

SME Guide to Energy Efficiency



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December 2017



Is this guide for you?

The advice and ideas in this guide will help any business become more energy efficient; it will be especially helpful if:

- ✓ You're an SME
- ✓ You haven't looked at reducing your energy bills for a while
- ✓ You have little to no experience in identifying areas where you can save on your bills
- ✓ Your energy bills are not a large proportion of your overall cost base
- ✓ Energy management is not a core part of your job

We know every SME is different, so some of the opportunities in this guide will be more applicable than others.

But, if you don't like wasting money on energy you don't really need and you want to cut your energy bills, improve your working environment and meet your customers' environmental expectations – read on, because this guide will have something for you.



Introduction

“Energy use can be a significant cost to any small business and can represent a high proportion of operating costs. Small businesses need all the help, support and information they can get; this Energy Efficiency Guide is just one of the resources that SEAI offers SMEs. With the right approach, small businesses can control their energy use, improve their profit margin and become greener too.”

Jim Gannon, CEO, SEAI

Introduction

No-one likes waste whether it's time, money or energy – especially when profits are under pressure and margins are tight. This guide aims to save you all three. While gas and electricity may not be your biggest bills, price volatility means that it's well worth taking a closer look at your energy expenditure.

The Government's projections suggest energy prices will continue to increase. By implementing energy efficiency measures, businesses can take control of their energy use, reduce avoidable losses and cut their bills.

Based on experience, the average SME could reduce its energy bill by up to 30% by implementing energy efficiency measures. Typically, 10% saving can be achieved with little or no capital cost. Some investment may be required to get the remaining 20% but the payback is generally around 1.5 years. You won't make a better investment!

This practical guide is based on the real world experiences of a team of professionals who've been helping companies improve their energy efficiency for decades, so everything here is tried and tested.



Know the benefits

One of the great things about energy efficiency is that, once you make savings, they go straight to the bottom line and they stay there, year after year. Even if the return on some measures might not seem overly impressive at first, it's worth considering how many extra sales you'd need to make the same amount of profit.

And it doesn't stop there – energy saving comes hand-in-hand with other benefits. To the right are just some of the widely recognised benefits of energy efficiency. However limited your time, this guide is designed to give you the knowledge, ideas and tips you'll need to start reducing your bills today, even if you have never done this before.

Where to start covers simple no cost and low cost actions to help start you off.

What next helps you to identify where to make the right investments to take your savings to the next level.

The rest of the guide looks at where you might be using energy, what you might have already thought about and what you could be doing next.

Increased productivity

Ability to win new contracts, especially with the public sector

Attracting and retaining the right quality of staff

A more comfortable working environment

Reduced energy bills can be used to fund new jobs

Increased competitiveness

Increased profitability

Improving your SME's green credentials

Reducing your exposure to future energy price rises

Improving your cash flow

Wider benefits to society from reduced carbon emissions and improvements in air quality

For a company with a **5%** profit margin over 3 years, a **€500**-a-year saving from energy efficiency makes the same profit as **€30,000** of extra sales.

The guide also looks at how to engage the workforce, how to identify energy saving opportunities and how to source funding for making improvements.

So read on to find out more about how to reduce your energy bills, improve relationships with your customers and employees, win new contracts and reduce your exposure to future energy price costs.



“ Smart energy management is at the heart of any sustainable business model. An investment in energy efficiency – however small – will help drive increased competitiveness and build resilience to the headwinds of market uncertainty and energy price volatility. In the process, a reduced environmental footprint will appeal to an increasingly environmentally conscious consumer. The SEAI is a trusted intermediary and an ideal partner for any business that wants to begin this journey towards a more sustainable future. ”

Sven Spollen-Behrens, SFA Director

Where to start

There are lots of simple, straightforward actions you can take that **won't cost you anything** and will **start saving you money straight away**. You may be doing some of these things already, while others might be completely new ideas.



Heating

Whatever method you use to heat your premises, this section covers a number of simple steps that will save you money on energy and make staff more comfortable.

Let's start with the obvious

Timers and thermostats



The longer your heating is on and the higher the thermostat is set, the higher your bills will be. But too often timers and thermostats are installed and forgotten about. A few simple steps can make all the difference:

Make sure

Timers are set to the right date and time, especially when the clocks change – you can add a reminder to your calendar.

Different working hours on weekends and Bank Holidays are taken into account when setting controls.

The heating in offices is set at the recommended 19°C and cooling set at 24°C or higher.

The temperature is set lower than 19°C in corridors, storerooms and areas of higher physical activity.

Controls are not tampered with – if you haven't already done so, identify a member of staff to take responsibility for the controls.

Everyone is aware how expensive air conditioning (AC) is: it can double your energy bill.

Ensure air conditioning is turned off in meeting rooms when people leave.

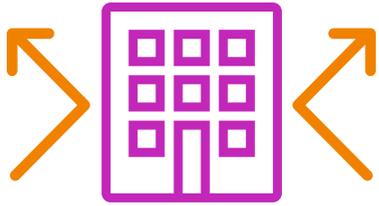
Either open windows or use AC – never both, or you'll just be cooling the neighbours.

AC in IT server rooms is set as recommended by the manufacturer.

Heating costs increase by around **8%** for every **1°C** increase.

Turning the temperature up high on your thermostat does not warm the room up quicker!

Turning it down **2°C** would save around **€160** on a **€1,000** bill.



Doors and windows

Up to 30% of heating costs can be saved by preventing cold air entering a building, so controlling this is one of the simplest ways to reduce energy bills. The following steps won't cost you a penny:

Make sure

Staff are aware of the cost of wasted heat

Draughts, unused doors and flues are sealed up

Doors are not propped open for convenience

Staff are encouraged to turn the thermostat down before opening doors or windows



Office layout

Where people sit can make a big difference to how warm they feel. A clear sign that there is a problem is the use of plug in electric heaters; these are expensive to run and are a possible health and safety risk.

Make sure

Radiators are free from obstructions – don't block these with cupboards or filing cabinets

Staff desks are in the 'goldilocks' position – not too close or too far from radiators

Thermostats are set correctly and are in the right location

So you've got the ball rolling, what next?



Timers and thermostats

Not only does over-heating and cooling waste money, it also has an impact on staff morale and productivity, so it's worth a little investment. Unfortunately, sometimes thermostats are just in the wrong place and they'll need to be relocated. These **low cost** actions are worth investigating:

Why not?

Relocate thermostats to areas that aren't affected by local heating or cooling from radiators, draughts or direct sunlight.

Upgrade to modern electronic thermostats which are much more accurate. These thermostats can be wireless, making fitting easy.

Fit additional thermostatic controls in problem areas where comfort levels are difficult to maintain.

If you can't keep warehouse doors closed, **PVC strip curtains** can be cut to provide a fork-lift truck-sized opening while still significantly reducing energy losses. PVC strip curtains will significantly reduce the volume of cold air entering the building, reducing the need for heating and creating a more comfortable working environment.



