a lot of money to run but here are some guidelines which may make them more energy and cost efficient. One thing to consider when buying white goods is to get as an efficient product as you can i.e. the ones with a better A grading such as A+++. Secondly, use these products at night on a cheaper tariff? Or if you have solar photovoltaic panels, when the sun is shining.

Below are the differences in annual energy costs between the highest and lowest efficient products. Figures based upon the April 2023 Energy Price Guarantee:
Fridge freezer (freestanding) – £117.19 annual cost difference
Tumble dryer (condenser) – £92.72 annual cost difference
Washing machine – £80.76 annual cost difference
Dishwasher (freestanding) – £65.46 annual cost difference
Hypothetically, if you had the most power-guzzling of these four appliances and switched them to the most energy-saving models, you could save £356 a year.

Dishwashers
It has been established that dishwashers use less energy compared to washing by hand, they also use less water. Some say you only need to scrap off food before you put items in the dish washer and there is no need to rinse. Others prefer to scrape off food then swill in cold water and wash on a lower temperature / quicker speed. Many dishwashers have an Eco mode which takes longer but does not need as high a temperature. It takes a lot more energy to heat water than to have a longer wash. Try it! Also, it really is a lot more efficient to wait and have a full load before you switch on. And finally, it really pays to time the dishwater to come on at the cheapest rate of electricity.

Washing machines
It is advisable to do laundry at 30°C rather than 40°C and above except for stubborn stains. This cuts the cost by 35%, according to testing and going from 40°C to 20°C cuts costs by 62%. Use the Eco button when appropriate. Consider if you are washing some clothes too often... you are the only person to answer that, but it might be possible to cut down the number of loads you need to do each week. Washing clothes too frequently is not only a waste, but it causes fading, shrinkage and misshaping. Chip Bergh, the chief executive of denim brand Levi's, famously said that you never need to wash jeans! But we're not cowboys; it is advised to wash jeans every six to 10 wears.

Also, as with dishwashers can your machine do a quicker wash? Unless you're washing really soiled clothes, modern machines (particularly Best Buys) will still do a good job most of the

time. It is reported that switching to a liquid detergent will wash better at lower temperatures than powder detergents.

Buying a machine with the right capacity for your needs will mean you can wash less often, as you'll get more done in one go. If you don't have enough laundry to fill the drum, go for a quick program, which will often have a lower recommended-fill level. The general rule, however, is to fill your washing machine to capacity. Do you know what makes a full load? The answer will be in the instruction booklet or even the internet!

Fridges and Freezers

The consensus for how cold a fridge should be is between 4-5 C. These fantastic machines work most efficiently when ¾ full.

Which item do we open the fridge door most often for? No prizes if you answered milk. Rather than opening the fridge door many times a day why not store milk you are going to use that day in an insulated box/container. Every time you open the door you are letting nature do its temperature balancing trick! There is some research that indicates that all this opening and closing of the fridge door can add up to be a sizeable chunk of money over the year.

Wait for food to cool before freezing. Defrost frozen food in the fridge as this saves the fridge using energy. Cover moist food so the fridge does not waste energy evaporating moisture. When you go shopping for frozen foods take a freezer bag … don't let all that frozen warm up because you will only have to pay for it to freeze again … "You know it makes sense"!

Finally, the grill at the back of the fridge freezer needs to be kept dust free so that it can do its job efficiently. Defrost the fridge freezers regularly… it all helps.

Kettles

Did you know that boiling water in a microwave is not as efficient as boiling it in a kettle? It can also be dangerous if you overboil. There is some debate if boiling water in a pan using gas is cheaper because you would need to ensure you do not overboil and you use the right size pan (with a lid on of course). For hot drinks only boil enough water for the drinks you need and only to the temperature you need. This can save £13 pounds per year. Consider boiling water in your kettle to pour into a pan for vegetables (extra eco points for this) then just simmer on gas or electric. The result will be less heat being wasted up the sides of the pan but again boil only enough water to cover what you need.

