



Case study: Radisson Blu Hotel

Background

The Radisson Hotel at East Midlands Airport is a 218 bedroom hotel featuring extensive conference facilities, swimming pool and leisure facilities. Designed as a BREEAM Excellent building, the hotel was opened in 2011 and is claimed to be the greenest hotel in the UK.

The hotel also boasts a 285kW bio-oil CHP (Combined Heat and Power) system that would generate enough electrical power to support the hotel, while converting waste heat as a primary source of heating and cooling for the hotel. This 'green' CHP plant operates on waste bio-oil (Ethyl Ester) that qualifies for the maximum number of ROC's (Renewable Obligation Certificates) under the governments renewables scheme.

Challenge

While this superb facility was designed, developed and handed over to the hotel operator, the Azure Group as a BREEAM Excellent building the operating costs, and in particular the utility costs did not reflect the operation of the greenest hotel in the UK. The operators of the hotel now had the challenge of how to make this superb facility operate as

Quick facts

- BREEAM Excellent Building
- 41% reduction in Gas consumption
- 17% reduction in Electricity consumption
- All savings achieved through optimisation of the HVAC and BeMS system
- CHP optimised with Chillers, Boilers and BeMS
- Energy strategy implemented to operate most efficient electricity supply at different times of day

See the solution overleaf

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30%

Overall kWh reduction

efficiently as possible and not really sure where the baseline should be set. As with any new build, teething issues occur within the first few months or even years that may not be obvious at the time handover takes place.

Two years after the hotel opened Optimised Buildings were commissioned by the hotel to 'optimise' the operation of HVAC (Heating Ventilation and Air Conditioning), the BeMS (Building energy Management System), Absorption Chiller and CHP (Combined Heat and Power) along with providing a managed service to look at the overall energy management of the hotel. It was soon evident that some fundamental challenges lay ahead. While the individual systems mentioned above were commissioned, they were not commissioned to operate together or commissioned for season change, and as a result the hotel was operating very inefficiently from an energy efficiency perspective – costing the operator dearly.

Solution

The first objective was to monitor the energy being consumed through the extensive sub metering that was installed into the hotel. These meters were already linked into the Trend BeMS which minimised the integration requirements, this half hourly data was logged and 'pushed' to our cloud-based aM&T (automatic Monitoring and Verification) software 'Optimised Energy'. This created the transparency and baseline data to effectively monitor and measure the impact of the building optimisation deployed.

The second objective was to implement the 'Optimised Analytics' platform to monitor the BeMS and HVAC systems through intelligent algorithms. This cloud-based platform tracks the performance of assets, equipment and systems and quickly identifies anomalies in plant operation saving energy and maintenance costs.

Once the above systems were in place the task of building optimisation began. This started with the CHP plant, ensuring this was operating with the Absorption Chiller, BeMS, Boilers and electric Chillers.

Once the core systems were operating correctly this was finely tuned to maximise the efficiency and minimise the operating costs.

Once some of these core areas were addressed, the Optimised Buildings managed service remotely monitored the performance of the HVAC, BeMS and sub-meters to continually commission and re-commission assets, equipment and systems to ensure they were operating efficiently.



Results

Since the various assets have been operating together as a system and various optimisation strategy's implemented, significant savings have been realised by the hotel.

The net business impact is an overall reduction on the kWh consumption across the electricity and gas utilities of 30% through optimisation of existing assets and systems.

“Our two major challenges in taking this building on was one not knowing where the utility baseline should be set for such a unique new building and two whether our building services were actually running as designed. Optimised Buildings have helped us get through these challenges with their technical expertise, analytical solutions and managed services. We are now in a great place to run our hotel as efficiently as it can, ensuring our utility costs are operating as low as they can.”

Daniel Keane – General Manager
Radisson Blu Hotel, East Midlands Airport

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