

Parramatta Linen Service



Total Renewable and Energy Efficiency Solutions

PROJECT SUMMARY

Project Type – Measurement and Verification

Laundry Facility - Parramatta Linen Service (PLS) is one of the largest laundry facilities in NSW. It serves several hospitals within the Western Sydney Local Health District.

Project Cost - \$1,416,925

Project Savings - \$217,310 per year

Energy Consumption savings – 22,187 GJ

Greenhouse Gas Emission Savings: 3,146 tonnes of CO₂ per year

TECHNICAL SUMMARY

An Energy Performance Contract (EPC) was developed for the implementation of a range of Energy Conservation Measures (ECM) at Parramatta Linen Service. These ECMs included installation of high efficiency lighting, a 360kW Cogeneration Plant to produce electricity and hot water, and a 2MW supplementary steam boiler.

M&V overview

In order to assess the electricity and gas savings achieved after project implementation, an M&V plan was developed based on the International Performance Measurement and Verification Protocol (IPMVP). In developing the M & V methodology for the project, in consultation with the customer, Option C was chosen. In option C the energy savings are determined by using monthly consumption data from the main electricity and gas meters for the pre and post retrofit periods. A METRIX computer model was used to determine the annual savings in electricity and gas. Multivariable regression techniques were used to account for the impact of weather and production level variations on energy consumption.

Benefits of M&V for this project

M&V provides certainty that the ECMs implemented are operating as per their original intention and that the guaranteed levels of energy savings are achieved. M&V reports also demonstrate that the results are real and verifiable. Savings cannot be directly measured as you cannot measure the energy you didn't use - the savings



Cogeneration plant installed at PLS

can only be determined by comparing energy usage of the facility before and after implementing the ECMs. The M&V process also takes into account the changes in the facility that may have an impact on energy consumption. Changes which are likely to have little or no impact on energy will generally be ignored. However, the Baseline needs to be adjusted from time to time (nonroutine) if changes have occurred inside the facility that can influence energy consumption, such as the changes in the linen process and production equipment, and addition and demolition of buildings at PLS.

Continued Overleaf

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TECHNICAL SUMMARY Contd.

M&V Methodology in detail

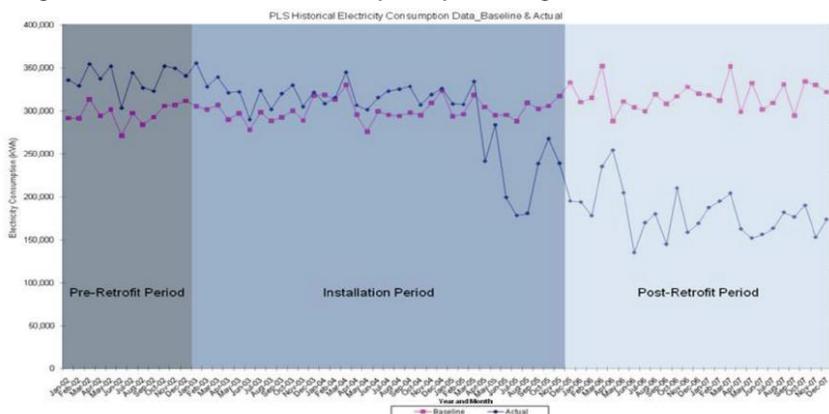
A site analysis of the facilities showed that Option C would provide the best option for M&V. The existing electricity and gas meters on site were used as the prime source of energy data. Baseline energy usage data was established at the site using historical electricity and gas usage. Three years of consumption data was used to establish the baseline consumption. Information related to linen production volume, weather, occupancy, addition and removal of equipment during this three year period was also collected. The collected information was then used in a METRIX computer model to create the Baseline energy consumption of PLS, using regression techniques.

Figures 1 and 2 show the historical electricity and gas consumption during pre-installation, installation and post installation periods.



Parramatta Linen Service's new energy efficient lighting

Figure 1 – PLS Historical Electricity Utility Tracking Data

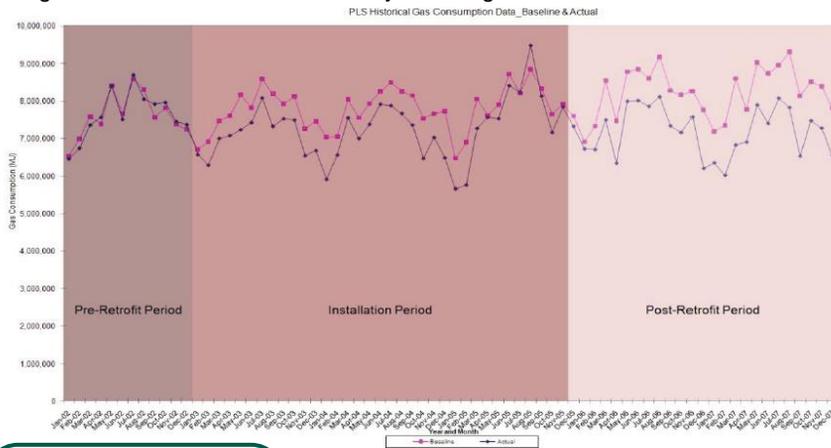


The savings for PLS over the measured period (December 2005 – November 2007) is the difference between the calculated baseline energy use (pink line) and the actual post-retrofit energy use (dark blue line) for the post retrofit period.

The Parties involved and why they made the M&V decisions they did

For Energy Performance Contracting projects, the M&V process is a formal and integral part of the contractual arrangements. As part of the EPC contract, it is required to measure and verify the energy savings each year. The M&V process required engineers working closely with the PLS personnel to collect, verify and calculate energy savings.

Figure 2 – PLS Historical Gas Utility Tracking Data



Source: CASE STUDY 2011, Energy Efficiency Council & Low Carbon Australia

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