

Energy management and energy efficiency

As the region's distribution network operator we are playing a key role in preparing the electricity network for the challenges of a net zero future. We are also working to reduce our own carbon footprint and we are helping our customers and stakeholders to do the same.



Our role in the energy industry and our own journey to become an exemplar net zero organisation means we have a good understanding of the actions that businesses need to take to help the region reach net zero.

The first step on your net zero journey is to understand and manage your energy use and then take steps to become more energy efficient. This is one of the easiest and most cost-effective ways for your business to reduce energy costs, improve productivity and help tackle climate change.

With rising fuel prices and the cost-of-living crisis, there has never been a better time to become more energy efficient at home and in the workplace.

Did you know?



According to the Energy Saving Trust, the average small and medium sized enterprise (SME) could reduce energy bills by 18-25% by installing energy efficiency measures and implementing behavioural change.



Heating can account for up to 40% of energy use in a non-domestic building.



Approximately 40% of all energy consumed in the workplace is used for lighting.



Preventing heat loss by improving insulation and blocking draughts can significantly reduce heating costs.

Energy management

The most important stage of decarbonising a building is to monitor and understand your energy use by implementing an energy management system – a systematic and proactive approach to monitoring energy data. You should do this before installing any low carbon technologies or energy efficiency measures.

Once you have an energy management system in place, you can take steps to reduce the amount of energy you use and make your workplace as energy efficient as possible.

Energy management may be as simple as looking at the annual energy usage on your bill or installing a smart meter. You could also take steps to implement additional measurement techniques such as advanced metering to understand more about the specific energy consumption of your workplace.



Our energy management hierarchy



Half-hourly metering

As a minimum, you should monitor half-hourly data to understand your baseload and your daily energy profile, such as which of your assets are running during non-operational hours. This will help you to optimise the operating schedules of your key energy-consuming devices such as heating, ventilation and air conditioning. Half-hourly meters are mandatory for businesses with a load in excess of 100kVA; but for smaller businesses you can contact your supplier to ask for this data.

Sub-meters and monitoring

If you want to go further, you could install monitoring systems such as power and temperature sensors. These can be accessed remotely and allow you to assess the live performance of your building and equipment. Monitoring will make you aware of inefficiencies and help ensure colleagues are comfortable.

Energy management system

A smart centralised energy management system would allow you to manage your equipment including air handling units, air conditioning, heaters, lighting, pumps, motors and window blinds. This will help you to optimise operating schedules, react to temperature variations and occupancy, and understand how effectively your equipment is performing.

Lighting

While changing to LED lighting is a great start, before you do that it's a good idea to carry out a lighting survey with a qualified professional. This will help you ensure you have the correct lighting levels and the optimal number of lights.

The survey may also recommend sensor controls such as motion and daylight sensors but it's important to make sure you have the right type of sensor for your space. For example, motion sensors will come on at night if your security guards carry out frequent checks. You can also save energy with lighting that has dimming functionality or a system that allows remote access.

Energy efficiency

Put simply, energy efficiency means using less energy to achieve the same result – and reducing your energy bills and carbon emissions at the same time.

Energy-efficient buildings use less energy to heat, cool and run appliances, and energy-efficient businesses use less energy in their manufacturing processes.

By making a few simple changes such as fitting insulation, changing to LED lighting or making sure your appliances are energy efficient, you could reduce your energy bills and your carbon footprint.



Building fabric

Typically, over 20% of heat in a building is lost through the roof and around 9% is lost through the fabric of the walls.

One of the best ways to reduce your energy bills is by making improvements to the building fabric by stopping cold air from getting in and warm air from escaping.

- **Insulation** – install insulation in the walls, roof or floor of your site or improve your existing insulation. Insulation is among the most cost-effective and frequently employed methods for improving the energy efficiency of buildings. Make sure water tanks, boilers and pipes are insulated to prevent heat escaping.
- **Doors and windows** – improve doors or install fast-acting doors to improve air tightness. Make sure unused doors and windows are securely sealed. Change to more efficient windows and glazing.
- **Draughts** – identify sources of draughts and fit appropriate draught proofing.

Heating and cooling

Heating and cooling can account for as much as 40% of energy costs in many businesses. This means that there are plenty of opportunities to make savings:

- **Servicing** – make sure your heating system is serviced regularly to ensure its efficiency. A regularly serviced boiler can save as much as 10% on annual heating costs.
- **Settings** – the Carbon Trust recommend that offices are heated to around 19°C and cooled to 23°C to avoid energy wastage. In less frequently occupied spaces, heating set points should be lower (as low as 13°C in warehouses) with localised heating if needed.
- **Monitoring** – make sure someone is responsible for monitoring and changing the settings of your heating system, considering working hours and the time of year.
- **Smart controls** – upgrades to controls can save hundreds or thousands of pounds and can pay back their investment in a matter of months.
- **Behaviour** – turn off air conditioning in meeting rooms when people leave. Avoid running different heating/cooling systems at the same time – such as heating, air conditioning and portable heaters. Do not open windows when the heating is on – turn the heating down instead.





Lighting

Approximately 40% of all energy consumed in the workplace is used for lighting. You can make big savings by making small changes.

