CASE STUDY

COURTYARD BY MARRIOTT SURFERS PARADISE RESORT

Introduction

A hotels energy use benchmarking project, a partnership between the Commonwealth's Energy Efficiency Best Practice (EEBP) program and the Australian Hotels Association, has shown how hotels can maximise profits, minimise energy costs and demonstrate leadership by reducing energy use and greenhouse gas emissions—without negatively impacting on the comfort or satisfaction of their guests and customers.

Typically, efficient equipment costs the same and the rate of return is higher.

During the project, energy use data was collected from around 50 hotels across Australia and then six of the better performing hotels were examined in depth. The results of the benchmarking exercise have been well documented in a report and series of case studies. This case study is on the Courtyard by Marriott Surfers Paradise Resort in Queensland

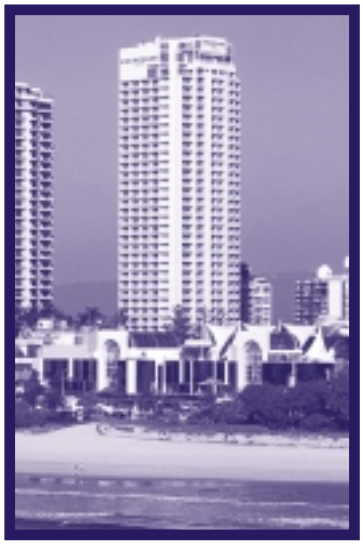
The Courtyard by Marriott Surfers Paradise Resort

The Courtyard by Marriott Surfers Paradise Resort is a 35–storey hotel with 403 rooms and a floor area of 46 920m^2, located in the subtropical climate of the Gold Coast. The climate is a major attraction for many guests and, typical of many Surfers Paradise hotels, there is a choice between a beach view room (east facing) or a mountain view (west facing). What is different to most Surfers Paradise hotels, however, is management's 10–year commitment to best practice energy and water consumption.

Peter Knuth, Chief Engineer, says: 'An incremental and strategic approach has paid off. Over the past 10 years, we have significantly reduced energy costs by routinely incorporating energy efficiency and energy management into our maintenance budgets and reporting systems. We have deliberately fostered a culture of efficiency.'

'Recently we identified a leak in the hotel's potable hot water pipework through our daily monitoring of hot water, gas and electricity demand. The water reading indicated higher than normal usage and this prompted me to investigate. I organised for repairs to be completed within a few hours. Previously, this sort of issue could have gone unnoticed for months.'

Energy and water efficiency were a prime consideration when the resort's rooms were refurbished in 1999. 'Major refurbishments provide the best opportunity to upgrade to more energy efficient systems', says Peter. 'Typically, efficient equipment costs the same and the rate of return is higher.'



Key energy efficiency investments and savings

Item	Capital cost	kWh energy savings p.a.	Energy cost savings p.a.
Timers in hallways to turn off lights	$5 400	14 717	$883
Fluorescent lights in guest rooms	$12 120	24 773	$1 486
Compact fluorescent lights in hotel common areas	$1 500	4 599	$276
Gas heating for pool (replacing electric)	$3 500	43 200	$3 577
Water efficient shower roses	$16 160	306 023	$18 361
Total	$38 680	393 312	$24 584

Management system initiatives

- Identification of inefficient energy use areas.
- Incremental implementation of energy saving initiatives.
- Daily monitoring of electricity, gas and water.
- Monthly resource reporting.
- Major investments at time of refurbishment or building upgrade.
- Participation in EEBP's hotels energy use benchmarking project, and also the Australian Greenhouse Office's Greenhouse Challenge Program.