Doors and windows

Put simply, the larger the opening, the bigger the cost. A systematic look at all the windows, doors and other sources of draughts will enable you to significantly reduce the amount of cold air entering your building at **low cost**, while still ensuring adequate ventilation where needed.

Why not?

Identify all sources of draughts and fit appropriate draught proofing.

Separate areas which have different temperatures with swing doors that allow easy access, or fit PVC strip curtains to reduce draughts.

Fit spring-loaded door closures to minimise the amount of time doors are open.

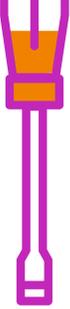
Interlock heating controls with warehouse door opening, so heaters only work when doors are closed.



By installing a simple Building Management System that allowed air conditioning to respond dynamically to in-store conditions, Brown Thomas in Cork is saving €24,000 and 118 tonnes of CO₂ equivalent a year.

Case
study

€24,000
saving



Operational maintenance

Like your car, a bit of regular maintenance can make all the difference to your boiler or air conditioning – it keeps it working smoothly and so keeps your costs down in the long-term. You might need to get someone in to help you, but it will keep your equipment working at its best, and may save on future maintenance and repair bills.

Why not?

Check that your boiler stops firing when the thermostat or timer shuts off the circulating pump. Boilers that continue to fire when the pump is off are costing you money.

Regularly check and maintain any air conditioning units you have and ensure air filters are free from dust. Even a small reduction in airflow will increase running costs, so keep them clean and replace as necessary.

Ensure annual boiler services include a combustion efficiency check and adjust the burner air/fuel ratio to ensure maximum efficiency (in line with manufacturer's instructions).

Why not ask your engineer to modify the control system so that the timer/thermostat switch shuts off both the circulating pump and the boiler itself using a boiler interlock.

Pipework

Uninsulated pipework can be a significant source of heat loss and wasted energy – it acts as an uncontrolled heating source in areas you might not want it, and takes useful heat away from areas that need it. Simply insulating pipework can reduce energy losses by 70% and ensure the levels of comfort you want.

Extraction systems

While adequate air extraction is often necessary, taking excessive air away is expensive and can create uncomfortable working conditions. The simple solution is to control the operation of extractors through timers or interlocked controls to prevent unnecessary extraction.





Lighting

Having sufficient lighting is important and relevant to every business. For many, it is one of the most energy intensive parts of the business and can be responsible for up to 40% of a building's electricity use. However, a few small changes can significantly reduce your costs. This section covers a number of suggestions that could help to save you money, as well as improve your working environment.

Let's start with the obvious

Switch it off



You know the longer your lights are on, the more energy they will use, but it's an easy thing to miss nonetheless. Meeting rooms, storage areas and corridors in particular are often lit unnecessarily, as there is often no one person responsible for them. **The following measures will cost you nothing:**

Make sure

You are aware of unoccupied areas, store cupboards, and corridors where lights can be left on.

The people who are last to leave (whether it's daytime staff, cleaners or security) agree the rule: last one out turns the lights out.

You create reminders and promotional materials to raise awareness so that staff are clear that lights should be turned off when not required.

Switches are labelled so it's clear which switch relates to which lights – you can only control what you know.

It's a myth that turning lights off and then back on uses more energy than leaving them on all the time. It's always best to turn them off when not required, even if it's just for a short time.

Why not take a quick survey at the end of the day to quickly identify places where lights are being left on and action is required.





Natural light

It seems obvious, but there may be areas where natural light from windows and skylights is not being used to its full potential. It could be that by making simple zero or low cost changes, you won't need as many (or any) lights on, therefore saving energy as well as creating a more pleasant working environment for staff:

Make sure

You relocate any objects that block windows, such as filing cabinets.

Your office plan maximises natural light by arranging desks near windows without causing natural glares.

All window blinds are open during daylight hours where possible.

Windows and skylights are cleaned regularly.



Lighting maintenance

Lighting is often overlooked in the day-to-day maintenance and cleaning of buildings. As a result, inadequate fixtures can lead to inefficient lighting. It is important to review and then incorporate lighting maintenance into your overall maintenance procedures.

Make sure

You organise for light fittings to be dusted and cleaned, at least once a year. This will improve lighting without increasing energy use.

Lighting in non-working areas such as corridors is minimised. This can be done by removing tubes from multi-tube fittings or disconnecting surplus bulbs, but don't go too far – make sure you maintain safe lighting levels for the work.

There is clear guidance on safe lighting levels in the SSL Code for lighting 2012. EN-12464-1:2011. Light and lighting, Lighting of workplaces, Indoor workplaces.

You replace discoloured lights to avoid more lights being turned on to compensate.

You check your security lighting. This can be high-powered and energy intensive, so make sure the timer and any daylight sensor controls are set accurately.

Let's start with the obvious

Lighting controls and sensors

Beyond the simple action of switching off lights when they're not needed, there are a number of other easy-to-implement measures you can take to gain more control over your lighting costs. Installing timers and sensors are an excellent low cost solution – occupancy sensors alone could cut energy use from lighting by 30%. This is especially important for areas that are often left unoccupied, that only require lighting when it's dark, or even for just making sure everything gets turned off at the end of the day.

Don't forget external flood lights can be very expensive – a single 500w flood light will cost around €250 a year if it's left on for 12 hours overnight.

Why not?

Install timer switches to make sure lights are turned off outside working hours. Timers are easy to install and are very low cost – they can payback within a matter of months.

Review external/security lighting and install movement sensors to reduce costs whilst maintaining security.

Consider using movement sensors in infrequently used areas such as storerooms, toilets and corridors – to prevent lights being left on unnecessarily. Alternatively, timed switches can be used to switch off lights a few minutes after a push switch is activated.

Look at installing daylight sensors in areas that use both natural and artificial light. These can automate lights to turn off when there is sufficient daylight in the room.

Review your lighting switches – is there just one switch for all of your lights? Consider splitting them up with more switches so you have more control over individual areas of your workspace.

It doesn't need to be a case of all on or all off – lighting could be zoned so that every other fitting switches off on sunny days. Doing this will ensure that lights nearest to the windows switch off first.

By adding occupancy sensors to its store area and toilets, an electronic components manufacturer is saving **€813** and **5 tonnes** of CO₂ per year. The initial **€225** investment paid for itself in **three months**.

€225 investment =
€813
saving

Case study

So you've got the ball rolling, what next?



Office refurbishment

Don't miss out on other opportunities to maximise your use of light during periods of refurbishment. This is a great time to build in new ideas and more efficient equipment, and often **it won't cost you any more money.**

Why not?

Consider a light reflective paint colour to maximise light gains when repainting your workspace.

Consider horizontal rather than vertical or roller blinds if you're installing window blinds to cut glare. Vertical and roller blinds can block out too much natural light, requiring more artificial lighting. Horizontal blinds can be set to protect computer screens while directing light onto the ceiling to maximise its benefits.

If desks, production equipment or storage racking are moved, make sure lights are relocated to their ideal location to match the new workspace layout – there's no point lighting up the top of a shelf.



