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Crowne Plaza Energy Efficiency



As one of the largest hotels in Alice Springs, Crowne Plaza Alice Springs offers 236 hotel rooms and a range of restaurant, conference and other facilities. It is well known for its iconic photovoltaic power system project, boasting one of Australia's largest building mounted solar systems, generating up to 100% of daytime power needs.

Behind the scenes, Crowne Plaza Alice Springs is making an equally dramatic if somewhat less visible contribution to their sustainability drive. In late 2007 they commissioned a detailed energy efficiency audit, which highlighted a number of significant energy saving opportunities.

With the support of the Alice Solar City commercial program, the owners, InvestNorth Pty Ltd, launched a project to implement a large range of the opportunities identified in their audit. An application to the Alice Solar City large business program saw them successfully secure \$50,000 in funding towards a swag of energy projects which when fully implemented will reduce energy consumption by approximately 20%.

Actions being undertaken include:

Lighting upgrade

Over 1,500 incandescent and halogen lights have been replaced throughout the hotel with more

efficient and longer lasting compact fluorescent lamps – saving \$30,000 per annum and reducing electricity peak demand by up to 75kW.

Lighting controls

Sensors have been installed in a number of utility rooms in order to turn lights off when ambient light levels are high enough, and when the spaces are not occupied. This initiative is expected to save over \$4,000 per annum and reduce greenhouse emissions by 20 tonnes per annum.

Energy eye in room air-conditioning controls

Typically, the air-conditioning in rooms is left running continuously. The “Energy Eye” system which has been installed to all guest rooms is a cost effective means of reducing unnecessary air-conditioning. Easily retrofitted into existing rooms, the system uses wireless sensors to detect doors being opened and to detect movement within the room. When

it determines that the room is vacant, the room air conditioning system is either turned off or moved to low energy settings. Expected savings: \$19,000 per annum.

Jemflo water flow controllers

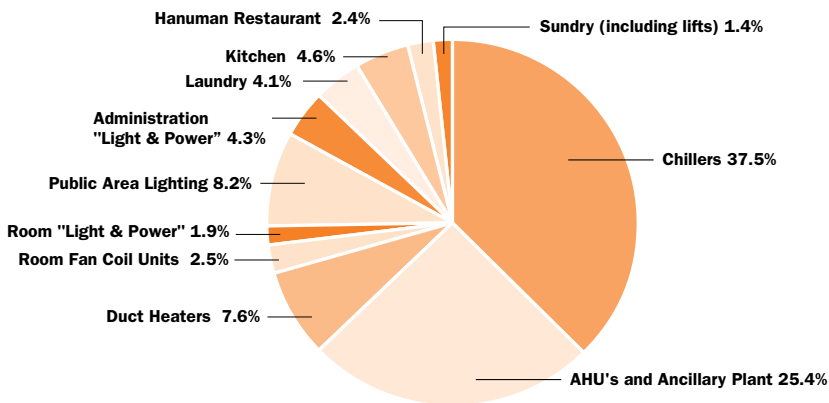
Water heating is a very energy intensive activity, and thus controlling the amount of hot water being used in the hotel can make big energy savings. The Jemflo devices are an innovative approach to reducing water flow in existing fittings. Their design ensures a stable temperature from mixing hot and cold water while controlling the rate of flow to acceptable levels. Fitted throughout the hotel, the flow controllers are saving up to \$20,000 per annum - and reducing water consumption by up to 10 million litres per annum.



Pool solar heating

Guests at Crowne Plaza can indulge in the luxury of a heated swimming pool – but this comes with a sizeable energy price-tag. With the installation of a Heliocol solar pool heating system mounted on a

Electricity Consumption Breakdown



nearby roof, Crowne Plaza are now saving up to \$5,000 a year in gas consumption.

HVAC control upgrades

Heating, Ventilation and Air conditioning (HVAC) systems are the major consumer of energy at the hotel. A specialised HVAC energy audit defined suitable efficiency projects in the airconditioning plant. Projects include:

- Install Variable Speed Drives (VSDs). Similar in concept to “inverter” split systems, these allow motors in the air-conditioning system to vary their speeds to better match demand – reducing unnecessary energy consumption. VSDs have been installed on a number of systems, saving an estimated \$20,000 per annum.
- Optimise HVAC controls. Large scale HVAC systems are typically custom installations, with

individually designed controls. Large savings in energy consumption can be made by optimising these. Reducing unnecessary runtimes, making use of VSDs, and preventing subsystems from ‘fighting’ against each other are a few examples of actions that can achieve real savings.

Heat pump hot water system

Crowne Plaza’s ageing gas fired water heating system was another opportunity to make energy saving investments. A heat pump installation was identified as being the most economical way to make substantial energy savings. With a second successful application to the Alice Solar City Large Business Program, Crowne Plaza installed 26 individual heat pump units connected together to form one large hot water system.

Operating like a fridge in reverse, the heat pump hot water systems

extract heat from the warm air in the plant room to create hot water, with up to a 4 to 1 ratio of water heat out from electrical energy in.

While resulting in an increase in electricity consumption, these systems are reducing gas consumption to a larger degree, saving energy and greenhouse gas emissions in the process. The project is expected to achieve a \$20,000 cost saving per annum and a reduction of 78 tonnes of greenhouse gases each year.



“We have come a long way in achieving our initial sustainability goals thanks in part to the support of Alice Solar City. The benefits have already assisted other hotels within our portfolio and have permeated further through the greater hotel industry.”

Garry Marsh, Asset Manager, BG Investment Holdings Pty Ltd

Results so far

- 36% reduction in annual electricity consumption
- 49% reduction in natural gas consumption
- 26% reduction in water consumption
- 895 tonnes greenhouse gas emissions saved per annum

Incentive value

PV system: \$1.5 million
 Energy Efficiency program: \$50,000
 Heat Pump installation: \$50,000