Drying clothes

Do you know that on average a tumble dryer costs about £200 a year to run!
Here are some tips to reduce that cost:

1.Use a high spin speed to complete your wash prior to placing laundry in the dryer to remove as much water as possible.
2. Dry laundry outside when you can. It does not need to be warm outside to dry clothes and a breeze really helps, but rain doesn't! You may have a car-port or equivalent to dry clothes under.
3. Although this needs planning … keep an eye on the weather forecast to use the washing machine.
4. Prioritise heavy clothes and towels for drying outside.
5. Place a clothes horse in a bathroom with the bathroom door shut (even better if the door is draft proof) but the window slightly open or the extractor fan on.
6. Tumble dry different fabrics separately as they take different lengths of time to dry.
7. Avoid drying single garments too.
8. A heated clothes airer will still use electricity but can work for 12p an hour.
9. If you need to buy a new tumble dryer, consider getting a new, more efficient heat pump tumble dryer. It is reported that they use on average 40% less energy and could save you up to £100 per year depending on usage.
10. Avoid using radiators to dry clothes as this is a very inefficient use of central heating and does not work out cheaper than a tumble dryer.
11. If you are drying clothes indoors frequently you may have to use a de-humidifier to avoid damp and mould developing.

Ovens

A gas oven is usually more expensive to buy but cheaper to run because gas is cheaper than electric … for now. Ovens are energy hungry so think how you can best use it. For example, try batch cooking to save money. And try not to keep opening the door. Guess what … it lets energy (money) escape! Take out those pans and trays that you store in the oven as they will require energy to heat up. Despite what Delia states you do not always need to pre-heat an oven. If something needs cooking for a long time then cook it overnight at the cheap rate… OK, not always possible. And always consider using a slow cooker or air-fryer.

Hobs and gas rings

Induction hobs are usually more energy efficient compared to other electric hobs but no matter what type of cooker always use a lid – it keeps the heat in! And it helps to minimise condensation. Use the correct size pan – if you see red (on the ring or flames lapping up the sides) you are not concentrating the heat where it is required, which is on the bottom of the pan. Once a pan is boiling turn it down to simmer, your vegetables or pasta will not cook any quicker. Consider a pressure cooker – much quicker. If you can cook on the hob rather than the oven do so.

Microwave cooker, slow cooker, pressure cooker and air-fryer

According to the company Utilita the cheapest way of cooking is the microwave, followed by air-fryers then slow cookers all these are cheaper than cooking in an oven. An oven consumes a large amount of energy because there is a large space to heat before the food is

also heated. Consider using an air-fryer, slow cooker, or microwave as an alternative. Microwave ovens are very good for cooking small meals. Always plan and defrost food the day before you need it by putting it in the fridge … the fridge will thank you because it will need less energy as the frozen meal will keep the fridge nice and cold.

Irons

Going to let you into a secret … the less ironing you do, the less energy you use, and the more you save. It's that simple. Invest in clothes which do not require ironing. And it's OK not to iron socks, pants and other clothes you wear under other items. It's all personal choice.

Mobile phones and laptops

Fully charged laptops and mobile phones still drain electricity, possibly £60 a year. Constantly charging appliances can damage the battery and increase your chances of an electrical fire.

Televisions

TVs vary greatly in energy requirements but generally LED's consume less. What is probably more important is it on standby or do you turn it off?

Keep appliances clean

Regularly descaling your kettle, defrosting your freezer, cleaning your tumble dryer's lint filter and cleaning the coils at the back of your fridge helps them run as efficiently as possible.

Empty your vacuum cleaner more often. When it is full it must work harder and uses more energy, to do the same job and makes it more likely to break down.

Economy 7

Useful if you can use over 50% of your electricity at the cheap rate.

Keeping stand-by on

Turn off standby on electrical items. Fully turn off your wireless speaker or sound bar they're the most power-hungry gadgets in standby, costing around £6 per year (based on 20 standby hours per day). Only charge mobiles for as long as necessary.

Power-down plugs can include a socket for recording devices to keep them on. Studies indicate that leaving electrical equipment on standby can reduce its lifespan by an average of 15% as well as increasing the chances of electrical fires. Typical payback period: 6 months.

Ventilation / Condensation

The problem

Poor ventilation can be dangerous in areas where there are open fires or flues. Carbon monoxide is a deadly gas that cannot be seen, tasted or smelt. So, make sure that all fires, boilers, and gas cookers are serviced and checked by a qualified Gas Safe registered engineer. You can buy carbon monoxide alarms, which should be in any room with a gas appliance, for approximately £18. If you suspect you have a problem with gas, contact 0800 111 999.

Too much ventilation can mean cold rooms. Too little, and it can cause condensation leading to damp and mould, particularly in rooms where moisture is produced such as kitchens, bathrooms, and bedrooms. Condensation is caused when warm moist air contacts cold surfaces such as windows and external walls. If left, mould can develop, which causes damage to property and health problems.