Office Equipment



Office equipment – computers, printers, and kitchen utilities – can be big energy users. The great news is that there are some really simple steps to cut down on these energy costs just by raising awareness and changing bad habits. 46% of electricity in businesses is used outside of standard operating hours, so whether it's leaving on monitors or vending machines keeping things unnecessarily cool at night, this section arms you with the right knowledge to minimise unwanted energy use.

Let's start with the obvious

Switch it off



If a piece of office equipment isn't being used, make sure to switch it off – you're only paying for energy which isn't being utilised. Even leaving equipment on standby can still be a big waste – each little red dot indicating an item on standby costs around €1 per year for every watt of power used. It all adds up and can make a noticeable difference to your energy bill.

Why not try these handy tips?

Encourage staff to turn their computer monitors off if they are away from their desks for more than 10 minutes, and turn off both PCs and monitors at the plug at the end of the day.

Optimise the brightness of monitors; having them too bright not only uses more energy, it can cause eye strain.

Arrange for a member of staff to turn off all communal equipment at the end of the day, including printers, copiers, vending machines and coffee machines.

Make sure that infrequently used printers and photocopiers are turned on only when required, and are set to go to sleep after a few minutes of inactivity.

Turning equipment off will increase its lifetime so you shouldn't need to replace it as often.



Case study

In 2016, Codema saved **€11,000** and **70 tonnes** of CO₂ a year by implementing a SWITCH OFF campaign for 1500 employees in various Dublin City Council offices by ensuring that all non-essential electrical items were turned off at the end of each day, and at weekends.

€11,000
saving

Let's start with the obvious

In the kitchen

Kitchens are one of the easiest places in the office to make energy savings, but when people are busy it's all too easy to forget about communal areas, with staff only focusing on the task at hand and the energy use from their own desks.

Make sure

All electrical kitchen items, such as microwaves and kettles, are switched off at the plug at the end of the day.

Dishwashers are fully filled before being switched on, and that an energy saving cycle is used if available.

Kettles are only used to boil the amount of water that is needed. Making rounds of hot drinks is more efficient than making them separately.

Space in fridges is maximised – they work most efficiently when about three quarters full, so that cool air can still circulate.

Freezers are regularly defrosted to work more efficiently.

Any electrical items that are not used regularly are unplugged.

A washing-up bowl is provided if washing up is done at the sink so that the hot tap isn't left running.

Damaged door seals on fridges and freezers are repaired or replaced – if the door isn't shutting properly, it's costing you money.

The dials on fridges and freezers are set at the appropriate levels. Fast-freeze can increase electricity demand unnecessarily.

SimplySoups, a soup maker, has installed control devices to reduce unnecessary steam consumption, reducing the energy and cost associated with hot water by 55%.

Case study

55% saving

So you've got the ball rolling, what next?

Timing it right

Not all office equipment comes fitted with a timer device, but they can be purchased from DIY stores for only a few euros and help to remove 'human forgetfulness' from the equation. There are also software packages that allow you to shut down PCs with a single click.

Why not?

Install a plug-in seven-day timer on your vending machines and any drinks fridges – if the contents aren't perishable, they don't need to be chilled at nights and weekends.

Replacement

When your equipment needs to be replaced, consider the energy efficiency ratings of replacement options – more energy efficient products will most likely be cost competitive but even where they do cost a little more in purchase price this will be outweighed by the savings you make in lifetime running costs.

Why not?

Write a policy which commits you to look at both the initial purchase and lifetime running costs of any new equipment you purchase. Spending a few euros more at purchase could save you more money in the longer term.

Consider where your replaced equipment is going - it could be valuable to someone else, so think about donating or recycling before treating it as waste.

In the kitchen

Items such as microwaves and kettles are cheap to replace and newer models are much more energy efficient – buying the most efficient models won't necessarily cost any more but will save you money in the long-term.

Why not?

Identify the most frequently used items and upgrade them to a more energy efficient model.

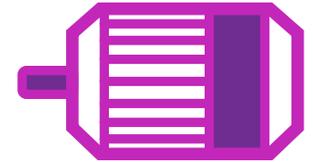
Consider installing a dishwasher if you do a lot of catering – it's more energy and water efficient to run a full dishwasher on an eco-cycle than it is to wash the same amount of crockery by hand.



Production Equipment

Process and production equipment is vital to operations. Whether you're using motors as part of your manufacturing process, compressed air in your garage or refrigeration equipment as part of a retail business, energy use from production equipment is everywhere. It's important to understand where you're using energy, and smart meters can help you do this. Older, poorly maintained and inefficient equipment is one of the biggest culprits for energy wastage, so this section covers some simple steps to help you minimise it.

Let's start with the obvious



Motors and drives

You know that motors are integral to your process, and the longer they run and the hotter they get, the more it costs you. A few simple zero-cost steps can help reduce both costs and the risk of breakdowns:

Make sure

Motors are switched off when not in use, i.e. during breaks and at lunch.

All machines are turned off at the end of the day – don't forget fans, pumps and conveyors.

Switches are labelled and staff are trained in the correct procedures for operating machinery so they know what they can turn off.

You establish the optimum settings for equipment, such as the speed of fans, and communicate this to staff.

Motors are kept clean – a dirty motor will get much hotter than a clean one and is more likely to fail.

Over **80%** of manufacturers cite energy affordability as a key concern for the coming years.

Reducing the speed of a motor by just **20%** can half its energy consumption.

A 4kW motor turned off for an hour a day could save around **€114** a year. Doing the same with a 50kW motor could save over **€1,425.25**.



Let's start with the obvious

Compressed air



Compressed air is essential to the operation of many processes and is often considered as the 'fourth utility'. But it is very expensive when looking at its cost per unit of energy delivered, especially when it leaks. Not only does a leaky compressor create a noisy working environment, a single 3mm hole can cost you nearly €700 a year. The following simple no or low-cost changes can reduce the cost to you and improve safety:

Make sure

Compressed air is turned off when you don't need it. An idling compressor still uses between 20 – 70% of its full load power.

Pressure is set at the lowest possible level for each application. Reducing air pressure by just 10% can lead to 5% energy savings.

You listen for and fix compressed air leaks.

Unused runs of pipework are isolated to help eliminate leaks.

Condensate traps are checked to ensure none are left open.

There's adequate ventilation around the compressor – this will improve its efficiency.

Compressed air can be responsible for **10%** of your energy bill, half of which can be due to leaks.



Let's start with the obvious



Refrigeration

You know that the more heat that gets into refrigerated and cooled space, the more energy it will take to cool it. For refrigerators to work efficiently, air needs to circulate freely both inside and out – if not, running costs can increase by up to 10% and products won't be sufficiently cooled. The following simple measures will ensure heat gains are kept to a minimum and the system operates efficiently:

Up to **20%** of energy use in refrigeration can be cut with little or no investment.

Make sure

Doors are kept closed to keep warm air out.

Lights inside cooled spaces are switched off when not needed.

Areas are only cooled to the temperature you need. Every 1°C increase reduces energy use by 2%.

