

## PASC Energy Saving Advice – May 2022



With electricity and gas prices going through the roof we are all looking for ways to save energy to lighten the load on our wallets and our business expenses. This can be challenging given the industry we work in, but there are several ways to save energy that you may not have thought of. Here we try and bring those ideas together from several sources to give you a better understanding of your energy use and how to reduce it.

All the information below is based on how a household can save money, we will all have to adapt each measure to work within the constraints of running them as a business. How much you might save will also depend on where you start from. If your property is a custom designed eco build, there may be less opportunity than if you have an older building.

All papers like this tend to be a work in progress, so if anyone has any suggestions on measures to add that might help us all mitigate our energy bills, please let us know and we will include in any future revisions.

### List of contents

- **LED Lighting**

- Dishwashers & Washing Machines
- Kettles
- Fridge & Freezer
- Standby Devices
- Mobile phone chargers & other “pregnant plugs”
- Ovens
- Radiators
- Insulation & Draft Proofing
- Useful Links

## LED Lighting

Most of us will already be using low energy lighting in some form, but it’s worth knowing that the technology has advanced significantly in recent years, and the “old style” type may not be maximising your savings. There are two main types of energy-efficient light bulbs available: compact fluorescent lamps (CFLs) and light emitting diodes (LEDs).

LEDs are the most common and adaptable light fitting and are suitable for replacing dimmable lights and spotlights. LEDs are also more energy efficient than CFLs. If you replace all the bulbs in your home with LED lights, the average home could save £55 a year off the electricity bill. Meanwhile, if you are still using up your old stockpile of incandescent bulbs, switching from a 100 watt incandescent to an LED equivalent could save up to £13 per year PER BULB, according to the Energy Saving Trust -

<https://energysavingtrust.org.uk/advice/lighting/#:~:text=There%20are%20two%20main%20types,more%20energy-efficient%20than%20CFLs.>

**Table showing potential savings by swapping out incandescent & Halogen bulbs with LED equivalent bulbs:**

<b>Incandescent wattage</b>	100w	75w	60w	40w	<b>Halogen Wattage</b>	50w	35w
<b>Saving per annum</b>	£13	£8	£6	£4	<b>Saving per annum</b>	£5	£4

The lowest rating for a fluorescent “energy saving” light, would be around 9 watts, whereas an equivalent LED light would be rated at around 4 watts. While this may not sound like very much, over a year a light bulb that is less than half the wattage of a standard compact fluorescent light bulb will offer quite a saving, now multiply that by the number of bulbs you have in your property and the savings become much clearer.

There are both dimmable and non-dimmable options available. Will this save energy? That will depend on the type of bulb (and the type of dimmer switch) you are using. Dimming old-fashioned incandescent bulbs converts light into heat, so won’t save you anything. Dimmable halogen bulbs will save up to 20% but will also reduce the lifespan of the halogen bulb. Dimmable CFLs will consume less power when dimmed. However, the new energy saving lightbulbs may not be compatible with old dimmer switches designed for incandescent bulbs, resulting in flickering or buzzing (or bulbs not working), so newer low energy compatible ones may be needed -

<https://www.electricrate.com/data-center/dimmed-lights/>

## Fluorescent Tube Lighting

What about fluorescent tube lighting? Fluorescent tube technology has been around for over 100 years, and while they are more efficient and longer-lived than the old style of incandescent bulb,

they are less efficient than more modern alternatives, and also have negative ergonomic and health effects - <https://energyperformancelighting.com/disadvantages-of-fluorescent-lighting/>. A standard 5' fluorescent light fitting will use around 58watts, not including the short, but significant starting power required. Whereas a 5' LED light fitting will use more like 28watts, less than half that used by the fluorescent type. Replacement LED tubes can be retrofitted into fluorescent fittings, but they require some modification to the light fitting (removal of the ballast), so unless you are a competent person, it may be easier to replace the fitting with an LED-compatible one, or get it done by a qualified electrician.

## Dishwashers & Washing machines

### Economy 7 Tariffs:

Some of you may have economy 7 electricity tariffs where the cheaper electricity is supplied to you between midnight and 7am (usually, check your tariff to make sure). That being the case, you may be able to set your dishwasher and washing machines on a timer to automatically start within that period, most appliances these days have a “delay” option, which should allow you to delay the appropriate cycle to run within those hours.

