TES
Total Energy Solutions

CASE STUDY 05

BRISBANE
Tel: +61 7 3857 9600
Fax: +61 7 3857 9699

SYDNEY
Tel: +61 2 9860 3200
Fax: +61 2 9860 3299
Email: info@tesaustralia.com.au

SHANGHAI
Tel: +86 21 6128 9799
Fax: +86 21 6126 4602
Email: info@tesprchina.com.cn

Logan Hospital, QLD

PROJECT SUMMARY

Project Type – Energy Performance Contract

Medical Facility - Logan Hospital has 310 beds and is a major referral hospital for the Metropolitan South Health Service Region of Queensland Health.

Wide range of medical services with specialisation in maternity services, as the hospital has the third highest birthing output in Queensland.

Project Cost - $1,416,925

Project Savings - $201,335 per year.

Return on Investment – 14.17%

Energy Consumption Savings – 2,125,307 kWh per year (5,822 kWh per day)

Greenhouse Gas Emission Savings: 2,253 tonnes of CO_2 per year (6.17 tonnes per day)

Site Savings - 24% of total site electricity consumption, 95% of total gas consumption and 25% of total water consumption.

Measurement & Verification - Utility bill regression analysis using METRIX software

TECHNICAL SUMMARY

Design and installation of a Synchronising System for the Emergency Generators to operate in parallel to the grid, and be tested for maintaining the essential services of the hospital (1.5 MW) every month. This has avoided the cost of operating temporary portable load banks to test the operation of the emergency generators and supplying electricity to the hospital, which would otherwise be wasted during the testing periods.

In addition the project increased the capacity of the hot water system with high efficiency heat pumps, designed to reclaim waste heat from the hospital air conditioning system to produce hot water. Installed a solar photovoltaic system on the roof to generate renewable electricity; designed and installed a 60,000 litre rainwater storage system to provide make-up water for the cooling towers. We also designed and installed a 100,000 litre capacity on-site mains water storage tank with BMS controls, to provide emergency water supply to the hospital when external mains supply and pressure are threatened.

Water consumption was significantly reduced by the installation of nearly 1,000 water saving devices. Waste water from the sterilizers was reduced by the addition of chilled water heat exchangers, enabling water to be re-used.

Major reduction in electricity consumption was achieved by installation of high efficiency motors on the AHU's and pumps and VSD's to the HVAC system. The system was then integrated with improvements to the BMS to increase the energy efficient operation of the ventilation components of the hospital's air conditioning system. The hospital lighting system was upgraded with new generation tri-phosphor lamps, specular reflectors and electronic ballasts to cut lighting energy to half of the original consumption.

Special improvements were also made to the ducting and damper elements of the air conditioning system in the operating theatres to produce greater efficiencies.




CONTACTS

Logan Hospital
Mr Peter Bentley, Manager - Building, Engineering and Maintenance Services
Phone (07) 3299 8074

Total Energy Solutions (TES)
Mr Steven Modra, Mechanical Engineer
Phone (07) 3857 9600
www.tesaustralia.com.au