

DIY Sustainability Survey for Churches – LIGHTING



Introduction

The DIY Lighting Survey for Churches is a tool for assessing the energy efficiency of lighting solutions in church buildings. Lighting is currently undergoing a major transition from old inefficient technology to new highly efficient digital technology and LEDs (Light Emitting Diodes) and prices are falling rapidly. It is recommended to source only reputable brands (from a NZ supplier subject to Consumer Act regulations and warranties) to maximise energy savings. As a first level, Do It Yourself (DIY) survey, it is not a replacement for qualified advice from an electrician or lighting consultant. Other aspects of light choice such as lamp colour temperature and rendering, dimming ability, fire hazard etc. are beyond the scope of this survey, which focuses on energy savings.

The Sustainability Field Worker carried out in depth sustainability assessments of 10 parishes in the Auckland Diocese from 2012 to 2015. The lighting proportion of each parish's electricity cost was never less than 30%, and sometimes higher than 60% of the total cost. See the diagram on the DIY Sustainability Surveys page of the [Cherished Earth](#) website. The EECA and Consumer website links on the survey pages also provide more information.



Data sourced from Philips New Zealand, "Choose the Right Lamps" brochure released May 2014. It is based on retail domestic electricity charge rates. Charge rates are less for a church due to the GST refund. This shows relative differences at the time of publication. As LED prices are falling the cost effectiveness of changing to LEDs is still improving.

Incandescent bulb \$318.75 Will replace bulb 15 times	CFL bulb \$96.00 Will replace bulb 2 times	LED bulb \$70.58 Will replace bulb 2 times
Total Cost of Ownership Classic 75W Incandescent over 15,000 hours or 10 years	Total Cost of Ownership CFL 20W replacement bulb over 15,000 hours or 10 years	Total Cost of Ownership LED 12.5W replacement bulb over 15,000 hours or 10 years

Some LED's cannot match the light output for higher wattage bulbs therefore CFL (Compact Fluorescent) bulbs are still appropriate. The most common Fluorescent linear tube lamps in the churches surveyed were T8 moderately efficient lamps. T5 lamps are more energy efficient but replacement with these can require modification or replacement of the lamp fittings. Linear LED replacement tubes are available but are still quite expensive – check with your electrical supplier for developments. Old T12 linear fluorescent lamps are very inefficient outdated technology and should be replaced as soon as possible.

CFL's contain mercury (less than 5mg per bulb); therefore they should not be placed where they can be readily broken (eg. near ball games in church halls). LED bulbs are a solid state technology which is more robust. All Fluorescent and CFL lamps should be disposed of responsibly because of the chemicals they contain. See the document "Safe Disposal of Fluorescents" available for download from the [Cherished Earth](#) website under the DIY Sustainability Surveys page.