

Energy and Water Efficiency Guide

Reducing your water and energy usage are great ways to reduce the running costs of your organisation. This guide talks you through some of the key areas you can look at to get your utility bills down, and as such reduce your impact on the environment.

Energy Efficiency

Energy Management

Before you can start thinking about *how* you can save money on your energy bills, you need to make sure that someone in your organisation is responsible for managing them, and has the knowledge they need to make sure they are accurate. Ask your supplier to install a smart meter if you don't already have one, this will not only mean that you get accurate bills as readings are automatically sent to your supplier, but you can also get current and historical information on your energy use once it's been installed. You can see how much energy you've used throughout the day, and start looking out for usage spikes, then monitor the impact of changes and improvements you make. Plus, for a lot of small businesses smart meters are completely free! You could even think about getting a plug-in meter so you can see how much energy individual pieces of equipment use.

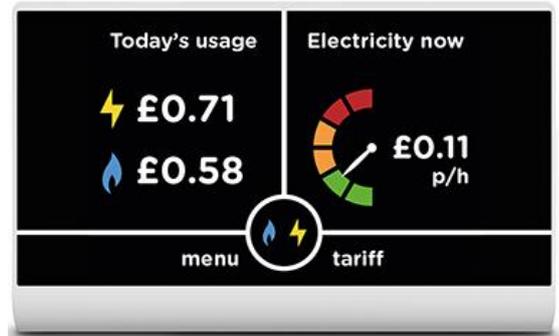


Figure 1: A typical smart meter

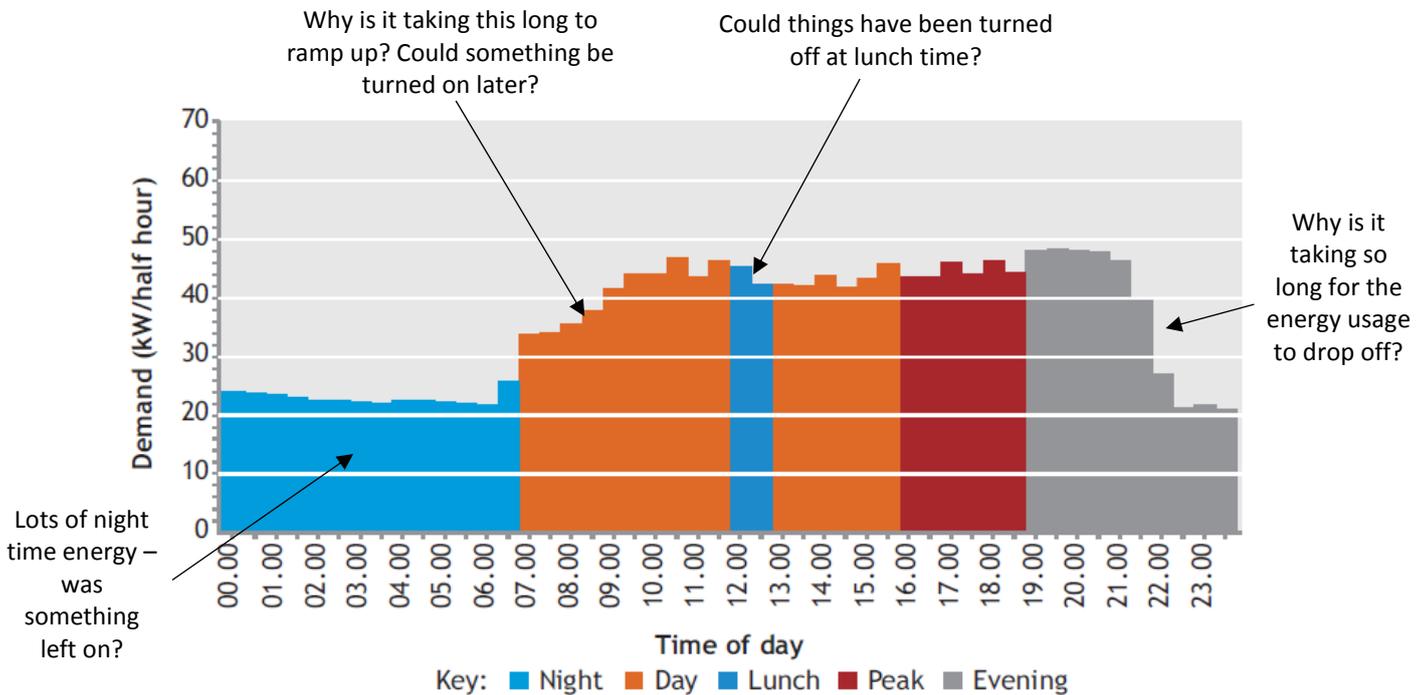


Figure 2: Example smart meter information output

Above is an example of what the information you get from a smart meter could look like. It will allow you to look at when you are using energy, and how much. Are you using lots of energy overnight? Or at lunch time? What could this mean? Are your staff leaving things on when they leave? Smart meter data gives you the power to understand your energy use so you can plan and monitor changes.

