

LED lighting

QMDC completed an energy audit on Howard and Sons Mitre 10 hardware store in Stanthorpe, Queensland and subsequently helped to identify an easy way to halve the business' energy use.

The energy audit was requested to determine existing energy usage and find out how they could reduce their energy usage and costs.



During the financial years 2013/14 the store consumed 21,867 kWh of electricity, emitting 21 tonnes of carbon dioxide. The energy audit identified that **lighting** was virtually the only source of energy usage in the store. 78 light fittings are utilised in the store, containing a total of 152 fluorescent tubes of 36W each.

The audit report recommended that all of the tubes could be changed to 18W LED tubes which would give the same amount of light but use only half of the energy.

The maths!

152 bulbs at 36W each that are switched on for 10 hours a day will use:

- $152 \times 36 \times 10 = 54,720\text{Wh}$ or **54.72kWh** per day

At 26c per kWh (the current tariff cost at the time of the audit) this meant that the lights were costing the business around **\$14.23** per day to run:

- $0.26 \times 54.72 = \mathbf{\$14.23}$

While a daily cost of just over \$14 may not seem much, consider that the store is open seven days a week, and only closes for public holidays. Therefore, assuming the shop would be open for 355 days per year:

- $14.23 \times 355 = \mathbf{\$5051.65}$ in electricity consumption per year (plus standing charges such as network charges).



Changing the lights to 18W LEDs would halve the electricity consumption in the store and therefore save the owner thousands of dollars each year. Of course, the business would need to invest in new LED bulbs, but with the considerable savings offered by LEDs, the payback period on the initial outlay would be less than two years.

In practical terms, there may be some areas where the LED tubes may not be suitable: for example, it is important in this case that appropriate lighting is utilised in the paint display so that the colours remain accurate. However, the vast majority of the lights would be suitable to be changed.

Domestic and commercial lighting must be installed by a qualified electrician. Electricians can also assist you with lighting design and layouts to get the best out of your lighting retrofit, as well as advise you on other ways to save energy with energy saving fittings.



Outcome

With the cost of electricity rising, management can look forward to energy and cost savings in the near future.

This activity received funding from the Department of Industry and Science as part of the Energy Efficiency Information Grants Programme. The views expressed herein are not necessarily the views of the Commonwealth of Australia, and the Commonwealth does not accept responsibility for any information or advice contained herein.

Publication date: April 2015