Refrigeration units aren't overfilled so that cooling air can circulate.

Freezers are defrosted regularly to avoid ice build-up.

Condensers (external) are regularly cleaned to help prolong life, fill faster and therefore reduce costs, and evaporators (internal) are regularly defrosted.

There is space around refrigeration unit vents to allow air to be drawn in and expelled more efficiently.

Fridges and vending machines containing non-perishable items are switched off when they are not in use, like at the weekend.



By fixing just 9 leaks in its compressed air system, a small printing machine manufacturer, is saving **€1,265** and **7 tonnes** of CO₂ a year.

Case
study

€1,265
saving

So you've got the ball rolling, what next?



Motors and drives

Motors represent around two thirds of all electricity used by UK industry. The energy cost to run a motor for two months alone can outweigh the initial purchase costs, so a little time and investment in this area can make a big difference. A systematic look at three Cs – Consumption, Control and Cleanliness – will increase the efficiency and lifespan of motors and help you identify when it's time to replace them.

When replacing motors, ensure units with highest possible efficiency are selected; the **Energy Technology list** is a good starting point.

Why not?

Monitor the energy consumption of motors to see if they need replacing or to optimise the use of the best performing ones.

Automate and interlock control so that motors only run when other equipment is switched on, and are isolated when switched off.

Take into account the whole life costs of motors, e.g. consider replacing smaller motors after several repairs, as each repair will reduce efficiency.

Ensure units with the highest possible efficiency are selected when replacing motors – the Energy Technology list is a good starting point. Any extra capital costs are likely to pay for themselves over the life of the motor through energy savings.



So you've got the ball rolling, what next?



Compressed air

It can take up to ten units of electricity to deliver just one unit of compressed air, and most of this energy is lost as heat. Implementing some of the next steps in compressed air management – considering how it is used and maintained – can realise greater savings with minimal up front cost:

Why not?

Draw cold clean air from outside into the compressor. A four degree drop in air intake temperature will improve efficiency by 1%.

Change filters regularly to ensure maximum efficiency.

Install automatic isolation valves on machinery so that air is not wasted when machines are not in use.

Use cordless power tools instead of air tools, these are far cheaper to run.

Install automatic drain valves to get rid of condensate in the air lines and reduce air losses.

Fit pressure gauges to compressed air filter housings to help identify when a filter element needs to be replaced.

Think about the life cycle costs of compressors. Over five years, energy accounts for around 75% of the cost of ownership, making an efficient next purchase vital.

**Don't oversize your kit – it will cost you more to run.
A motor only needs to be as powerful as its intended use requires.**



So you've got the ball rolling, what next?



Refrigeration

Refrigeration can represent up to 50% of electricity costs for some businesses. If you rely heavily on refrigeration, a closer look at the regular maintenance and management of cooled spaces and units is one of the most effective ways to cut your costs. Poor maintenance alone can increase energy use from refrigeration by up to 10%.

Why not?

Repair door seals. This is a simple and cheap way to prevent warm air from entering display cabinets and cold stores. In frozen cabinets, check whether ice is building up around the door.

Relocate refrigeration units if they are close to direct heat and draughts. For open fronted display cabinets, bad draughts can increase energy use by up to 95%.

Fit strip curtains if cold stores need to be open for loading/unloading for long periods, or if these are used for frozen goods.

Fitting transparent panels to retail display cabinets has been shown to cause no noticeable loss of sales and means a warmer and more comfortable shopping environment.

Regularly service your units by checking that condensers and evaporators are kept clean and defrost systems are working correctly.





Transport

Transport use, diesel or petrol, or increasingly electricity, is often omitted when considering energy savings. Transport is the fastest growing emitter of greenhouse gas emissions and is the only energy service to see its main fuel, diesel, increase in price by 100% since the turn of the century.

Let's start with the obvious

Transport



To achieve savings in your transport costs, record how far you travel against litres when refuelling:

1. Record fuel consumed by each vehicle in litres, and their odometer reading, at each fill. Fill consistently e.g. to "second click"; each time start from a full tank.
2. $\text{Litres} \div (\text{Km} \div 100) = \text{L}/100\text{km}$: Calculate this for the whole fleet, and for each vehicle every week.
3. Often dashboard trip computers will work out your litres per 100km for you; check their accuracy by comparing to fuel use at the pump. Some fuel card suppliers do this for you, ask your supplier.

4. An aggressive driving style can lead to an increase in fuel consumption of 10-12% above average. In contrast, an energy aware driving style can save up to 13% on fuel consumption and is better for the environment and for your wallet. The impact of training on driving style is clear, drivers are more aware of other drivers' actions and they have a greater appreciation of risk and are more focused on fleet efficiency.
5. Using telematics tools integrates **driving style, fuel management and maintenance** with any other aspect related to fleet operations and offers businesses more control over their fleets.

Anticipate traffic flow

Look ahead as far as possible and anticipate surrounding traffic

Maintain a steady speed

Drive smoothly, using the highest possible gear at the lowest possible RPM

Shift up smartly

Shift up a gear between 1,500 (diesel) and 2,000 (petrol/gas) RPM and avoid over-revving the engine

Check tyre pressures frequently

Give your tyres the once-over on a monthly basis at least, and before making a long journey on the motorway.

Consider any extra energy

Take-off roof racks/boxes, air-conditioning units or other unnecessary loads.



So you've got the ball rolling

When you drive, make sure

The journey is necessary; can you use video or telephone conferencing instead?

You schedule the journey to avoid congestion, or plan more stops to make it more productive.

Empty boots and load areas frequently. This can result in stock cost savings and fuel savings.

Service vehicles regularly, an out of tune engine can use a lot of extra fuel. Turn off your engine when it is not in use.

Aggressive driving can add significantly to your fuel bill, relax, slow down and arrive safely.



What next?

By implementing this guide's simple steps to help maintain and maximise the efficiency of your existing equipment, you will already be in a position to achieve impressive cost savings. But with some extra time and investment in new technology – and a more structural and long-term look at your building fabric – you can make an even bigger difference to your bottom line.

What
next?

Heating



Taking the simple steps at the beginning of this guide will have put you well on your way to reducing your energy bills and creating a more comfortable working environment. But you don't have to stop there...

Why not think about...

Computer controlled heating systems

Computer controlled systems automatically switch heating systems on later during mild days when shorter warm-up times are required, saving up to 10% of heating costs. They can also be programmed to come on earlier during cold mornings to make sure the desired level of comfort is reached.

Insulate, insulate, insulate

Uninsulated lofts, cavity walls and roof spaces can be a major cause of heat loss. Simply installing 100-150mm of glass fibre insulation in lofts can reduce these losses by up to 90%, and insulating cavity walls can reduce losses from walls by two thirds.

Recirculating fans

Everyone knows hot air rises, so if you are heating areas with high ceilings, the temperature at the roof will be significantly higher than where people are working. This is a double cost; not only does it mean you must use more energy to heat the workspace, the high temperature in the roof space means you lose more heat through the roof. Install circulation fans controlled by a thermostat – they'll drive the warm air back down to the working areas.