One person can produce nearly 6 litres of water per day just by breathing. A family of four can produce 20 litres of water per week because of showering, cooking, washing and another 15 litres as a result of drying clothes indoors.

How to manage condensation

There are several things you can do to manage condensation:

Correct levels of heating

Try to keep temperatures in all rooms above 15 °C and between 18 – 21 °C in living rooms whilst they are occupied.

Insulation

Insulation will warm the surface temperature of walls, ceilings and windows and increase the temperature of the house. Insulation is initially costly but a positive long-term solution to reduce energy bills and to reduce condensation. It will also lower your energy bills year after year.

Good quality carpet and thermal underlay will help, as will heavy curtains.

Ventilation

Monitor humidity in all rooms over time. Levels of 65% humidity and above may result in damp and mould. If you find this adjust trickle vents accordingly. You can buy battery operated temperature and humidity monitors for as little as a few pounds.

It is suggested not to seal kitchen and bathroom windows – the gaps will let out steam and reduce the risk of damp. Instead, seal the inner doors to these rooms, so that once the door is closed, and reasonably airtight, you know the warm air from the rest of the house isn't escaping. Following bathing or showers leave the window open a little or extractor fan on for 20 minutes.

When cooking close kitchen doors and open a window if there is no extractor fan. Place lids on pans when cooking (which also saves money) and only boil the amount of water required as this will reduce steam and save money.

Don't forget humans expel a lot of moisture so, if possible, leave a window slightly open in bedrooms during the night.

Avoid furniture touching external walls as you need to keep a gap for good air movement.

Reduce moisture in the air

Take shorter and cooler showers and when finished wipe off all the droplets from the sides of the shower. When running a bath put the cold water in first this will result in less condensation.

Dry clothes and towels outside whenever possible. Avoid drying clothes on radiators as this makes your central heating work harder and costs nearly as much as using a tumble dryer but at the same time putting warm moisture into the air.

Consider a specialist drying rack if not dry clothes in a room where a window can be left slightly open, and the inside door kept firmly shut.

Wipe down any windows with a window squeegee to minimise moisture. Alternatively, consider the use of a de-humidifier. First, check with a humidity monitor if above 65% humidity and this cannot be brought down via natural ventilation then it may have to use a de-humidifier.

Carbon Dioxide

A carbon dioxide monitor will also give an indication of ventilation and air quality. It is thought that levels below 900 ppm are acceptable, constantly over 1000ppm needs monitoring and can have adverse effects. High carbon dioxide levels are also an indicator of other indoor pollutants that can build up in poorly ventilated rooms. Carbon dioxide levels are therefore said to be a good indicator of ventilation quality. If you are having a party … open those trickle vents or even a window!

Keeping cool in summer

Electric Fans

Using a fan can be an inexpensive way to keep cool in hot weather. Rather than cooling the air directly, fans create air movement which helps sweat to evaporate, meaning you stay cool. Typical cost for 24 hours of continuous use: £0.20 – £0.40

Evaporative air coolers
Evaporative air coolers use a fan to draw air over water. When water evaporates, it cools the air in the space near the unit. Typical cost for 24 hours of continuous use: £0.40

Shading
Brise soleil is a type of solar shading system that uses a series of horizontal or vertical blades outside to control the amount of sunlight and thus solar heat entering a building. The name 'brise soleil' comes from the French word 'sun breaker'.

Pale curtains will reflect heat whist darker materials will absorb heat into a room. On very hot days keep curtains closed when the sun is shining on the window.

Shade the outside of windows with a large parasols or awning.

A well-insulated home will also help to keep the heat out as well as in.

Cook at cooler times of the day.

Open windows upstairs on the north side of the house and downstairs small openings north, east or west to create a cooler upward draft.

Wear loose cotton and a damp cloth/scarf on the back of the neck. Frequently splashing your face with cold water will help keep your body cool.

Switching energy suppliers

You may be able to get a better deal for your energy by switching to a different energy supplier or indeed changing to direct debit.

You can switch
If you rent or have a prepayment meter you can switch as long as you are less than £500 in debt. Yes, if you have a smart meter.

Before you switch
See if the current supplier will offer a better deal and ask if they offer a Warm Home Discount this will depend upon your financial circumstances.

It may be worth considering moving off Economy 7 if you are not using 50% of electricity on the cheaper rate because you are probably paying more for electricity than you need. Then when you want to switch it will be easier to compare.

