CIBSE Young Energy Performance Group (YEPG) presents CARBON BITE NIGHTS MAR – APR – MAY 2016

BUROHAPPOLD ENGINEERING

#CARBONBITES
Controls

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Background

• Whitbread PLC is the UK’s largest budget hotel and restaurant company including brands such as Premier Inn, Costa Coffee and Beefeater

• Employ over 40,000 people and serve 19 million customers every month

• Whitbread PLC is a FTSE 100 company, operating in over 19 countries.

• Over 650 Hotels

• Over 60,000 bedrooms

• Over 400 Restaurants

• Aiming for 75,000 rooms in the UK by 2017 and 100,000 by 2020

• 10,000 rooms across Europe
Whitbread Hotels and Restaurants – Our Approach

Team & Community
We will make lives better for our teams and communities through education, employment and opportunity

Customer Wellbeing
We will make lives better for our customers by providing goods and services they can trust and helping them make informed choices

Environment
We will make lives better for everyone by reducing our impact on the environment through our Carbon, Water and Waste programmes
Energy Strategy

Our current projections show that our utilities bill is expected to increase in line with our development activities (new build, refurbishment and improvement projects). Long term energy price projections also show an upward trend in commodity costs towards the end of our business plan.

To protect the business against these increases, we need to create a commercially focused energy management strategy:

1. Ensure all development activity is as energy efficient as possible
2. Continue to invest capital in our efficiency programme
3. Decentralise our utilities supply by generating more energy ourselves
4. Improve the operational efficiency of the existing estate
5. Integrate supply and consumption by considering new procurement methods

The key short term activities are:

• Create and implement an approach to manage energy consumption proactively
• Develop long-term capital investment strategy linked to business plan
• Lock savings from investment strategy into site P&L
• Review operational, design principles and brand standards
• Revitalise team member engagement work to drive positive routines across the estate
Energy investment curve

Investment area

- Building Management Systems
- Submetering and AMR
- Demand Response
- Motive Power Control
- HVAC and Lighting Control
- Energy Efficiency Measures
- Power Quality
- IT Solutions
- Renewable Heat
- Renewable Electricity

Payback (years)
Whitbread approach

1. Develop a proactive energy management strategy to improve our control of energy in use across the estate.
   This will drive LFL reductions in consumption, reduce energy drift and improve asset performance for our guests.

2. Offset the energy impact of our development programme by retrofitting efficiency measures into the estate.

3. Assess off balance sheet finance solutions to decentralise a proportion of our energy demand.

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Controls Investment Programme
Identification of requirements

• Hardwired vs. wireless – pros and cons of each.

• Software platform- we want to create a combined control and energy data platform so a bureau can find exceptions in energy data and understand why they have happened.

• Bureau v In-house – need to meet certain requirements

• Open source vs. closed protocols – specified for our requirements or off the shelf

• Maintenance – don’t want to be tied into a costly maintenance deal and end up over a barrel.

• Future proofing – needs to meet the needs of the business in the future

• Load shifting/red band/generation – possible revenue generation opportunities
Controls investment programme

18 representative sites were surveyed to understand the opportunity available:

Positives

- Energy efficient lighting used extensively throughout the buildings.
- Some proximity detection found in corridors and toilet areas.
- Some properties have other energy conservation measures in place
- Some sites have BeMS or similar

Negatives

- No centralised energy controls
- Heating, ventilation and cooling all controlled locally and often found in conflict with each other
- No automatic lighting controls found (daylight dimming / zonal)
- Local controls were often found to be manually overridden by employees leading to 24/7 operation
- Air conditioning equipment left running when areas are unoccupied
- Staff are generally untrained in energy efficiency measures
Controls trials

3 providers given a selection of properties to investigate

Selection included each type of typical property; Solus, RPI and Small Format

Each company was allowed to propose their own approach and come back to us with solutions and benefits

Trials kicked off at the start of the year and will be monitored over the next 12 months
Controls Trials

BMS and sensors deployed throughout the buildings and backed up with a bureau service to monitor.
Control points

• **Boilers and pump control** - only operate heating systems when demand is required, provide zone controls (if mechanical systems permit) and lock set-points

• **Accommodation heating** - In many premises the manager’s flat is a zone from the main heating, so this may need its own control.

• **DHWS** - Time control for water heater

• **Air conditioning** - We plan to switch off on time controls, and to prevent heating (boilers) being on at the same time as the air conditioning. ACU will have interface cards installed. The strategy will also provide deadband controls to switch off if within predefined Whitbread limits.

• **AHUs, extract fans** - We plan to time control the packaged AHUs and Extract fans (e.g. vent axia type wall fans).

• **Refrigeration** - We plan to install a limit switch to monitor door position on walk in fridge or freezer. This will allow us to log when the door is open / closed. We can then manage this on an exception basis and report through to the Whitbread team
Results

ROI = 2.88 years
(based on electricity savings only)
Q & A