Suspended ceilings

Suspended ceilings make the volume of space you need to heat smaller and, therefore, cheaper. They also provide additional insulation and make fitting of new lighting systems cheaper and quicker.

New windows

Double or secondary glazing can reduce heat loss through windows by up to 50%, while at the same time increasing the value of the building. When thinking about replacing windows consider that it might be possible to put new glazing units into existing frames. Having them argon-filled will also help save you more and remember – the lower the U-value the more you'll save.

Case study

Foxrock Golf Club reduced its heating bills by **20%**, saving **€6,600** and **17.8 tonnes** of CO₂ per year, after replacing their conventional boiler with two gas condensing type boilers, switching to LED lighting with passive infrared sensors and replacing three inefficient refrigeration compression units with one high efficiency compressor unit.

€6,600
saving

Why not think about...

Replace that boiler

The fact is, sometimes boilers are just old. A non-condensing boiler with limited controls will be 10-30% less efficient than a modern condensing boiler, so changing your boiler could reduce your bills by 10-30%. It could also save you space too. **The SEAI's Triple E Product Register** is a good place to start. It's also worth considering renewable sources of heat.

Get the right type of heating

Trying to heat large areas where few people work can be inefficient so consider using spot heating in a localised area or radiant heating which heats objects and people rather than air.

Waste not, want not

Sometimes it's just too warm in the wrong place. Compressor ovens and refrigeration systems all produce waste heat – this can simple be ducted (with filters if needed) to provide space heating elsewhere; or you could use heat exchange technology to convert it into useful heat for hot water.

What next?

Lighting



There are a number of effective quick wins and simple behavioural changes that can make a big dent in your lighting costs, but there is no need to stop there. Here are a few further steps you can investigate.

Why not think about..

More efficient technology

Many traditional lighting products, such as older fluorescent tubes and sodium high bay lighting, are very inefficient in comparison to more modern high frequency T5 fluorescent tubes or LEDs. These upgrades do require investment, but many providers offer finance options that can make the solution case positive from month one.

T5

High frequency T5 fluorescent lights can last up to 20,000 – 30,000 hours (3.4 years) and can save 45% in energy costs compared to older T8 and T12 tubes, without the warm up time associated with comparable sodium lamps and other high bay fittings.

LED

LED lights require more investment than other lighting alternatives, but are by far the most energy efficient, using up to 90% less energy than traditional lamps. They can also last up to five times longer than other types of lamp. This saves you more money in the long term by reducing other costs such as maintenance, downtime and the hire of access equipment for those lamps fitted in inaccessible locations. LED lights can now be used to replace halogen spotlights, and produce a lot less heat. This can help to prevent cooled areas from overheating.

Dimmable fittings

More modern light fittings, such as LEDs, can be purchased in dimmable versions. These usually operate in conjunction with a daylight sensor switch and automatically dim to emit less light – and therefore use less energy – when natural light levels increase.

Sun Life Financial addressed lighting efficiency through a switch to T5 and LED downlights while occupancy sensors were installed throughout the new area of the office. This element of a suite of energy initiatives is saving **€24,000 annually**.

Case study

€24,000
saving

Why not think about..

Update building infrastructure

While general maintenance, such as cleaning windows and lights, is an excellent way of improving lighting efficiency, further investment in your building infrastructure is worth exploring and can provide effective results.

Skylights

Skylights are an effective use of natural light. If retrofitting your building, consider installing double glazing skylights to considerably reduce the need for artificial lighting.

Reflectors

An effective method of increasing efficiency without replacing all of your lights can be to install light fittings with reflectors so that light is directed to specified areas. In some cases, this measure has improved efficiency by up to 20%.

What next?

Office Equipment



Modern office equipment can be a lot more efficient than older models, both when in use and when on standby. When you're thinking about buying new equipment, make sure you consider its energy costs. Over the lifetime of the kit, the energy costs are often greater than the initial purchase price.

Why not think about...

Laptops

If possible, consider using laptops instead of desktop PCs as they use a lot less energy. This doesn't mean you have to live with a smaller screen – laptops can be hooked up to a normal desktop monitor and can be easily moved around, resulting in a more flexible working environment. They are also much quieter and emit less heat.

Monitors

Modern flat screen technology reduces running costs by at least 50% and are less damaging to the eyes.

Printers

If you have several individual printers – consider replacing them with one large communal printer to increase efficiency and reduce idle energy costs. If you already have one main printer, check its age and consider replacing it with a more efficient version.

Fridge/Freezers

As fridges and freezers are on 24 hours a day, upgrading to a top energy-rated model can result in impressive energy savings over its lifetime. A model which uses 10W less will save you €10 a year. (01kWx 24hr x7days x 52weeks x €0.114/ kWh = €10.)



What
next?

Production Equipment

If your existing operational and production equipment is well maintained, clean and being used in the most efficient way possible, you will already be achieving significant cost savings on energy use. The next step is to consider investment in the most up-to-date machinery and plant to make a much larger long-term difference to your bottom line.

By installing inverter drives on its six production lines, a textile bobbin manufacturer is saving €6,570 and 36 tonnes of CO₂ a year. The newly-installed equipment will pay for itself in just four months.

Case study

€6,570
saving

Why not think about..

Variable Speed Drives (VSD)

A Variable Speed Drive is a controller that varies the frequency and voltage supplied to an electrical motor. Put simply it enables you to turn the motor speed up and down to the level you need, the slower you run the motor the less energy it uses. If the load being driven by your motor has a varying demand, a variable speed drive (VSD) could save you money – a small speed reduction can lead to substantial reductions in energy use. The same applies to compressed air: if the demand for air varies significantly over a day, or a shift, there may be merit in installing a variable speed compressor to match speed output to demand and reduce idling costs.

If you are planning to replace a motor, consider installing an integrated motor drive. These units are a motor and VSD in one, with the following advantages:

Lower total cost if you are replacing the motor anyway.

Reduced wiring time.

Does not cause interference with other electronics, cables or cabling.

Allows for optimum matching of the motor to the VSD.

Reusing heat

Over 90% of the energy that goes into a compressor comes out as heat – it would be a shame to let it go to waste. A manual valve can be used to duct warm air out of the compressor outside in summer. If there is a significant demand for hot water, say for showers, a heat exchanger can also be fitted.

Relighting refrigerators

Lighting can add about 10% to the heat load in refrigeration systems. LEDs work very well at low temperatures and give off very little heat, so they are perfect for cooled spaces. They are also very low maintenance, therefore reducing lifetime costs.

By installing a building management system to allow changes to the HVAC system, Sun Life Financial were able to manage the use of heat energy in the building more effectively. This upgrade is part of a suite of energy initiatives that is saving €2,900 a month.

€2,900
saving

Case
study

What next

Transport



Transport energy use, diesel or petrol, or increasingly electricity, is often omitted when considering energy savings. Transport is the fastest growing emitter of greenhouse gas emissions and is the only energy service to see its main fuel, diesel, increase in price by 100% since the turn of the century.