- **Low energy lighting** – compared to regular lighting systems, LED light bulbs use less energy, last much longer and reduce maintenance costs, and could deliver savings of up to 80%.
- **Control** – fit zonal controls, timers or motion sensors which automatically turn lights on or off, depending on occupancy. Lighting controls and sensors are low cost and can be easy to implement.
- **Behaviour** – meeting rooms, storage areas and corridors are often lit unnecessarily. Encourage colleagues to turn off lights when they leave a room.
- **Natural light** – make the most of the daylight by relocating objects that block windows, use lighter paint colours or reflective paint. Consider vertical window blinds, which let in more light than horizontal ones.

Equipment

As a general rule, if a piece of equipment in the workplace is not being used, do not leave it on standby – switch it off.

- **Computers and monitors** – use power saving settings on computers, monitors and printers during the day but turn them off at the plug at the end of the day.
- **Kitchen equipment** – kitchen equipment is an easy place to make energy savings. Replace fridges/freezers, microwaves, kettles and coffee machines with energy-efficient models. Encourage colleagues to unplug unused devices, use a washing up bowl and avoid overfilling the kettle.
- **Production and manufacturing equipment** – make sure equipment is properly maintained and ensure it's working as efficiently as possible. Turn off equipment when it's not needed at lunchtime and at the end of the day. Use labels to make sure colleagues know which machinery can be turned off and how to do it properly.
- **Refrigeration** – ensure your refrigeration units work as efficiently as possible by keeping doors closed, avoid overfilling, defrost freezers regularly and repair door seals. Make sure there's space around refrigeration unit vents to allow air to be drawn in and expelled.

Colleague awareness

An effective colleague engagement campaign and training, such as [carbon literacy](#), could change the behaviour of your workforce and further help reduce your energy costs.

- Ensure colleagues are aware of the cost of wasted heat and air conditioning costs.
- Roll-out a 'switch it off' campaign for lighting and equipment.



Case studies

Electricity North West case study - replacement windows

In 2022, we assessed the building fabric at our Stockport depot and decided to replace the old single-glazed windows with new double-glazed windows to help prevent heat loss. To further increase the efficiency of the windows, we also installed 4mm foil insulation into the window cavities.

The new windows have reduced the cost to heat the building by 20.3%, meaning the installation cost will be repaid in approximately 2.5 years. This is expected to save 11 tonnes of CO₂ equivalent per year.

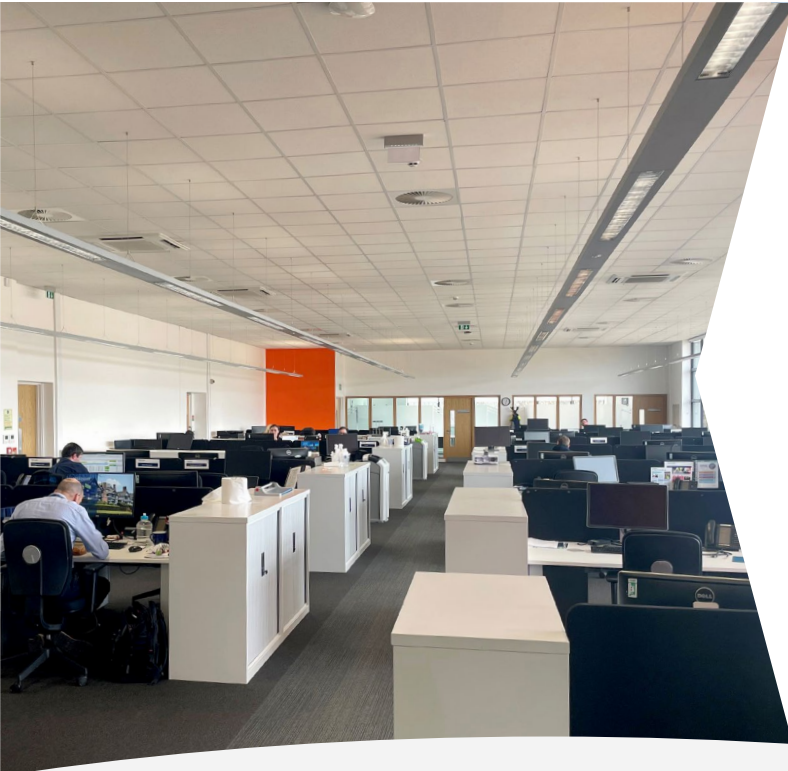


Electricity North West case study - LED lighting

Lighting at our 16 offices and depots typically accounts for 20-50% of our overall energy usage at each site. So in 2020 we chose to install LED lights which use much less energy than standard halogen light bulbs and benefit from a life span of up to 80,000 hours.

We expect the investment of £360,000 to be paid back within three years and to save 107.62 tonnes of CO₂ equivalent every year.

For more details, including associated costs and carbon reduction, please download our [factsheet](#).



Help and support

As the region's distribution network operator, one of our roles is to provide information, advice and guidance to customers and businesses to help them take action to reduce their energy bills and carbon emissions. We provide free advice, information and signposting to other available help - all of which will enable you to make the right decisions about energy efficiency and low carbon technologies for your business. Drop us a line at gonetzero@enwl.co.uk or find out more about how to go net zero on our website at www.enwl.co.uk/gonetzero.