electricity north west
Bringing energy to your door

LED lighting

Overview

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 a net zero organisation means we have a good understanding of the actions that businesses need to take to help the region reach net zero.

One of the easiest and most cost-effective ways for your business to reduce energy costs is to change to more energy efficient lighting. Approximately 40% of all energy consumed in the workplace is used for lighting. You can cut your lighting bill and energy use by changing which bulbs you use and how you use them.

This case study focuses on a project to install LED lighting at all of our non-operational sites.

Why we took action

There were a number of reasons to update the lighting at our sites:

- We are aiming to become a leader in the reduction of carbon emissions and achieve net zero by 2038.
- Protecting the environment is central to our plans, and a key step forward is to make our offices and depots more energy efficient.
- We want to lead by example to inspire our people, our shareholders and our customers to reduce their own carbon footprints.
- We can save money on our energy bills by using more energy-efficient lighting.
- LED lights use much less energy than standard halogen light bulbs and benefit from a life span of up to 80,000 hours which reduces maintenance costs and from a safety perspective has reduced the amount of time engineers need to work at height.

Our approach

In October 2019, we changed our electricity supply to 100% renewable energy. Electricity for our operational substations and most of our offices and depots is generated from a mix of wind and hydro, which saved 5,492 tonnes of CO_2 equivalent in the first 12 months.

But our aim is to achieve net zero carbon by transforming our estate to be as energy efficient as possible, and to review all aspects of our energy usage.

Starting with two depots, our training academy in Blackburn and our depot in Oldham, we are testing and demonstrating a number of solutions to assess their suitability and relative benefits which will help other businesses in the North West understand what's achievable.

These include: ground-mounted solar panels; car port solar panels; upgraded insulation, windows and ventilation; air source or ground source heat pumps; new radiators and LED lighting.

What we did

We had a range of lighting systems that varied in age and efficiency across our non-operational sites. This presented a great opportunity for us to install LED lighting across our offices and depots and reduce energy consumption and costs. Lighting on our properties typically accounts for 20-50% of the overall energy usage at each site.

There are two main types of energy efficient light bulbs available in the UK – compact fluorescent lamps (CFLs) and light emitting diodes (LEDs). CFLs use 60%-80% less energy than traditional incandescent light bulbs but LEDs use 90% less. So while both are cost effective, LEDs are the most energy-efficient option.

Originally the cost of LED lighting was comparatively high but prices have come down a lot over the last few years, meaning this option now offers the best value for money. Replacing a single halogen light bulb with an LED of the same brightness will save up to £2 per year.

We therefore chose to install LED lighting at all our sites and completed the rollout in 2021.

To help make sure lighting is only used when it's needed, we updated all our sites with motion sensors where possible and used signage to encourage colleagues to 'switch off' in rooms without sensors. We also appointed net zero champions at each of our sites to engage with other colleagues about energy-saving activities.

Results

As investment costs will be reduced by economies of scale we expect the investment of £360,000 to be paid back within three years and to save 107.62 tonnes of CO_2 equivalent every year.

The following table provides details for each site including the benefits in reduced energy consumption, associated costs and carbon reduction and estimated pay back for the LED replacement project, based on average electricity prices in March 2023 of 36p/kWh.

Site	Retrofit costs	Estimated annual lighting energy reduction (kWh)	Estimated annual CO_2 savings (tonne CO_2e)	Simple payback (years)
Barrow	£3,344	3,761	0.96	2.5
Blackburn	£57,620	63,554	16.24	2.5
Kendal	£81,363	82,493	21.09	2.7
Manchester	£30,838	28,142	7.19	3.0
Preston	£101,671	97,126	24.83	2.9
Salford	£51,656	43,212	11.04	3.3
Stockport	£28,381	42,401	10.84	1.9
Workington	£47,081	60,341	15.42	2.2
TOTAL	**£401,954**	**421,030**	**107.62**	**2.7**
Bulk discount	£56,954			
Project management	£15,000			
TOTAL	**£360,000**			

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**.