Why not think about.....

Electric vehicles



In the near future, if particularly badly congested town centres are turned into zero-emissions zones, we will only be able to drive through them with high-voltage vehicles.

An electric vehicle can reduce energy costs by 74% compared to a comparable diesel engine car, and even more for petrol models. It enjoys a lower vehicle registration tax; the lowest rate of motor tax in Ireland at €120 per annum and attracts a grant of up to €5,000 from the Sustainable Energy Authority of Ireland (SEAI).

Why not?

Benefit from reduced maintenance and servicing costs. There is no engine oil required, tyre wear is lower, and save even more on fuel costs by using free public charging points.

Charge your vehicle at home overnight and use the public charging points as a means to top up the vehicle's charge when necessary.

Use your phone app which allows you to locate your nearest fast charger or public charging point even more quickly.





Workforce Engagement

You can't drive energy efficiency on your own – you need your colleagues to be on board as well. This may seem easier said than done, particularly with the many pressures faced in the workplace, but the following hints and tips will help you to win over most staff and maintain an effective awareness campaign.

Why not think about..

Timing

It may sound like common sense, but don't start a staff engagement campaign when morale is low, during your busiest time of year as a business or during holiday periods.

Senior management

Make sure you've got management buy-in to endorse and, if necessary, enforce the actions you want to take. Having a strong business case will help.

Keep staff informed on which suggestions are being taken forward and why, and don't forget to publicly acknowledge good practice.

Key staff

Encourage a sense of shared ownership by involving key staff – managers, team leaders and those responsible for equipment – from the outset. Ask them if they can link any of the areas where energy could be saved; they know their team, job and equipment better than you do.

Motivations

Think about individual motivations and channel your messages accordingly. These motivations may be financial, ethical, linked to job security or the workplace environment, or could involve other business benefits (such as the marketing/sales potential of prioritising energy efficiency). Be clear about the benefits of energy efficiency to all of these avenues.

Consultation

Ask for suggestions from all staff members – people will respond better to this rather than simply being told what to do without any consultation.

Information

Educate staff on the size of the problem and try to bring it to life by calculating how much energy waste staff could be saving.

If there is resource to do so, consider setting up an energy team with staff from all departments and levels of hierarchy to generate ideas. Try the ideas out and communicate good practice.

DPS Engineering, an industrial engineering firm, conducted an 'Energy Raffle' programme in canteens on two of their sites. Employees were encouraged to submit energy saving ideas to the raffle. There were more than 150 entrants. A number of ideas were subsequently implemented on both sites.

Case study

150 suggestions

Why not think about..

Communication

Don't reinvent the wheel – use existing communications channels such as staff briefings, intranet and staff newsletters, to engage with staff.

Reporting

Start measuring and reporting on energy performance:

Use simple graphs or diagrams to demonstrate your point and show progress over time.

Encourage some healthy competition, for example by using graphs to compare different sites or departments.

Rewards

Consider reward schemes for staff.
For example:

Challenge teams to come up with as many different energy saving opportunities as possible in the first hour of the day. The team with the most ideas per head wins a free lunch.

Commit to donating a percentage of annual cost savings made through energy efficiency to a local charity chosen by staff.

Spend one night a week placing treats on desks where monitors have been turned off, and putting stickers on monitors left on to let staff know they missed out.

Easy does it

Don't do everything at once: you need to maintain momentum and you don't want to overwhelm people with information.

Integration

Encourage staff to include energy considerations in other aspects of their work. For example:

Modify operating procedures to include energy efficient actions.

Include energy efficiency actions and expectations at inductions for new staff.

Consider energy consumption when new equipment is purchased.



Identifying opportunities

By now you'll have gained a good insight into where you can start cutting energy waste from your business. This section will help you understand a bit more about what to look out for and how to go about calculating potential savings from the opportunities you've spotted.

Identifying opportunities

Having a reasonably good idea of the potential savings you could achieve from different measures will not only make the identification of energy saving opportunities easier, it will also help you to make a stronger business case to senior decision makers for investment. As more and more large companies and public sector bodies begin to look in detail at the environmental credentials of their supply chains, the identification of opportunities to reduce environmental impacts can also help you to win new contracts and stand out from the competition. The more information you have, the more accurately you'll be able to estimate the savings. But you don't need huge amounts of data to get started – just a few key pieces of information will go a long way.

- **How much energy are you actually using?**
- **When are you using it?**
- **How much is it costing you?**
- **What can you do to reduce it?**



Identifying opportunities

How much energy are you actually using? This is the first place to start when calculating your opportunities. Look at your bills. Take regular meter readings for your gas and electricity – this could be daily, weekly or monthly, but try to take them at the same time. Make a simple graph of energy use over time. This will help you see trends and monitor the savings you're making. And remember, never pay estimated bills – always ring in your meter readings to the supplier.

Timing

Depending on how much energy you use, you may already have a meter that automatically sends quarter-hourly readings to your energy supplier – a quick call to your provider will enable you to find out. If so, they will be able to provide you with your consumption data in a more detailed way. You can use this data to highlight and investigate anomalies such as high demand 'spikes' where usage and costs soar. It's also worth calculating your energy base load. This is the amount of energy you're using before you start to 'work' and can be calculated overnight or at the weekend.

If you don't have automatic readings, you can take manual readings at the end of the day and first thing in the morning to determine what you're using out-of-hours or over a weekend.

In some companies, energy use is driven in part by the amount of product produced, so it can sometimes be better to normalise energy use against output. It could be kWh of electricity used per widget produced, or it could be set against turnover – this ensures you are monitoring 'real' consumption as output varies.

Take a meter reading before you start to make changes – that way you'll know how much you've saved and it makes it easier to gain wider support for future actions.

If you use more than 300,000 kWh per annum you are likely to have a meter which automatically sends quarter-hourly readings to your energy supplier – a quick call to your provider will enable you to find out. Sometimes if you use less than that amount you may still have such a meter. The supplier will advise you. Meters can provide very detailed energy consumption data. Each supplier has on-line systems to help you get the best out from the data. These systems generate excellent graphical results to show you where the energy 'spikes' are occurring and where you are spending more money than may be necessary. You can track the night-time use, the weekend use and even what is happening on Christmas Day!

Identifying opportunities

Smart meters: If you are not measuring your energy consumption, then you cannot manage it

Energy Contracting is a 'pay for performance' approach to installing energy technologies in your business. The option you choose influences the level of energy and cost savings guaranteed. You can opt for:

Simple: A contractual guarantee making a portion of payment conditional on performance

Complex: Third parties take responsibility for full performance and finance risk of the energy project but on the basis of having future savings as a revenue stream.

This is about:

Ensuring you have access to the information you need on your energy consumption – expressed in euros and cents to help you monitor and track energy use patterns and take control of your energy usage.

Bringing an end to estimated billing – you will only be billed for the energy you actually use, helping you budget better and avoid disputes over your bill with your provider.

