

National Lighting Roll-Out Netcare Limited

GGHH Agenda Goals

- Energy
- Leadership

Background Information

The National Lighting roll-out project was initially approved by the Sustainability Committee on 8 May 2014. The project has already progressed through the design and procurement stages and is currently in implementation. The project applies to the 41 sites in the Netcare Hospital portfolio and aims to include as much of the total lighting load as possible.

The estimated saving of 13 458 378 kWh per annum or 48.4% of current usage. This is equivalent to a saving of USD \$ 894,778 (R12,112,540) at the assumed national average tariff of USD \$0.07 (R0.90/kWh) at project approval stage.

The project will have several advantages:

1. The energy cost attributed to the existing technology, which is also translated into the inefficiency of the light output produced for the amount of energy required can be dramatically improved with newer lighting technology – typically delivering a payback of less than 5 years;
2. Replacing the light fittings will dramatically improve the appearance and aesthetic appeal of the lighting in the hospitals, since many of the current fittings are in poor condition (ie discolouration of light covers);
3. The older generation lighting technology requires more maintenance than newer available lighting technology, and can be noticeably reduced;
4. Where lighting levels were not up to standard before the installation, this project will leave the facility compliant upon completion; and
5. All of the above aiming to deliver a better healthcare experience.

Hospital Goal

In line with the strategic imperative of the Sustainability Committee (“Committee”) the lighting project was aimed at reducing energy and therefore carbon emissions and an overall reduction in electricity costs and consumption. This was championed by the Committee and involved all key stakeholders with specific input from technical managers on the ground in conjunction with independent consultants that allowed the verification of the energy savings

Progress Achieved

The estimate annual project savings for the combined USD \$ 9,809,270 (R132,787,432) spend is estimated to be R34, 675,768 at the current tariffs and assumed operating hours. Phase 1 of the project is nearing completion with 95,465 fittings installed at 31 facilities and 122 fittings outstanding to be installed at 4 facilities by end of December 2016. Upon completion of phase 2 by the end of the current financial year, the total quantity of replaced luminaires will be around 130,487.

The Issue

Lighting typically accounts for on average ~15% of hospital electrical energy usage, which implies that across the Netcare Hospital portfolio, the energy cost of lighting could be as much as USD \$2,95 (R40) million per year. The lighting retrofit solution aims to address inefficient luminaires, with the design selected to solve for the lowest

possible life cycle cost, highest IRR, while optimising maintenance and safety considerations and reducing carbon emissions through lower energy utilisation.

The financial analysis of all cash flows required for the Hospital Lighting points to an IRR of 25%.

Total Project Budget	USD \$ 9,809,270 (R 132,787,432)
IRR (20Y)	25.0%
Payback	4.7
NPV Saving (20Y)	USD \$ 7,398,680 (R 100,155,458)

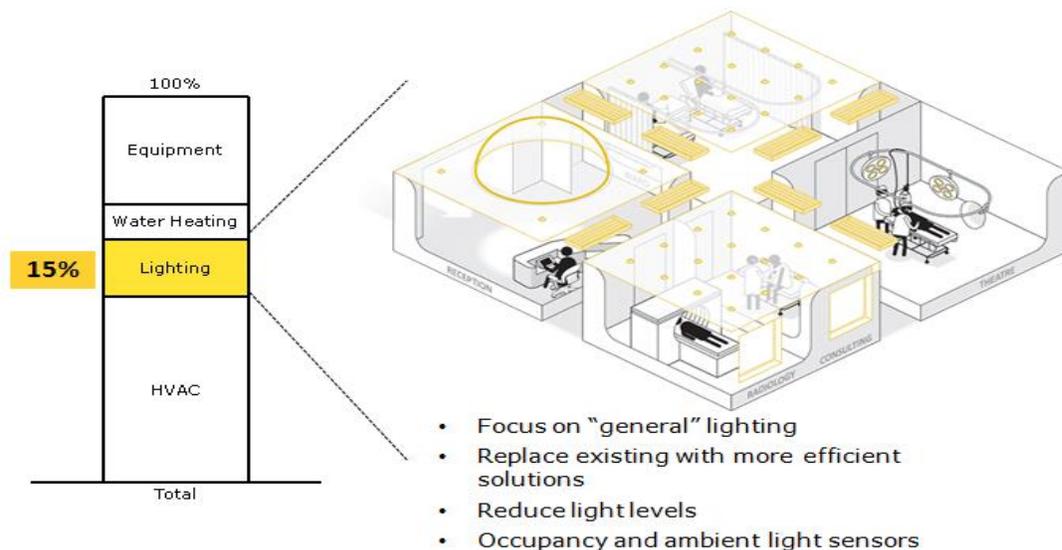
Sustainability Strategy Implemented

The strategic aim is to enhance and complement existing energy drivers and efforts across Netcare facilities:

System	Interventions
Lighting	<ul style="list-style-type: none"> • Efficient fittings • Alternative technologies • Daylight/motion sensing

From the above systems-thinking approach, lighting will be addressed as follow:

Lighting Systems are responsible for 15% of consumption



For general lighting purposes Netcare uses predominantly fluorescent luminaires and through the life cycle analysis it was found that for this project it is still more feasible to use mature technology than the more expensive LED alternative. Due to the higher efficiency fluorescent luminaires designed and build today they outperform the LED replacement.

Implementation process

The project scope was identified through auditing of 6 facilities and these findings were then extrapolated across the facilities. The fitting types were standardized to ensure less variance throughout the Group. The operational hours were then identified with each fitting type and the feasibility and life cycle analysis followed to understand the scope and benefit.

This project was then tendered at the end of 2014 and the contractor appointed in 2015 where-after the project implementation at facility level started, with phase 1 (original scope) now almost complete. The logistics were a huge challenge as the product is imported from various suppliers and needs to be distributed throughout the country for implementation.

Tracking Progress

A detailed measurement and verification will be conducted at a sample of 4 sites. The outcome will verify the savings for each fitting compared to the savings calculated from the datasheets. No ongoing monitoring of the solution is planned, other than tracking the savings on our check meters at the facility utility supply.

Challenges and lessons learned

Disruption to hospital operations and consistency of quality and thoroughness of installation. However, the end result is worth having to deal with these short lived challenges which have been well managed by the technical staff on the ground.

Next Steps

The project freeze period has been concluded with the clean-out and completion of facilities prioritised. During the freeze period detail audits have been conducted on Phase 1 to finalise the final account of Phase 1; detail audits on Phase 2 was conducted to improve accuracy and level of confidence in the findings.

Phase 2 of the project is planned to start immediately from the approval of the additional budget at the remaining 11 facilities with completion by end of June 2017.

Demographic information

The phases have been are split across all Netcare facilities on a national basis and on a phased approach. The facilities consist of various specialized hospitals of different sizes. Please, reference www.netcare.co.za for a full listing of all the hospitals within the group all of which have been included in the lighting project.

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