### Fire Safety

However, from a fire safety perspective, running appliances at night can be tricky business. Many house fires are caused by faulty appliances and running them overnight is not recommended by the fire service. If your laundry is separate from the house then that problem becomes less of a life risk, but please ensure you have suitable fire alarms in place, in case things do go wrong.

**Side note – Economy 7 tariffs are being phased out by many suppliers and may not be available. They also have an expensive day rate, so if you can't use the cheap night tariff (for example, for night storage heaters) then it may not be the best tariff for you.**

### Descaling:

If you are in a hard water area, then descaling and using salt in your dishwasher is a must. However, when an old machine is descaled, it can sometimes allow water ingress to the heating element which will throw the trip and require the element to be replaced. This goes for kettles too!

### Replace old machines:

It's always best to try and run the most up to date washing machines and dishwashers, anything over 5 years old is likely to be costing you more to run, but this obviously needs to be weighted against how much a new appliance is going to cost.

### Run Full:

Try to run full washes once per day rather than lots of small washes. Despite modern machines having a “half load” setting, it's far more economical to run fewer large washes than it is to run many small ones. If you manage to reduce your dishwasher and washing machine use, by 1 run per week, you'll save around £32 per annum!

### ECO programs:

Almost all modern appliances will have an ECO or Economy mode which is likely the cheapest to run. However, these often take longer to run than other programs, but if you're delaying the wash to run overnight, it doesn't matter.

#### **Auto-Door Opening:**

Some modern dishwashers have a feature that opens the door slightly at the end of the cycle. If you make use of this, it can save you money and aid drying.

#### **Auto Dry:**

Using the auto dry feature on your tumble dryer / washer-dryer can reduce the amount of energy you use to dry your clothes, there are usually settings for "iron dry", "Cupboard dry" and "Folded dry", they measure the amount of moisture left in your items, with folded dry being the driest. You could reduce your energy bills by up to £170 per annum using this feature to ensure you're not "over-drying" your washing.

#### **Hand Washing – Use a Bowl**

Using a washing up bowl rather than a running tap can save up to £25 a year in energy costs, and will also reduce your water use, and can save up to 666kg of CO2 a year

<https://www.bbc.com/future/article/20200326-the-hidden-impact-of-your-daily-water-use>

#### **Kettles**

Boiling only the amount of water you need, will not only reduce energy use, but also has a secondary of reducing the amount of limescale in your kettle. Water that is boiled more than once will create more limescale, therefore, if you're only boiling the water you need, this reduces the limescale build-up.

#### **De-scaling:**

Again, as for other water heating appliances, descaling is a must if you are in a hard water area. Not only will it keep your kettle looking nice, but you will use less energy by descaling often. Citric acid is commonly used to descale your kettle if it is needed but check your kettle's instructions for which types of de-scaler to use.

If you live in a very hard water area, you could also consider fitting a water softener fitted to your mains supply, which will reduce the amount of scale build up. There are many types on the market but check online reviews and shop around.

#### **Fridges & Freezers**

Your fridges and freezers are in constant use and running 24/7, so it makes sense to replace old appliances with more energy efficient ones.

However, even with newer appliances there are a couple of ways in which you can help them to run more efficiently and more effectively:

1. Make sure the grilles at the back are all clean and free from dust, cobwebs and other debris that builds up over time. Like the radiator on your car, they transfer the heat from inside the fridge to outside of it and keeping them clean will help keep things running as efficiently as possible. Dust gently with a brush and/or Hoover around every 6 months but be careful as damaging them will cost you a replacement appliance!
2. Ventilation at the back of your fridge or freezer is vital to ensure those radiators are running at peak efficiency. So, move it away from the wall a bit if possible.
3. Defrost your freezer regularly. Ice acts as a natural insulator which means your freezer could be working harder to keep your food cold through that great frosty build-up. Again, be careful you don't damage any of the internal elements or puncture the plastic walls as this will either render the appliance useless or reduce its efficiency. Switching the appliance off and leaving the doors open for an hour or two and then using a plastic spatula or special defrost tool is recommended. Definitely don't use a hairdryer or similar as this can cause serious damage.
4. Defrosting frozen items well ahead of time in the fridge will not only save you the energy used to keep that item frozen, it'll keep the temperature inside your fridge lower for longer and you won't have to use as much energy heating it from frozen. This is also the safest way to thaw your frozen food. Some pre-packed food does need to be cooked from frozen though, so do read the label and be sure to follow the instructions accordingly.