Making switching supplier smoother and faster, so it is easier for you to access the best deals available through the market.

The Government has put in place protections and guidance so you know what to expect from your supplier when you're having your smart or advanced meter fitted.

If you want to find out more about smart meters, please visit: [smart-metering](#)



Identifying opportunities

Third-party building assessments

It may be that your building has had an energy review or assessment in the past. This might have produced a Display Energy Cert (DEC) which analyses the building in use performance or a Building Energy Rating (BER).

Some technology providers will also offer energy audits, although these may not be impartial and may be biased towards certain solutions. You can also bring in independent energy auditors to help you identify savings and there may be local business support projects, which can offer subsidised services.

If your building is to be assessed as a whole, this could be carried out either out-of-hours (to see what's being left on) or during production (to see elements of energy wastage in operation). A good idea is to use a simple check list when you do this, to ensure you're covering all the areas highlighted above.

Identifying opportunities

Lighting

Gathering data on lighting costs is relatively straightforward. If you know the power (watts) of the bulbs or fittings used, you can work out energy consumption in kWh by using the following calculation:

$$\frac{\text{No of bulbs} \times \text{power of the bulb} \times \text{hours lights are on per year}}{1000}$$

1000

Multiply this by the price you pay per kWh and you have an estimation of the annual cost. This simple calculation can be used to estimate running costs for a whole range of equipment types.

Motors

The rating plate on a fixed speed motor should give you a kW rating. By using the same formula as the lighting one to the left, you can work out annual energy consumption. Bear in mind that rating plates normally specify the output power so motors can consume in excess of this – the figure is likely to be an under-estimate.

Office and kitchen equipment

Through a variety of schemes across Europe, energy-using equipment is labelled to provide information on energy consumption. Not only will this help you to determine running costs and what the savings might be if equipment is used more efficiently, it should also be used to inform future purchases. Doing this systematically for all items will allow you to build up a profile of key energy-using equipment to help you prioritise action.

Compressed air

The simplest way to find compressed air leaks is to listen for them. Try walking around after-hours or over lunch when it's quiet and tag or mark leaks for repair. This will save money and reduce noise levels – creating a better working environment.

Identifying opportunities

Safety first

When conducting any assessments, always have safety in mind. Ensure all safety procedures are followed, wear the correct safety equipment for the task at hand and take particular care around hot or hazardous machinery. If unsure, always err on the side of caution.

Rented property

If you own your own building there's nothing stopping you from making improvements now. If you lease the building you might need to have a conversation with your landlord before making improvements to the fabric of the building or areas you share with other tenants.

While many landlords will be open to such improvements – after all it's making the building more rentable – it may be harder to engage others. Since January 1st 2015, a public body should lease a building with a minimum A3 rating although there are some exceptions to this (SI 542 part 4 (15) (1)).

Rented Facilities

There are no requirements on landlords to increase the energy efficiency of a building. There are building regulations that must be adhered to when renovating. All rent and lease agreements must include a Building Energy Rating certificate (BER). If the habitable floor area exceeds 250m² and the building is open to the public, it should have a Display Energy Certificate (DEC) showing its performance improvement year on year.

In rented or leased buildings, facilities or other assets, (such as vehicles), responsibility for the energy use will lie with whichever organisation directly controls the energy use.



Paying for Improvements

This guide focuses primarily on the simple, low and no-cost actions available to help you reduce your energy spend and consumption. While many of these actions will have a positive effect on your cash flow, you might not want to invest your own funds to make this happen. Don't let the idea of borrowing money act as a barrier – there are lots of funding sources to choose from and a wealth of advice available. The market for energy efficiency finance is growing all the time.

Paying for improvements

Getting senior managers to buy into energy efficiency can often be make or break for long term success. Energy efficiency brings a range of benefits, and every company has its own goals so the key is to align the two.

Areas to think about

Turn your opportunities into annual cost savings, you can then show these as a percentage of last year's profit or the level of sales needed to make the same impact on the bottom line (see Know Your Benefits).

If you are looking to spend money, talk about the payback period and both the annual and total lifetime savings, use today's energy price but point out that in the future as prices increase, the savings will be more.

Find some easy wins

Find some easy wins and share success. Success breeds success so shout about it, everyone likes to back a winner. Use case studies to show what other companies have done, especially your competitors, and what that would mean for your company.

Talk to your supplier

It's worth speaking to the companies who are quoting you for new equipment as they may already have their own finance options in place or be able to recommend alternative sources of finance for you.

Talk to SEAI

SEAI have a number of supports available through an SME support programme, Better Energy Communities and an R&D programme. Interested companies should check the funding section of the web site to see what schemes are open: <https://www.seai.ie/grants/>

Talk to your Bank

Many banks are now offering preferential loans for energy efficiency upgrades with rates linked to the return on investment, and linked to energy savings potential for the project <http://www.seai.ie/resources/publications/EXEED-brochure.pdf>

Paying for improvements

Better Energy Communities (BEC)

The BEC programme funds a comprehensive suite of projects that delivers energy savings to a range of homeowners, communities and private sector organisations. All projects applying for BEC funding should be community oriented, have a partnership approach and demonstrate an ability to sustainably finance the proposed project. <https://www.seai.ie/grants/>

Project Assistance Grants (PAG)

SEAI is offering grants for businesses to determine the technical and financial feasibility of energy saving projects. These supports will help identify projects that will help reduce energy and cut your running costs. Support of up to €15,000 is available in certain cases.

http://www.seai.ie/Your_Business/Energy-Contracting/Project-Assistance-Grants/

Excellence in Energy Efficient Design (EXEED)

The EXEED Certified Pilot Grant Scheme will provide grant support for professional services towards the application of EXEED Certified and towards additional capital being expended on opportunities identified and implemented through the process.

The grant scheme is relevant to:

- New design projects of any scale complexity and sector.
- Energy upgrades of existing assets.

In addition to financial support SEAI will provide additional mentoring, information and advice. <http://www.seai.ie/Grants/EXEED-Certified-Pilot-Grant-Scheme-/>

Accelerated Capital Allowance (ACA)

This is a tax incentive for companies paying corporation tax and aims to encourage investment in energy efficient equipment. The ACA offers an attractive incentive whereby it allows companies to write off 100% of the purchase value of qualifying energy efficient equipment against their profit in the year of purchase.

http://www.seai.ie/Your_Business/Accelerated_Capital_Allowance/



Paying for improvements

You can save money on your energy costs by shopping around to find the best energy product that suits your business. You can do this yourself by first asking your current supplier if it has any better offers. This will give you a benchmark when looking at other deals. Ask suppliers to explain the terms and conditions so that you can make sure you fully understand them before you sign-up.

An alternative way to shop around is by using energy brokers. These are organisations or individuals that give energy related advice or help you to procure energy or manage your energy needs.

They act as an interface between consumers and energy suppliers and can help you to make better energy choices.

If you agree to a contract over the telephone check whether you will have a cooling-off period.

If you decide to use an energy broker, be sure to ask them:

Which suppliers they represent (so you know whether they will compare the whole market for you) highlighted above.

