



SPECIALISED  
LIGHTING  
SOLUTIONS



**ILLUMINATING  
OUTCOMES**



**St John of God Health Care is Australia's largest not-for-profit private health care group, providing private hospital, home nursing, pathology and social outreach services throughout ANZ and the wider Asia-Pacific Area.**

St John of God fosters a program of upgrade and expansion to facilities and technology, in order to deliver the best possible care to people in need and to return profits back to the communities they serve.

To meet this charter, between 2009 and 2012 the group engaged Specialised Lighting Solutions (SLS) to conduct a trial lamp and luminaire replacement across 13 hospitals in three states. Conventional light sources and fittings were replaced with LED alternatives to determine potential savings in energy consumption and critically, to remove as many CO2 emissions as possible so as to limit their impact on the environments that they operate in.

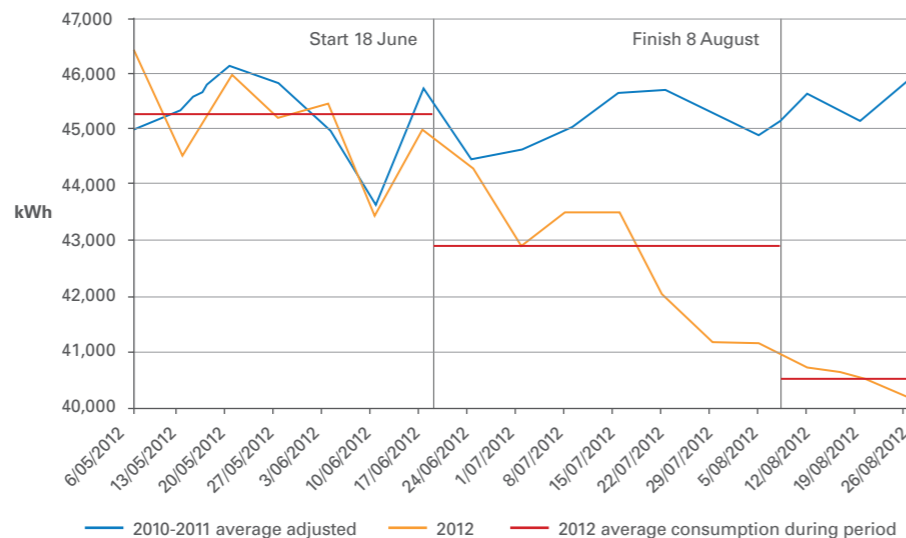
The results delivered clear evidence and the group resolved to expand the trial to one full site, with a view to broad implementation across the entire network.

St John of God Bendigo was selected as the trial site, with the project scope including the replacement of around 3,400 conventional lamps with LED sources in roughly 1,800 light fittings across the 122-bed private hospital facility. The trial commenced in June 2012, finished in August that year and

was measured to determine savings achieved.

The benefit was immediately evident. Figure 1 shows the reduction in electricity usage as conventional lighting was replaced. The two previous years' electricity consumption is shown (average adjusted) in blue, with the pink line representing actual energy consumption for the period. The figure highlights energy consumption six weeks prior to the project and a full three weeks beyond completion.

Figure 1



Analysis of the data indicated a drop in electricity consumption by 7.52%, or 196, 121 kWh per annum, as well as a reduction in CO2 emissions of 239 tonnes per annum.

The findings from the Bendigo trial were substantial enough to 'green-light' the full scale implementation across the remaining St John of God sites. The project was staged; phase one incorporated seven sites and phase two a further four. Phase one was completed in May 2013, with funding allocation approvals for phase two finalised in June 2014.

Overall, the project saw replacement of over 32,000 lamps and luminaires across twelve facilities. Table 1 highlights the total number of lamp and luminaire types by quantity.

The largest facility in the group is in Subiaco, WA and comprises a total of 12,944 replaced units. Dean

Farnsworth, Director of Engineering Services, Eastern Hospitals for St John of God Health Care, managed the entire project including measurement of energy reductions against his initial projections.

In June 2015, he was able to provide updated data as evidence of savings at Subiaco.

"We now have enough data to determine the effect of the LED light replacement project at Subiaco," said Dean. "The project started in late October and it is close to being finished, with just a few hundred lights (of the 12,944) still to be installed in difficult to access areas. We have compared the consumption of electricity from March to May 2015 against the same period in 2014 to see the effect of the LED replacement initiative and are delighted to note that savings grew consistently over the three months"

Table 2, below, highlights those savings.

	kWh	as a %
Reduction in consumption between March 14 and 15	83,885	7.18%
Reduction in consumption between April 14 and 15	99,731	10.03%
Reduction in consumption between May 14 and 15	100,870	10.82%

Table 2



Dean was able to extrapolate the data to calculate annual savings.

“Using the May % reduction figure we calculate that, over one year, electricity consumption should drop by 1,320,182 kWh. Multiplying that figure by the average cost per kWh at Subiaco (\$0.1512), sees an annual saving of \$199,612.

“Before approval was granted to proceed with phase two, we used the findings from phase one and calculated a simple ROI for Subiaco of 16.59%. The actual simple ROI achieved is 19.12%, which is particularly pleasing, as the kWh price dropped during that time. This means the simple ROI would have been even higher if we were working with the original kWh rate”, explained Dean.

result for our Subiaco site. CO2 reductions work out to be 1,021 per annum, which is in fact above the figure that was estimated in our original business case”

Table 3 illustrates the results across the entire project, delivering a saving of just under 3,000,000 kWh hours per year - or 2,775 tonnes of CO2 emissions. While the results speak for themselves, Paul Stewart, National Business Development Manager for Specialised Lighting Solutions says that it was the total turnkey solution capability of SLS that impressed. “We not only had the supply capability but we project managed the entire tasks from audit, product selection, installation and commissioning”, he says. “It’s this ability as a full service lighting partner that is the biggest value proposition for our customers. We

Site	Number of units installed	savings per annum		equivalent to			Trees you would need to plant to offset the same emissions
		Kw/H	Tonne Co <sub>2</sub> -e	cars	houses	black balloons	
Bendigo	2,661	196,121	239	96	20	4,785,352	35,083
Frankston	1,212	96,187	117	47	10	2,346,956	17,206
Pinelodge	1,064	80,044	98	39	8	1,953,956	14,319
Warnambool	1,808	347,705	424	170	35	8,484,002	62,199
Berwick	2,333	105,862	129	52	11	2,583,033	18,937
Wendouree	347	23,844	29	12	2	581,794	4,265
Burwood	1,042	82,695	101	41	8	2,017,762	14,793
Ballarat	562	44,601	84	34	7	1,679,128	12,310
Mt Lawley	4,061	322,289	258	104	21	5,156,623	37,805
Murdoch	2,471	196,103	157	63	13	3,137,655	23,003
Subiaco	12,944	1,320,182	1,021	410	85	20,420,000	149,707
Geraldton	1,848	146,661	117	47	10	2,346,575	17,204
<b>Total</b>	<b>32,353</b>	<b>2,962,295</b>	<b>2,775</b>	<b>1,114</b>	<b>231</b>	<b>55,491,953</b>	<b>389,629</b>

Table 3

By these calculations, the payback period for the project is just over five years, but the simple ROI estimate does not factor in additional ongoing savings, such as lamp replacements and associated labour costs.

Dean also used the data to calculate CO2 emissions, “We used the same methodology and it’s a great

manage the big picture ensuring positive fiscal and environmental outcomes.”

As a not-for-profit group, St John of God Health Care actively seek to improve their facilities and reduce costs. The implementation of the SLS LED lighting program across all facilities has delivered on all counts.