

## Comprehensive Energy Survey of Kilkenny River Court Hotel

### Summary

PowerTherm was subcontracted to undertake a Comprehensive Energy Survey of the River Court Hotel, as part of ESB Customer Supply's energy efficiency services. The objectives of the survey were to establish if energy consumption levels were high by comparison with similar hotels; analyse how energy was being consumed at the site; and identify cost-effective energy saving measures. The survey concluded that electricity consumption was slightly above good practice and gas consumption was comparable with good practice; provided a series of pie charts illustrating how energy was consumed; and identified cost-effective measures that could reduce total annual energy costs by 16%.

### Site Description

The Kilkenny River Court Hotel is a modern 5,500 m<sup>2</sup> building with swimming pool, gym, conference and banquet facilities.

In the rooms and corridors ventilation is provided by extract fans and opening windows; radiators with thermostatic valves deliver heat provided by central heating boilers; and domestic hot water consumption is provided by dedicated boilers. Lights are activated by key card when the room is occupied.

In the public areas ventilation is by natural and mechanical methods; heating and cooling is provided by split air-conditioning units.

Conditions in the pool are maintained by two Calorex Delta units with heat recovery, dehumidification, ventilation, pool air heating and pool water heating. Centrally heated hot water is provided to these units.

There is no central building management system, with equipment controlled by dedicated timers and controllers in conjunction with manual intervention.

There is no sub-metering of electricity, gas or heat.



### Data Collection

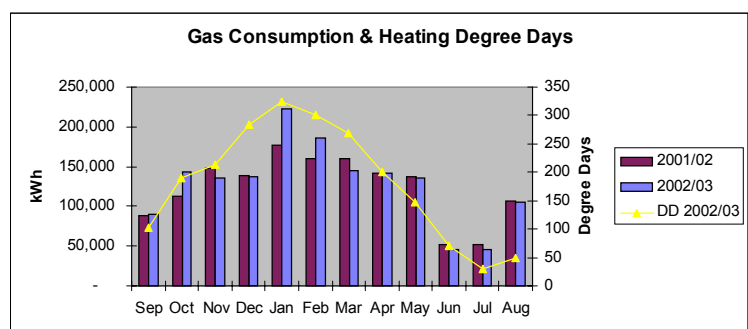
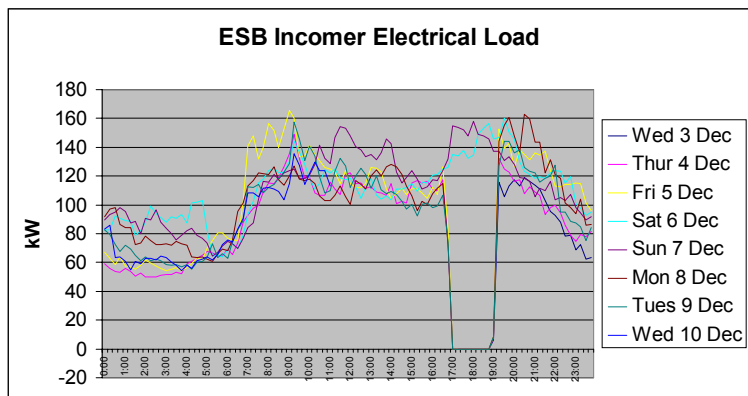
Bimonthly electricity and monthly gas records were available. A 3-phase power meter was used to log 15-minute electrical load profile on the main incomer over the course of a week. The power meter was also used to collect electricity information from the kitchen distribution board.

A clamp-on ammeter, with averaging capabilities, was used to collect current drawn by a number of loads.

A lux meter was used to check light levels.

The hotel design drawings and installation manuals were reviewed to collect information on the building size, installation and equipment controls.

The maintenance manager and senior manager were consulted regarding the occupancy, operating hours and manual control of various areas.



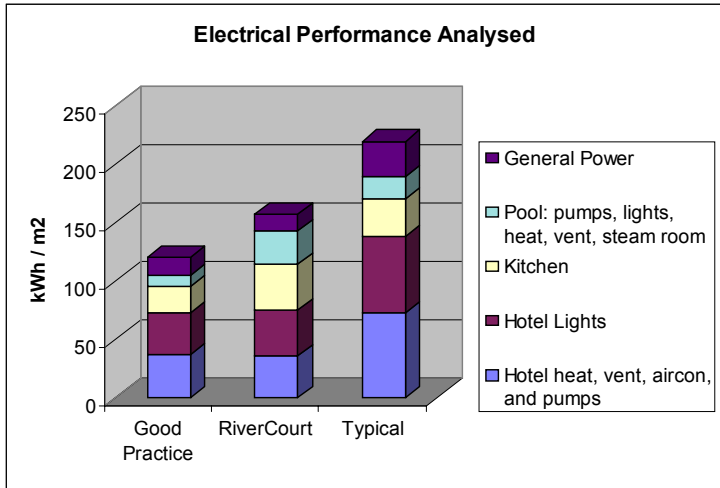
All information was incorporated into a spreadsheet model to gain an understanding of electrical loads attributable to lighting, heating, ventilation, kitchen equipment, the pool/leisure area and other equipment.

**Analysis**

The analysis first compared the River Court’s performance with benchmarks for similar hotels, consistent with the methodology described in CIBSE TM22. This helped in assessing the extent to which energy savings could be realised from the building.

Further analysis of individual electrical loads revealed the specific areas where energy savings might be achieved.

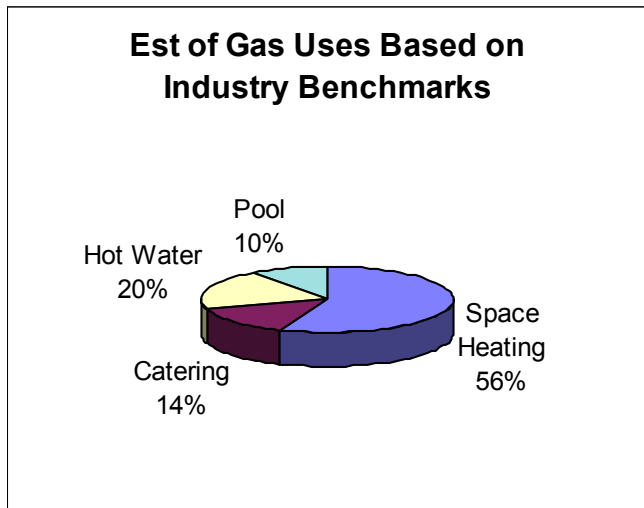
It was not possible to accurately analyse the gas load, but seasonal variations were used in conjunction with benchmarks to provide an indication of how gas is likely to be consumed.



**Recommendations**

The survey concluded with a suite of recommendations under a number of categories, including energy management practices, electricity tariff management, specific measures in the pool and leisure area, the kitchen and the central heating system. The value of energy savings of specific measures was calculated and, where possible, the cost of implementing a measure was estimated.

If these measures were implemented, it is expected that the River Court would save 16% of its annual energy costs: this despite the fact that the River Court’s energy performance is already close to “Good Practice” levels. The majority of measures involved optimising the existing operation or controls, and had little or no cost associated with them.



The feasibility of installing a small combined heat and power plant was also briefly examined. This was found to be cost-effective and have the potential to yield significant energy savings.

The total cost of this comprehensive energy survey was 3% of the annual energy bill.