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If you can see the outcome of the great work you and your staff have done, maybe you could even reward them with a small incentive. Little things like a free breakfast or a lunchtime pizza delivery can be a great way to get people engaged!

Behaviour

Once you have worked out what you are paying for energy, and when that energy is being used, what do you do next? Before you start thinking about what equipment you can change, there are plenty of things you can do working with your staff and even any visitors you may have to reduce your energy bills - we'll talk about some of these over the next few sections. To really get your staff on board, we find that writing a good policy setting out what you aim to achieve with some clear and fair targets can really help motivate people to get involved – as well as the pizza we already mentioned! Also, when you're looking to buy new or replacement equipment, make sure you've thought about the cost of running it as well as the up-front cost to make sure you really are getting the best value for money. Writing a buy-smart strategy can help get this message across to staff.



Lighting



Figure 3: Well labelled light switches

There are plenty of things you can do to reduce the cost of your lighting without spending money. Remember to open blinds and turn lights off if you can get enough natural daylight into the building, look to remove some light bulbs or tubes where possible if an area is over-lit, and make sure light isn't blocked by cupboards or racking. Another key thing is to make sure staff know which switches turn off which lights, sometimes people leave lights on simply because they don't know where the switch is or are worried they will turn off the wrong light.



Figure 4: Removing individual lamps

Once you've maximised your no-cost savings, the next step is to look at replacing old inefficient lights with new efficient ones such as LEDs. LEDs use very little energy and last much longer than conventional lights such as fluorescents, so not only will you see savings of up to 80% of your lighting energy costs, but you will also save on maintenance as the lamps won't need to be changed as often.

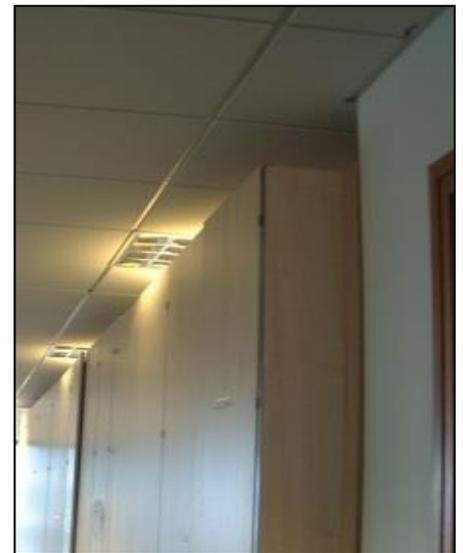


Figure 5: Light covered by a cabinet

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To maximise savings it may also be beneficial to install sensors that will control the lights, they can go off when no one is around or when there is enough daylight coming into the building and it's best to install these when you change your lights to save on install costs. If you're not in a position to be able to replace all your lights in one go, it could be suitable for you to replace one fitting at a time as and when they fail. It will cost more in the long run, but if you can't get access to capital this will allow you to incrementally reduce your energy costs.



Figure 6: An LED spotlight



Figure 7: An LED fluorescent lamp alternative

Heating

Does someone in your organisation know how the heating system works? It sounds like a fairly obvious thing, but it's something that is often overlooked – boilers get left running 24/7 simply because all the staff in a building thought someone else was managing it!

Find out how to control the timer on the boiler so that heating only comes on when you really need it – overheating by 1°C can increase energy consumption by 8%! You can also think about something called 'balancing the system'. This means using the controls on the radiators themselves to restrict the flow to the units nearest the boiler and as such allowing enough heat to get the radiators furthest away from the boiler as in the picture shown. Boilers over 15 years old tend not to be condensing, so we recommend replacing systems over this age with a new more efficient option. Payback will typically be 8 – 12 years.

It's worth also taking note of if your staff are using portable heaters, the cost of running these can be really high and their use is a good indicator if you need to rethink your heating controls. Being energy efficient isn't about making your staff uncomfortable after all! We even find that getting each of your staff members a nice company-branded jumper or jacket to keep them warm can boost morale and help the case for turning down the heating!