## Standby Devices

TVs, Sky boxes, Freeview boxes, DVD players, Sound bars, Games consoles, Alexa devices, computer screens, printers..... All of them have one thing in common – they get left on standby!

While modern TVs are pretty energy efficient, adding all those devices up and considering the 8,760 hours they're left plugged in and on standby each year means they may collectively be costing you more money than you would think, <https://www.digitalspy.com/tech/television/a797305/how-much-does-leaving-my-tv-on-standby-mode-actually-cost-the-answer-might-well-surprise-you/>

There are energy saving devices on the market that cut the electricity to all of your devices after a few minutes of being on standby. There are many makes of power strip with multiple sockets. They work by detecting when you press the remote control to switch your TV on and switches all associated appliances on at the same time. You may have to wait a second or two for your TV to become "active" and allow you to switch it on, but the energy savings against the inconvenience should allay that little issue. When the TV is powered down, it switches everything else off after a few seconds.

According to a British Gas study (which can be found here: <https://www.bbc.co.uk/news/technology-61235367>), there are savings to be made by switching off stand-by devices. The following table shows how much BG says you can save:

Stand-by device	Potential annual saving £xx/pa*
TV	£24.61
Sky or Virgin set-top box	£23.10
Games consoles	£12.17
Desktop computer	£11.22
Microwave	£16.37
Shower	£9.80
Washing Machine	£4.73

Printer	£3.81
Phone Charger	£1.26

\*Consumption of each category will vary, depending on age, output and energy-efficiency of each appliance. Newer AAA+ rated TV sets have a standby consumption that is negligible.

### Mobile phone chargers & other “pregnant plugs”

Most households have multiple devices that need a USB charger or pregnant plug type charger, which is effectively a small transformer which lowers the voltage to the correct voltage for the item they belong to.

It is worth remembering that USB Chargers with cables plugged into them which are left plugged in and switched on, are still drawing power from the socket. If you feel them they'll be warm... this is where the energy is going. As a general rule of thumb, energy is converted when used, into light, heat, movement, whatever the energy conversion, energy is being used. Oh, but it's only fractions of pennies I hear, but add up the number of those fractions of pennies and multiply that number by 8,760 hours (the number of hours in a year) and it soon becomes obvious that switching them off, either at the wall or on a switched extension lead, will end up saving in the long run.

There are different opinions on both stand-by devices and phone chargers as you can see from an article on the OVO energy website:

<https://www.ovoenergy.com/guides/energy-guides/save-on-standby-energy>

### Ovens

Space in the kitchen is at a premium. That's why many people use left in the oven for storage of baking trays and Pyrex dishes. However, this can prevent the air from moving around your oven efficiently, which means it takes longer to reach temperature. So it is recommended that you take them out when you switch the oven on and pop them back in afterwards if there is nowhere else to store them.

You could also look at using an air fryer, pressure cooker or microwave instead, all of which use less energy and cook quicker than conventional ovens. Slow cookers can also save energy – while they may be on for longer, on average they only use a 150 watt element and therefore, even if it's on for 10 hours it will only use 1.5 kWh of electricity. By contrast, your oven is more likely to have at least a 3Kw element, so being on for just half an hour matches that.

### Radiators

The majority of central heating systems run on a closed and pressurised water circuit to heat the radiators. Over time, air can enter the system and get trapped in the top of your radiators, causing a gurgling, bubbling or rattling sound. The air bubbles prevent the warm water from circulating around your radiator. That can make the radiator cold at the top, but warm at the bottom. It means your central heating system isn't working efficiently and it can take longer to warm up your room. To remove the air (and make them work efficiently again) you need to “bleed” the radiator by using the bleed valve (the little square “thingy” at the top of your radiator on the left of right handed within a larger “nut”). They often have a slot cut into them these days allowing for bleeding using a flat bladed screwdriver rather than the need for a radiator key.

