CASE STUDY

RYDGES CAPITAL HILL

Our dedication to maintenance keeps our energy bills down.

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.

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 Rydges Capital Hill in Manuka, ACT.

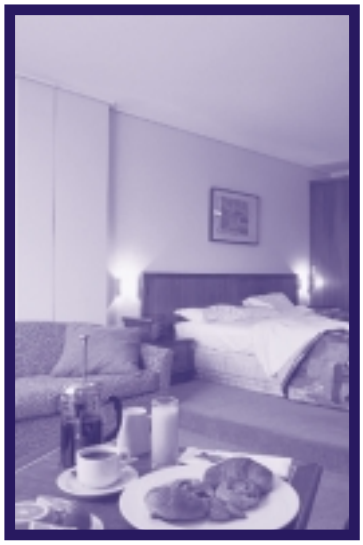
Rydges Capital Hill

Rydges Capital Hill is a three-storey, 186–room hotel with a floor area of approximately 13 000m^2. Just minutes from Parliament House, the hotel provides a welcome retreat from Canberra's cold winters.

With occupancy rates averaging more than 70 per cent (100 per cent occupancy is usual when Parliament is sitting), guests enjoy the atmosphere created by the central garden atrium and the horseshoe shape of the hotel. The atrium is the focus for many activities, with the main restaurant and inner guest rooms overlooking lush gardens filtered by the natural light of the large central dome.

Housekeeper Daphne Matangie and her team keep a close eye on the hotel's manual air-conditioning and heating systems. Daily control of chiller sequencing, pool flushing and lighting programming pay off through reduced bills. 'Our dedication to maintenance keeps our energy bills down', says Daphne. 'Our talented crew are always looking for ways to save energy.'

The hotel's design also impacts on energy bills. The north-south orientation, exceptional use of natural lighting (skylights, light wells and the central atrium), the heavy drapes on all large glassed areas, and the operable windows in the majority of guest rooms (which guests use), reduces the need for lighting, heating and air-conditioning.



Key energy efficiency investments and savings

Item	Capital cost	kWh energy savings p.a.	Energy cost savings p.a.
Manual control of chillers	$1 200	57 600	$5 184
Manual control of external lights	$1 500	14 600	$1 314
Cleaning of chiller heat exchange tubing	$900	54 750	$4 928
Air-conditioning of pool enclosure	$2 000	146 000	$13 140
Filling of north facing rooms first	$3 200	182 400	$16 416
Total	$8 800	455 350	$40 981

Management system initiatives

- Dedication to in-house maintenance.
- Strict supervision of locally contracted-out maintenance services.
- Manual control of all systems including chiller sequencing, pool flushing and lighting.

Key outcomes of energy efficiency investment

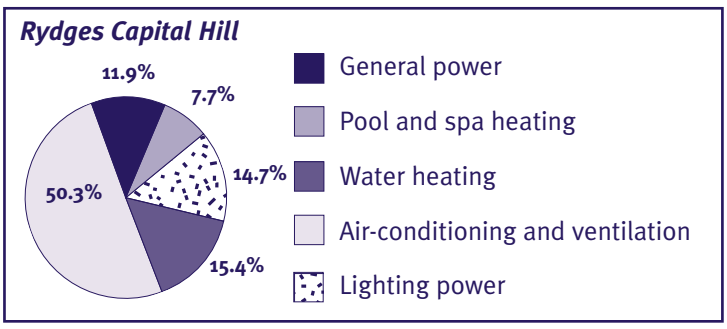
Capital investment: $8 800
Energy savings: 455 350 kWh p.a.
Energy operational savings: $40 981 p.a.
Greenhouse Gas savings: 195 tonnes CO_2 p.a.
Return on capital invested in efficiency using energy savings: 466%
Net Present Value: $243 014 (discount rate 10%, life 10 years)
Energy benchmarks: 1045.7 MJ per square metre
Energy use—industry average for a business hotel: 1 000 to 1 100 MJ per square metre

Energy planning goals for 2001

1. Monitor chiller performance against benchmarks.
2. Inspect cooling tower performance to ensure efficient operation.
3. Instigate a program of regular cleaning of skylights.
4. Monitor effectiveness of solar access to north facing rooms in winter.

Key energy use areas

Total energy use at the hotel in 2000 was 13 593 531 MJ. A breakdown of use into key service areas indicates that air-conditioning and heating are the hotel's primary energy drivers.



Energy use in service areas by percentage

Key efficiency initiatives

Initiatives incorporated during building construction

1. Natural lighting used where possible.
2. Skylights installed in 'suite' bathrooms.
3. Light wells installed throughout feeding hotel corridors.
4. Central atrium installed, which provides light to all inner rooms and activity areas.
5. Operable windows installed in the majority of guest rooms.
6. Gas installed for water heating, space heating and pool heating.

Building Management System (BMS) controls

1. Manual control of air-conditioning chiller sequencing and pool flushing.
2. Hydronic systems fitted with three-way modulating valves, to replace two-way valves on some runs to improve control.

Water heating and usage

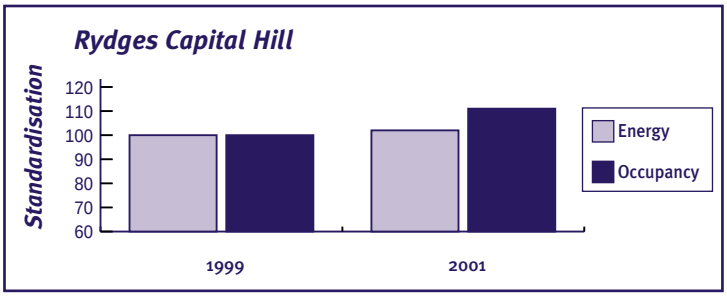
1. Domestic hot water provided by a super efficient 1 GJ natural gas Raypak system. This unit has a modulating burner that regulates gas usage according to demand.
2. Careful attention paid to repairing leaking taps the day they are reported to hotel management. This avoids energy and water wastage.

Pool heating

The hotel's indoor 15–metre pool is heated by the natural gas fired space heating system. Pool back flushing is manually controlled, to ensure waste is minimised.

Overall hotel performance

The overall energy performance for Rydges Capital Hill over the past two 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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