

Retrofit offers easy adoption

Retrofitting LEDs is now straightforward and cost-effective, believes **Philip Wall**. Now may be the right time to invest to cut costs and maintenance

As industrial and commercial end users in the UK see an increase in commercial electricity tariffs – expected to rise up to 20 per cent this autumn – many are on the lookout for an immediate solution that allows them to move from energy-expensive high intensity discharge (HID) light sources to the much lower energy usage light-emitting diode (LED) technology.

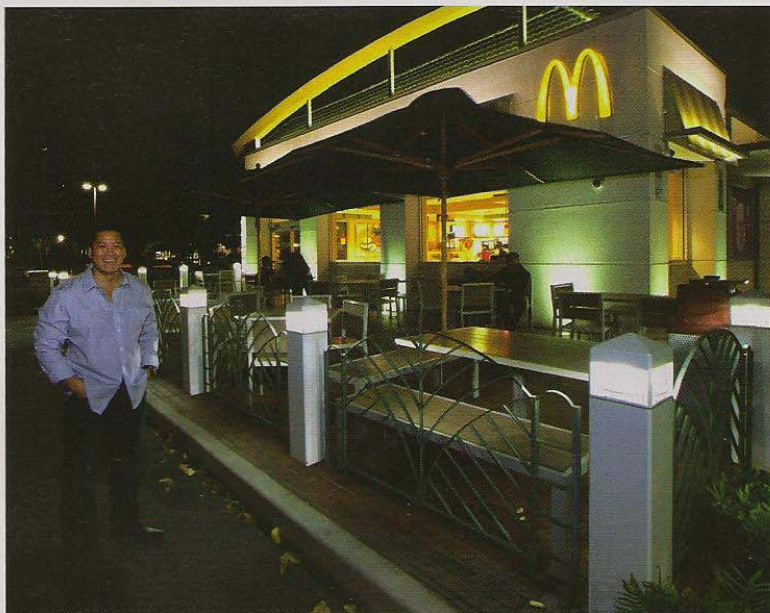
It's timely for business owners to look at LED as an option to save energy and reduce carbon emissions. Fortunately, technology has not only made high power LED lighting possible, but retrofitting allows users to replace their HID systems with LED lamps while maintaining existing lamp fittings. It's a non-invasive procedure that enables faster, easier installation and provides much-valued return on investment – as short as six months – in terms of energy and cost savings.

Dan Roberts of Roberts & Connelly Electrical Services has experienced firsthand helping production and management adopt to LED quickly. "One of my best customers is the foreman of a manufacturing facility. His greatest concern is interrupting production. I have shown him retrofit LED lamps which can be installed in his current fittings and together, we are working with management to reduce production disruptions while reducing energy costs in the plant."

Transition to LEDs

The transition to LED requires the management team to plan for capital construction. This often includes removing perfectly good and/or architecturally significant fittings. Often preferred by the management team, retrofitting allows for migration to LED as part of planned and budgeted maintenance programmes, as LED lamps can be installed in phases while keeping a consistent "look" for the site.

To increase revenue with additional tenants or production capability, a business owner potentially needs to increase the electrical system's capacity for



MacDonald's Kapolei West in Hawaii was able to convert to LED lamps within one month after contractor introduced the retrofit concept to owner Ed Yamamura

increased space and added light. This is a very costly process. Replacing the light source from HID to LED can save up to 70 per cent in energy costs, with another 40 per cent savings when using simple on/off lighting controls.

The future cost of labour savings is very significant when considering LED vs HID as a light source. To maintain the light levels as designed, HID lamps have a typical life of only two years with less than 50 per cent of light output and high incidence of complete burnout. LED lamps are rated for 50,000 hours and at that

time they still have 70 per cent of their light output, and they will not burn out. With a relamping schedule, each HID lamp could require £200-£250 in labour to replace it over the life of the equivalent LED lamp.

HID lamps generate substantial heat. Some have measured at over 125°C, putting considerable stress on the HVAC system. By switching to LED, there is a reduction in temperature per lamp of almost 50°C.

As LED technology advances, a business owner will want to take advantage of improvements in the energy savings and carbon

reductions. Since retrofitting is a direct replacement of a screw in lamp, the process offers the business owner a flexible and future proofed path to LED migration with ease of upgrade to new technologies in the future.

"From bollards to low bay lamps, these retrofit solutions save time and money" says Ed Yamamura, owner of McDonald's Kapolei West, Hawaii, who replaced his outdoor dining space and pathways with LED. "I was able to have all the advantages of LED light in just one month, compared to the year or more it would have taken me to go thru all the decision points to change to LED fixtures."

Qualified electrician

To migrate to LED with retrofit, the end user simply needs to identify their existing HID fittings, choose the best LED lamp fit, test the LED lamp in the fitting to verify the application results, and arrange for a qualified electrician to install the lamps. An ROI assessment will validate the energy savings.

The installation process takes about the same time as a typical HID re-lamping. Roberts adds: "The setting up of the equipment to reach the fittings is always the same time – no matter whether I am replacing an HID lamp or taking five minutes to disconnect the control gear and connect the lamp socket directly to the power source to prepare it for the LED lamp."

End users should look for established manufacturers who offer a full line of LED lamps designed for demanding long-term use in precinct, commercial and industrial environments. The easier the lamps are to install, the more immediate the savings will be for their customers. End users will also want to look for LED lamps that have an active heat management system to ensure the high power LED lamps last the rated life. Additionally, design considerations of the lamps should include effectiveness of lens for light distribution and prevention of discolouring.



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