It is recommended to bleed radiators at least twice a year, once just after switching the heating on for the first time, and once again in mid-winter. If you hear a gurgling, bubbling or rattling from the radiators, the likelihood is they need bleeding. If you're not confident in doing this, ask your local plumber to come and show you how to do it. There are also plenty of YouTube videos which show how to bleed a radiator (e.g. <https://www.youtube.com/watch?v=PVP1rbzk4DU>)

When you bleed radiators in a pressurised system, the pressure within that system will drop and your boiler will not fire up if the pressure is too low, so make sure you know where and how to re-fill or re-pressurise your system prior to bleeding them. Again, there are plenty of YouTube videos showing how to do this (e.g. <https://www.youtube.com/watch?v=ReKh8NTwLQ4>). If you are at all unsure, it's always best to consult a qualified installer.

## Insulation & Draft Proofing

The biggest savings are likely to come from adequate insulation and draft proofing. Your loft can never have too much insulation - check it and get an installer in to renew / replace or add to the existing insulation if necessary. Double glazing windows and doors makes a huge difference to energy loss, but replacing all windows is expensive. If you have single glazed windows, then draught proofing doors and windows is one of the cheapest and least intrusive methods of reducing heat loss. Historic England estimates that draught proofing can reduce air infiltration by up to 86% <https://historicengland.org.uk/advice/your-home/saving-energy/making-changes-to-save-energy/draught-proofing/#:~:text=Draught-proofing%20is%20one%20of,are%20susceptible%20to%20wet%20rot>.

You can find further information on how to draught-proof windows and doors on their website <https://historicengland.org.uk/images-books/publications/eehb-draught-proofing-windows-doors/>

## Heating

Turning your heating down by 1 degree could save you around £60 each year and will reduce your Co2 emissions. Put on a jumper or two before reaching for the heating controls. Schedule your gas, oil or LPG heating to go on and off when you need it, rather than running on constant. If you have electric storage heaters, turn the output dial on down to zero an hour before bed.

## In Conclusion

This paper is a roundup of some of the ways you can reduce your energy consumption and save money and includes links to websites where you can find more detailed information.

There are also some useful links below.

## Useful Links

### The Energy Saving Trust

The Energy Saving Trust work as an independent organisation to help address the climate emergency. Their website has lots of useful information, from money saving tips to advice on renewable energy <https://energysavingtrust.org.uk>

They will be able to tell you if there are grants available to you, or if you are eligible for a home energy use assessment.

## NICEIC

Here is a link to the “Find a contractor” page of the NICEIC website:

<https://www.niceic.com/householder/find-a-contractor>

## NAPIT

This link will take you to the NAPIT website who run a similar inspection and testing scheme to the NICEIC, there is a lot of information on choosing the right member and you can search by speciality too:

<https://search.napit.org.uk/>

## ECA

The ECA has an excellent search facility for their registered members, if you click on the plus sign next to the “advanced search” heading, you can search by postcode:

<https://www.eca.co.uk/find-a-member.aspx>

## The Gas Safe Register

The gas safe register is obligatory for all Gas installers and engineers, to find a gas safe installer near you there is a brilliant search facility on their website at:

<https://www.gassaferegister.co.uk/>

## Energy saving devices

Energenie make several different types of socket, some energy saving, but I also found one that monitors the energy usage for the appliance plugged into it:



For around £18 you can find out for yourself which of your appliances are the most power hungry and address them accordingly.

There are many manufacturers of energy saving extension leads and many different sorts for different applications, such as computer use or TV and ancillary use.



They also make this type of extension lead that switches off ancillary items when your computer or main device is switched off, there's also a permanently on socket on this particular device, perhaps for a desk lamp?

There are all sorts of power-down extension leads out there, do some research and find the one that best suits the application you want to use it for, some are remote controlled, some use the remote signal from your TV remote, they're perfect if your plug socket switch is hard to reach or you want to ensure they're switched off every time the TV is switched off.

Which

<https://www.which.co.uk/news/article/9-surprising-ways-to-reduce-energy-use-around-the-home-aq4C99C58YpJ>