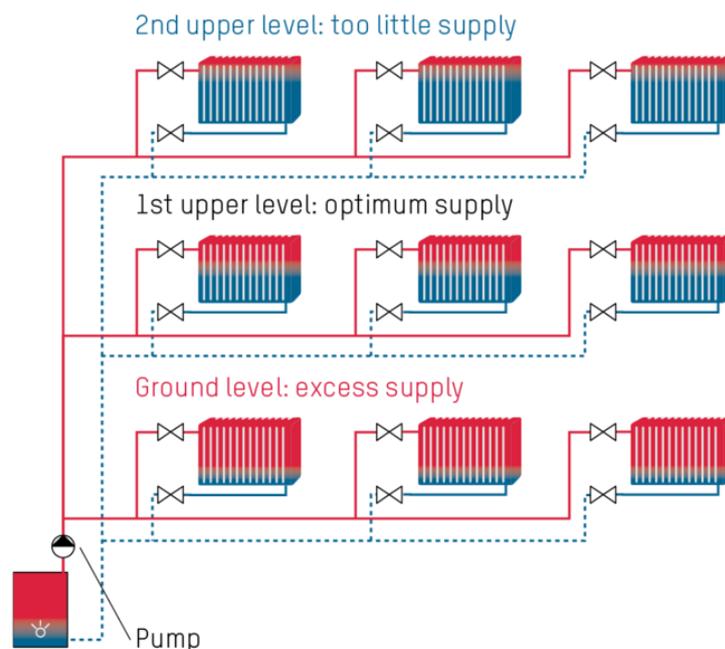


Figure 8: Radiator system balancing diagram

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Insulation

Typically up to a quarter of the heat in a building is lost through your roof. Well thought-out insulation can make a huge difference to your heating bill by stopping some of this loss. Draughty windows and doors will add to the heat loss from the building, and simple changes such as adding draught proofing are often forgotten about. Is the pipework in your building insulated? Easily removable products are now available that will allow ongoing access to valves. Remember also that a well-insulated building stays cooler in summer, so it's not only heating you can save on but air conditioning too. An additional benefit to good insulation is the reduced moisture level in the air which can help prevent damp issues – as long as there is good air flow in and out of the building.



Figure 8: Typical roof insulation



Figure 9: Draught excluder on a door

Small Electricals



Figure 10: These goods may not need to be refrigerated

The energy used in small electricals is often overlooked, but it can easily add up. Printers and photocopiers cost more to run than you think, especially if they don't automatically switch off. Be wary of automatic controls on photocopiers though – if they turn off too quickly then they can end up using more energy than if they were left running as the ramp-up energy usage can be quite high. Think about creating a checklist to remind people to turn off equipment, and consider using plug-in timers to turn things off automatically. If your vending machine only stores food and drink that doesn't need to be kept cool all the time like cans or crisps think about whether this can be turned off overnight and at weekends. Remember also that small things add up, boiling more water than you need or running a half-empty dishwasher contributes. If this happens a lot, it could be useful to run a poster campaign to remind people what to do at the source of high energy usage.

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Water Efficiency

Water Management

Just like with energy, it is important to have a good understanding of how much water you are using and when. If you do not already have a water meter, contact your supplier to arrange to have one fitted. If you do already have a meter, check to see how often you are receiving estimated bills – if you're not getting your meter read often enough you could end up with long periods of time where you are paying more or less than you should, which could turn into a nasty shock of a bill when it finally does get read! Consider reading the meter(s) yourself and sending regular readings to your supplier to ensure that you're being billed correctly.

Make sure that someone in your organisation knows where both the water meter and water stopcock are – if there's an emergency leak you'll want to know that the supply can be switched off as soon as possible!

If you have a fairly substantial water usage, think about installing sub-meters across the site. These will allow you to keep track of where your water is being used, and will be a great way of quickly checking to see if you have a leak before a big bill is sprung upon you!

Push / automatic taps

The use of push taps or automatic taps can be a really simple way of reducing your water usage, as they will prevent taps being accidentally left on. Normal twist taps can often be simply changed to push-versions without a particularly high cost, whereas automatic taps will look great but will come with a high price tag.



Figure 11: Typical automatic tap



Tap/showerhead aerators

Installing tap or showerhead aerators can be another low-cost way of reducing your water usage. As shown in the image to the left, these are simple devices that you can install in most standard taps. They will reduce the flow of the water passing through the tap, while allowing air to be drawn into the water thus giving the illusion of higher pressure. Be careful not to install these in showerheads for electric showers however, as they can affect the working of the unit.

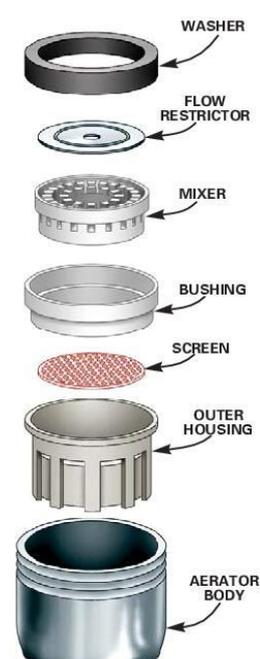


Figure 12: Tap aerator

Water butt

Putting a water butt outside of your building that you have connected in to your gutters can be a great way of getting free water to use – this could be for watering plants or washing cars, or anything that doesn't need drinking water. You could even make a water butt out of a well-cleaned old barrel to save even more money.



Figure 13: Water butt next to a building

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