

2015

Lighting Upgrade Case Study



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Energy Efficient Lighting Case Study – Channel 7 Alexandria

Overall Site Location Details

The table below highlights the key performance indicators of the energy efficient lighting upgrade and benefits of the capital investment. These figures are based on current average operational hours.

Detail	Value
Energy Consumption Reduced	96,879 kWh p/a
CO ² Emissions Reduced	1027 tonnes
Energy Costs Reduced	\$19,379 p/a
Project Delivery Cost	\$12,092
Upgrade ROI (Simple)	8.9 Months
Implementation Dates	10/09/2015
Location Size	3,850m²
Product Warranty	3 Years
Service Warranty	3 Years
ESC Discount	\$14,994

Site Location Analysis

Upgrades commenced September 2015 replacing 57 existing 430W metal halide high bay lights with 30 180W LED Highbay luminaires. Sample circuits have been logged using Grid Analytics energy monitoring software to measure the consumption of electricity before and after upgrading, and the result are shown below.

Production & Warehouse

	Existing Lighting	Upgrade Lighting
Photo		
Lamp Type	Metal Halide	LED High Bay
Consumption	430W	180W
Quantity	57	30
Operational Hours	5000 p/a	5000 p/a
Maintenance	8,000 hrs (3.5 years)	50,000 hrs (20+ years)
Energy Cost p/a	\$24,779	\$5,400

Additional Benefits

There are additional benefits not equated as part of the evaluation on the energy efficient upgrade of lighting.

Maintenance

In addition to the costs reduced in electricity, there are savings in ongoing maintenance, service, and re-lamping from the significant increase in asset lifetime. These costs are quite high as the lighting is mounted at heights over 6m which requires the use of elevated work platforms for safety.

Comfort

As the colour of the existing lighting was not consistent, this can result in health issues of occupying staff that regularly transition between various areas, due to subtle adjustments the eye will make between locations.

The consistent and continuous colour of the upgraded lighting will improve the ambient environment and comfort of the occupying staff. The improved lighting levels where existing lighting was below recommended lighting levels will also reduce eye strain and improve comfort. This may result in increases in productivity.

Lamps will still illuminate past their maintained lifetime and should be replaced according to the maintenance cycle determined by lamp life. This will prevent illuminance falling below desired/recommended levels.

Metered Results:

Meters were installed on three sample circuits in the warehouse.

The energy was monitored during the installation and the 70% reduction in energy use can be seen between the start and finish of the installation.

