

LED Lighting

Energy Efficient Lighting Upgrades
and Lighting Design



One of the most effective ways to increase overall energy efficiency is to carry out an LED Lighting upgrade

LED lighting offers a high efficiency, low cost alternative to traditional lighting products. LED lights produce more light yet use up to 80% less energy than traditional lights. They are also safer as they operate at a much lower temperature. And because LED lights last much longer than traditional lighting products, our clients also save money on replacement costs.

The key benefits of LED technology are:

- high efficiency
- long life and low degradation rate
- solid state technology; no mercury
- no UV light; no 'flickering'
- huge improvements in cost and efficiency
- huge improvements in quality; including aesthetics and light colour temperature

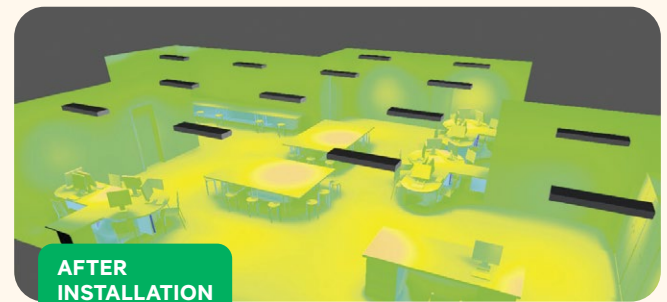
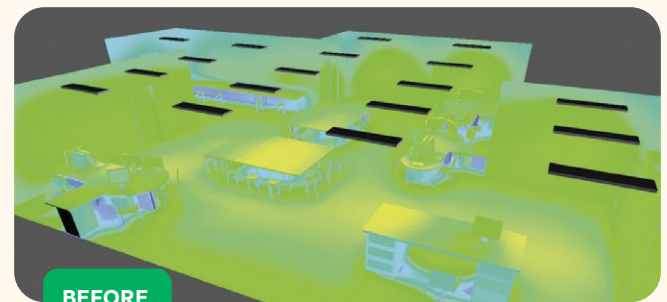
How and when you use your lighting depends on your type of business and your specific work practices. Therefore the most effective system will need to be custom-designed to meet your organisation's needs. Our engineers use a number of sophisticated computer programs to ensure accuracy and completeness of the design. Combining this with our in-depth and practical knowledge of LED technology enables us to design, specify, supply and install LED lighting solutions that ensure maximum energy savings, whilst ensuring that light levels meet Australian Standards.

Lighting Design

A lighting design allows any dark/bright spots to be found and eliminated prior to installation so that the lighting layout can be optimised for the existing racking/ceiling types/locations. It also enables any technical risks with the distribution of light around the facility to be identified and

mitigated. The lighting designs allow the number of lights to be evaluated providing the possibility to further reduce the capital cost by safely deleting unnecessary lights.

Example: Customised lighting design for a classroom



A row of lights is removed, yet there is **greater light consistency**

Summary of core service areas

Solar power	Energy storage	Energy efficiency	Energy management	eMobility	Electricity retail
Commercial & Industrial Rooftop Solar	Commercial & Industrial Battery Storage	Energy Efficiency Upgrades	Virtual Power Plant (VPP) & Demand Response (DR)	Site Installation Of EV Chargers & Maintenance	Fixed & Variable Price
Solar Car Park Shading	Microgrids	Led Lighting Upgrades	Energy Metering & Visualisation	Grid Interaction Services	Power Purchase Agreements
Ground Mount Solar PV	Energy Storage Advisory Services		Energy Management & Reporting	Grant Funding Assistance	
Solar Design			Energy Strategy		
Solar PV Advisory Services			Operation & Maintenance (O&M) Service		

Case Study: Westpac

Since being engaged by Westpac in 2015, we have delivered comprehensive energy efficiency upgrades in seven commercial buildings, and over 150 retail banking sites across Australia.

These projects involved the upgrade of:

- **24,000 light fittings** resulting in
- **4,521MWh** annual energy savings

In addition to improving the aesthetics of the facilities, these projects will save approximately:

- **\$1.1 million** on electricity costs
- **\$117,000** on maintenance costs

On average, the payback period for their capital investment is 4 years.



Summary:

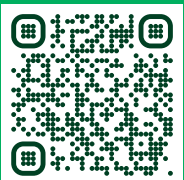
- Detailed energy audits were carried out at over 150 retail banking sites and seven commercial buildings across Australia by our experienced energy efficiency engineers
- Carefully engineered and optimised lighting systems were designed to maximise energy savings whilst meeting the comprehensive design requirements of Westpac and the relevant Australian Standards
- All electrical work conducted outside of business hours to avoid disruption in strict accordance with Westpac's security procedures

- Controls of the lighting system (dimmers, timers and switches) were improved for enhanced usability
- Our team managed the creation of both Energy Savings Certificates and Victorian Energy Efficiency Certificates for all eligible projects.



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