Key outcomes of energy efficiency investment

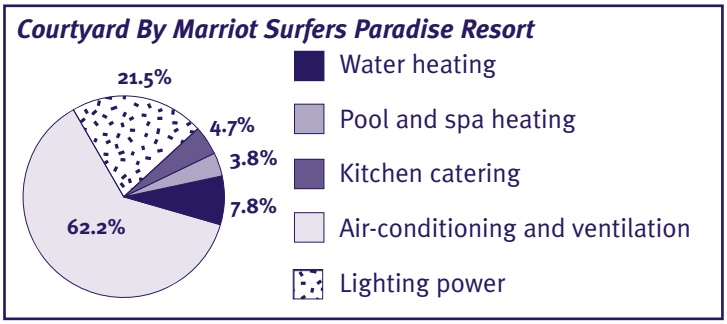
Capital investment: $38 860
Energy savings: 393 312 kWh p.a.
Energy operational savings: $24 584 p.a.
Greenhouse Gas savings: 401 tonnes CO_2 p.a.
Return on capital invested in efficiency using energy savings: 64%
Net Present Value: $112 376 (discount rate 10%, life 10 years)
Energy benchmarks: 435.8 MJ per square metre
Energy use—industry average for an accommodation hotel: 700 to 800 MJ per square metre

Energy planning goals for 2001

1. Establish an Energy Committee, consisting of engineering and operations staff, chaired by the Chief Engineer and reporting to the General Manager.
2. Replace inefficient incandescent lighting in hotel common areas.
3. Undertake a cost benefit analysis of gas as the hotel's primary energy source for water heating.
4. Upgrade main chiller controls to ensure the plant operates at maximum efficiency.
5. Install, monitor and finish programming of air-conditioning systems.

Key energy use areas

Total energy use at the resort in 2000 was 20 445 860 MJ. A breakdown of use into key service areas indicates that air-conditioning, general power and lighting are the hotel's primary energy drivers.



Energy use in service areas by percentage

Key efficiency initiatives

Lighting during building construction

1. Key tag switches installed in each guest room to control air-conditioning and lighting.
2. Fluorescent lamps installed for external general security lighting.
3. Bollards with compact fluorescent lamps installed in poolside areas.
4. Metal halide and high-pressure sodium lamps installed for external lighting.
5. Fluorescent fittings installed in reception area, shop, offices, conference room, kitchen, workshops, stores and laundry.

Lighting since construction

1. Timers installed in hallways to turn off lights.
2. Efficient fluorescent lights installed in guest rooms.
3. Efficient fluorescent lights installed in hotel common areas.

Air-conditioning

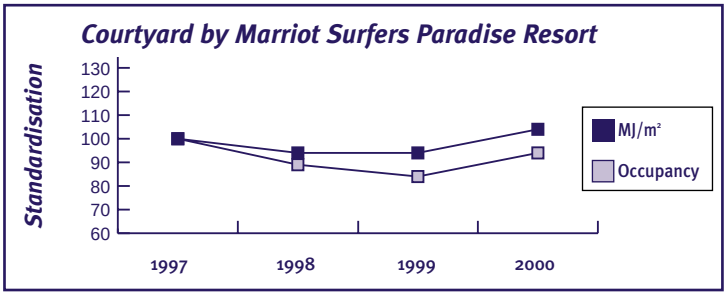
During the 1999 refurbishment, a Building Management System was installed to enable guests to turn off the air-conditioning in their room. Removing the fixed thermostats has provided greater flexibility for guests and reduced energy use. However, until meters are installed, reductions cannot be qualified.

Water heating

A 1997 study of the electric hot water system concluded that the average hot water demand per room, per day, was 111 litres. This compares to the standard quoted by Rheem in their hot water manual of 30 to 50 litres per person.

Overall hotel performance

The overall energy performance of the Courtyard by Marriott Surfers Paradise Resort over the past four years is charted below.



More information

The hotels energy use benchmarking project concluded that best practice hotels always have systems in place to regularly monitor, record, analyse and report on hot water, gas and electricity use. They often have full time engineers on site and continually seek ways to optimise energy performance. Best practice hotels also understand the importance of incorporating efficiencies into day-to-day operations and into the planning of renovations and retrofits.

EEBP supports industry sectors to identify and implement cost-effective solutions for a more sustainable and competitive future. The program has a combined focus on innovation, training and benchmarking and offers practical tools, information and assistance. EEBP is working with a growing list of industry sectors, which includes aluminium production, beverage and containers manufacturing, bread baking and milling, dairy processing, wine making, and fleet management.

The hotel benchmarking case studies are available without charge from:

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