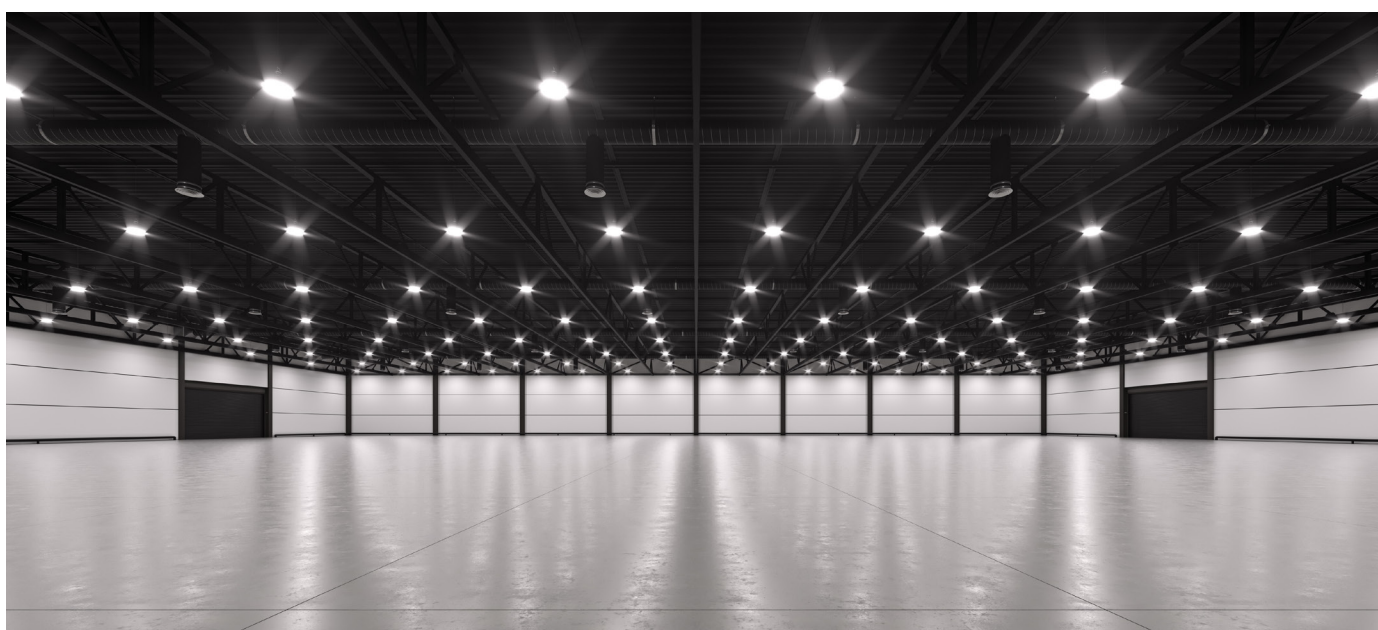


## LED LIGHTING

Lighting uses around 20% of the electricity generated in the UK. Opting for more efficient luminaires like Light Emitting Diodes (LEDs) need not be costly or disruptive for any organisation due to the pace of advancement in lighting technology.



Several businesses that want to save money on power now prefer LED lighting fixtures. The most efficient and long-lasting LEDs are also the cheapest to operate, regulate, and maintain. The quality of the light that is produced can also be enhanced by the usage of LED lighting. The great performance of LEDs means that colour rendering is high, which allows for the preservation of natural colours.

The widespread use of LED lighting will also make it possible to install units with higher efficiency levels in a number of applications. Hence, switching to LEDs throughout an entire company can result in significant cost and energy savings.

## HOW LED LIGHTING WORKS?

LEDs function on the concept of electroluminescence. when a current is passed through the diode minority charge carriers and majority charge carriers recombine at the junction. Energy is released during recombination in the form of photons.

# WHAT IS THE LIFETIME OF LEDs?

Typically, LEDs do not burn out or stop working like CFL tubes. Instead, they suffer from lumen depreciation in which the LED's brightness gradually decreases over time. Unlike incandescent bulbs, the lifetime of LEDs is predicted based on the light output when it drops by 30%.

## SAVINGS CALCULATION

### AN EXAMPLE SAVINGS CALCULATION

(Based on electricity prices in 2020)

- Power used by a single 1500mm fluorescent tube is 63w.
- A replacement LED would consume 28w.
- Reduction in power is 35w.
- Hourly energy saving is 35/1000kwh.
- At the current daytime rate, the saving is 0.6p per hour.
- Future energy prices could be around 50p per kwh and this saving would account to 1.75p.
- Using a LED replacement tube, it gives a payback of  $1348/0.6 = 2246$  hours at current rates, or at 50p  $1348/1.75 = 770$  hours.

	Cost Savings (£/year)	kWh Savings	CO2e savings (tCO2e/year)	Capital Cost (£)	Payback Period (years)
Replacing fluorescent tubes with LED per unit	£16.84	98.2	19KG	£13.48 per 1500mm tube	0.8
Possible future price at 50p	£49.1	98.2	19KG	£13.48 per 1500mm tube	0.27

**READ MORE:** Improving Energy Efficiency at St Luke's Hospice