You may be able to register for the Priority Services Register. You might qualify if you're a pensioner, disabled or chronically sick, or have a hearing or visual impairment. This will qualify you for free energy efficiency advice, free meter readings if you struggle to take

readings, and potentially free annual gas safety checks and be prioritised during emergencies and times of service disruption.

The information required before you start to switch

- **a.** Your postcode
- **b.** Current energy supplier
- **c.** Name of your tariff (find this on your latest bill, or contact your supplier)
- **d.** How many kilowatt-hours (kWh) for gas and electricity do you use or how much do you pay
- **e.** Bank details as it is nearly always better to pay by direct debit
- **f.** Will you be charged a fee for cancelling early?

Shop around

Use the internet to compare suppliers (you will need the above information). Best to use 2 or 3 comparison sites as they don't all compare the same.

uSwitch is an Ofgem accredited comparison site www.uswitch.com

By telephone, MoneySupermarket (0800 177 7087) and uSwitch (0800 6888 557 or 0880 68 88 244).

If you decide to switch what's next

- **a.** Contact the new energy supplier and agree to switch
- **b.** There is a 14-day 'cooling-off' period, the contract can be cancelled without incurring any fees
- **c.** Supply an accurate meter reading
- **d.** You will be sent a final bill from your old supplier.

Paying for Energy

Going paperless and managing your account online may be cheaper. Paying by direct debit tends to be the cheapest option, rather than paying once you've received your bill. But make sure you question any direct debit increases that seem too high. Your energy company should be able to explain how the changes relate to your usage. Over a year, your usage and payments should balance out.

Sending regular meter readings will keep payments accurate and prevent estimated bills. A smart meter should send your meter readings automatically.

Possible financial help

If you are struggling with energy bills it is best to contact the energy supplier early. The supplier is required to work with you to set up an affordable repayment plan.

Depending on your financial circumstances, there are several places that you can go for help and support. Things are changing all the time, but the next contacts are able provide up-to-date information.

Check you are claiming the benefits you are entitled to www.gov.uk/benefits-calculators if you need help contact Citizens Advice Consumer Helpline 0808 223 1133 or contact the Warm and Safe Homes Advice Service 0800 304 7159. Also …
www.Costoflivingsupport.campaign.gov.uk/
Centre for Sustainable Energy 0117 934 1400
www.nea.org.uk/cost-of-living-support
The Cost of Living Support service at helpforhouseholds.campaign.gov.uk/help-with-your-bills

You may qualify for energy saving schemes www.simpleenergyadvice.orguk/grants or The Energy Company Obligation Flexible Eligibility Scheme

Do you receive the Winter Fuel Payment? Think you should, call 0800 731 0160
Some people on benefits will qualify for Cold Weather Payment
Do you qualify for the Warm Home Discount worth £150 (specific energy suppliers only) check www.gov.uk/the-warm-home-discount-scheme

Contact the local authority and see if you might get help from their Household Support Fund
If you are over 50 years old you may get help for small jobs like draft proofing or loft clearance. Contact Age UK 01162992254 or Handyman@ageukleics.org.uk

Grants and funding for energy saving are usually only available for short periods of time but you can find out what is currently available at www.leicestershire.gov.uk/home-energy-grants or call 01163052524

www.zinthiya.trust.org provides Leicester based support

Even though you are not eligible for a grant you may want to consider an interest free payment plan to help with energy saving improvements through a Green Deal Loan www.gov.uk/green-deal

Free debt advice www.moneyhelper.org.uk; www.stepchange.org.uk

Benefit checks www.entitledto.co.uk; Citizens Advice Consumer Service 0808 223 1133; www.citizensadvice.org.uk; www.Turn2Us.org.uk

Useful resources

All things energy saving
www.nea.org.uk;
https://www cse.org.uk
www.gov.uk/improve-energy-efficiency;
www.energysavingtrust.org.uk
www.simplenergyadvice.org.uk
https://www.ofgem.gov.uk/
https://www.bhbh.org.uk/ Better Housing Better Health will offer help and support with energy and costs. 0800 107 0044

The Warm Homes Service 0116 305 2524 a Leicestershire based service for:

- Understanding your living conditions
- Comparing energy suppliers and tariffs
- Entitled grants and benefits
- Measures to improve the energy efficiency of your home

If you smell gas 0800 371 787

Bibliography

Better Housing Better Health

Centre for Sustainable Energy

Energy Savings Trust (EST).

National Energy Action

Royal Institution of Chartered Surveyors* (RICS),

Which Magazine.

This booklet was produced in January 2024