How their services are paid for (this may be commission included in the prices you are quoted, or a one-off fee for you to pay).

Energy Efficiency Obligation Scheme (EEOS)

Some large Energy Suppliers are now obliged to generate energy savings and most are offering some level of support; either financial or project management support for businesses to implement energy savings. It might be worthwhile contacting your own supplier or another supplier to see what assistance they might offer. Full details are available here: <http://www.seai.ie/eeos/>

Glossary

Glossary

Accelerated Capital Allowance (ACA)

The ACA is a tax incentive for companies paying corporation tax and aims to encourage investment in energy efficient equipment. The ACA offers an attractive incentive whereby it allows companies to write off 100% of the purchase value of qualifying energy efficient equipment against their profit in the year of purchase.

Air Conditioning

The control of the quality, quantity, and temperature-humidity of the air in an interior space.

Air Infiltration Measurement

A building energy auditing technique used to determine and/or locate air leaks in a building shell or envelope.

Anaerobic Digestion

The complex process by which organic matter is decomposed by anaerobic bacteria. The decomposition process produces a gaseous byproduct often called “biogas” primarily composed of methane, carbon dioxide, and hydrogen sulfide.

Automatic Drain Valve

Removes condensate from low points in a compressed air system where automatic drainage is required.

Automatic Isolation Valve

Adjusts the flow of air in a compressed air system, based on process conditions and application requirements

Air tool

Also called ‘pneumatic’ tools, air tools are powered by compressed air.

Automatic Meter Reading (AMR)

AMR is the term given to a system that provides automatic meter readings remotely. It uses telephone technology and has the ability to transfer data into a billing system.

Building Energy Rating (BER)

A Building Energy Rating (BER) Certificate is an indication of the energy performance of a building. A BER certificate is accompanied by an Advisory Report and identifies how you might improve the energy performance of your building.

Circulation pump

A circulating pump – a device that causes the flow of liquid (e.g. water or aqueous solutions in circuits (primary or secondary) of heating or cooling installations.



Glossary

Combined Heat and Power (CHP)

The concurrent production of electricity or mechanical power and useful thermal energy (heating and/or cooling) from a single source of energy.

Condensing boiler

Condensing boilers are much more efficient (usually >90%) than non-condensing boilers. They use heat from exhaust gases that would normally be released into the atmosphere through the flue. The water vapour from the exhaust gas is turned into liquid condensate, returning heat to the system.

Department of Communications, Climate Action & Environment (DCCAE)

The department strives to protect Ireland's energy supply, generation, security, affordability and sustainability, and to ensure that Ireland complies with international energy and climate change policies. The Energy section oversees the formulation and implementation of policies concerning Ireland's oil, gas, peat, electricity and renewable energy supply. (www.dccae.ie)

Energy Audit

The process of determining energy consumption, by various techniques, of a building or facility.

Energy Performance Contract

A contract between businesses under which energy efficiency measures are provided, verified, monitored and paid for by reference to an agreed level of energy efficiency improvement or other agreed criterion such as financial savings.

Energy Service Company (ESCo)

Businesses providing energy solutions including designs and implementation of energy savings projects, energy conservation, energy infrastructure, outsourcing power generation and energy supply, and financing methods.

Gas Meter Point Reference Number (GMPRN)

This is a unique 10-digit reference number for the gas meter at your property. You should find it on your gas bill. You may need this if you are planning to switch your gas supplier.

Heat Pump

Heat pumps use a heat exchanger (much like those installed in fridges and freezers – although running in reverse) to take heat from the ground, air or water and convert it into heating. Ground source heat pumps use pipes which are buried in the ground to extract heat. Air source heat pumps absorb heat from the outside air. Water source heat pumps extract heat from water, like a river or lake. Heat pumps need electricity to run, but the heat they extract from the ground, air or water is constantly being renewed naturally.



Glossary

Kilowatt

Instant power and is equal to 1000 watts, most appliances are rated in kilowatts.

Kilowatt Hour

A unit of measurement for electrical energy, equivalent to the power of one kilowatt operating for one hour. A bill from your current supplier will show your usage in kWh.

LED

A highly-efficient semiconductor diode that emits light when conducting current giving one of the most efficient light sources on the market.

Maximum Import Capacity (MIC)

Maximum allowable load a business is allowed draw from the grid under their contract with the electricity supplier. Each connection point on the electricity network has an MIC associated with it. The network is designed to provide you with an electricity supply that is in accordance with a specified MIC.

Micro Generation

Small-scale production of energy via mini-wind turbines, solar panels or other mini CHP generators.

Meter Point Reference Number

Also known as a 'supplier number' or an 'S number', this is a unique 13-digit number relating to the electricity meter at your property.

Occupancy Detector

Usually used to turn lights on or off in areas occupied for short times.

Photocell

Turns lights on or off only when movement is detected. Sometimes called a presence detector.

Passive Infrared Sensor (PIR)

An electronic sensor that measures infrared light radiating from objects in its field of view.

Refridgeration Condensers and Evaporators

Two of the main components that make up the cooling system on a refrigerator. The evaporator is internal and transfers heat from the air of the refrigerated space to the refrigerant, which passes through the external condenser where the heat is then transferred outside of the unit.

Rotations per Minute (RPM)

Measures the frequency of rotation, specifically the number of rotations around a fixed axis in one minute. It is used as a measure of rotational speed of a mechanical component.



Glossary

Standing Charge

A fixed cost paid in addition to usage charges for gas and electricity. Standing charges cover costs like meter reading, maintenance, connection to the energy grid and, in the case of gas, emergency services.

T5 Lamps High Frequency

Slimmer and more efficient fluorescent lamps than the wider T8 and T12 lamps. The T indicates that the shape of the bulb is tubular and the number is the diameter in eighths of an inch. These can be dimmed.

Thermal or Seasonal Efficiency

The measure of seasonal or annual efficiency of a heating furnace or boiler. It takes into account the cyclic on/off operation and associated energy losses of the heating unit as it responds to changes in the load, which in turn is affected by changes in weather and occupant controls at your property.

Thermostat

Measures the air temperature of a space and adjusts to the temperature it is set to. When the temperature falls below the setting, the thermostat switches on the central heating; once the room reaches the set temperature, the thermostat switches the heating off.

U-Value

A measure of heat loss. It is expressed in W/m²K, showing the amount of heat lost in watts (W) over a square metre of material (for example a wall, roof, window, etc.) or each degree (K) difference between the inside and outside temperature. The lower the U value, the better the insulation provided by the material and the less heat transferred.

Variable Speed Drive

A piece of equipment that regulates the speed and rotational force, or torque output, of an electric motor in relation to load requirement of that motor thus reducing its energy consumption.

Smart meter

A meter which sends readings to your energy supplier automatically at regular intervals, resulting in more accurate billing and fewer required manual meter readings

Sulphur dioxide (SO₂)

A greenhouse gas produced by the combustion of sulphur-containing fuels such as coal and oil.

