

## Automated Metering

British Land is rolling out an advanced energy metering system and optimisation process across its office portfolio, with occupier agreement. This follows a successful pilot at its multi-occupied head office building, *York House*, where British Land influenced energy use has reduced by 38%.

### > Situation

Independent research commissioned by British Land showed that key stakeholders, such as occupiers, employees and investors, expected the company to lead on energy efficiency to drive cost reductions for occupiers and cut CO<sub>2</sub> emissions.

British Land has set challenging energy reduction targets, on both a portfolio-wide basis and at a single building level.

Key to achieving these energy reduction targets is an automated meter reading (AMR) system and optimisation process, successfully piloted at British Land's multi-occupied head office building, *York House*, and now being rolled out at more buildings, with occupier agreement.

This system offers guaranteed reductions in base-building energy use (common parts and shared services) of at least 10% in each building. British Land expects it to result in greater savings (around 20%), based on the pilot at *York House*.

As part of the tender process, British Land developed a stringent design brief with well-defined objectives.

These included:

- Providing a comprehensive data reporting system for key energy users within the building
- Introducing a remote monitoring service that identifies energy saving opportunities quickly
- Optimising energy efficiency in British Land controlled common parts and shared services
- Automating the occupier billing process
- Offering a scalable system across multiple buildings with online access for multiple users.

### > Actions

British Land gained agreement from all occupiers at *York House* to install the AMR system and optimisation process, which uploads electricity, gas and water data automatically to a central system online every 15 minutes. Sub-metering provides granular data, with a breakdown of consumption by occupiers, floor levels and most significant types of usage, from small power and lighting to major pieces of equipment, such as lifts and boilers.

A remote diagnostic service identifies opportunities to reduce consumption, and regular reports summarise all measures completed and quantify the opportunity cost savings.

The British Land team continues to work closely with the building management team to achieve the projected reductions, with the Building Engineer actioning the energy saving recommendations highlighted by the remote diagnostic service.

Energy efficiency measures introduced as a direct result of the AMR system and optimisation process include:

- Repairing a broken sensor that had been causing constant gas use for heating
- Reprogramming the Building Management System (BMS) to fix constant gas use for cooling
- Identifying and fixing faults with the BMS programming for air handling
- Maximising the use of external air for free cooling
- Reprogramming the BMS to facilitate weather compensation, with a new 15.5°C set-point
- Introducing economy cycles and new set-points for summer and winter heating and cooling schedules.



York House

“As well as improving energy efficiency, the metering system and optimisation process are providing the basis for much better collaboration with our occupiers and building management teams. At our green building group meetings, we are able to focus much more on results than we ever could in the past.”

Justin Snoxall, Head of the Business Group at British Land

## Challenges

### Partnership

How to bring together all parties involved in the building, to work collaboratively on initiatives that usually would be managed separately?

A well-established green building management group, with occupiers and the building management team, provided a forum for all parties to discuss the new metering system, as well as to agree initiatives and monitor progress on an ongoing basis.

### Responsibility

How to make sure that everybody involved understood their roles and responsibilities?

Roles and responsibilities were discussed at green building management group meetings and formalised through a Green Memorandum of Understanding.

### Comfort

How to overcome concerns that efforts to reduce energy use would negatively affect comfort levels and working conditions?

British Land believes that energy efficiency is part of good building management, and that a well-managed building provides high standards of comfort. A help desk system records any calls related to room temperature and the Building Engineer promptly addresses any issues.

### Technical and financial

How to integrate and augment all existing metering to capture more detailed data, and how to fund the investment?

British Land forward-funded the capital investment required to introduce the AMR system at York House, recovering this investment through utility cost savings generated as a result of energy reductions.

## Achievements

## Benefits

At York House, British Land controlled energy use has reduced by 38% compared to two years ago, and occupiers' energy use in their areas is 11% lower.

Over the last two years, British Land have achieved:

- 2.4 million kWh less energy use
- £141,000 energy cost savings
- 1,000 tonnes lower CO<sub>2</sub> emissions
- Closer relationships between occupiers and the building management team
- Faster, more efficient and accurate billing for occupiers
- Prestigious awards from the Chartered Institution of Building Services Engineers and Property Week.

\* All figures correct as at 31 March 2011. British Land controlled energy use at York House comprises common parts, shared services and areas occupied by British Land.

## Financials

Across the nine office buildings where the energy metering system and optimisation process has been implemented:

- Capital investment: £960,000
- Forecast annual savings: more than £400,000
- Payback period: within three years.

This initiative has been funded using a range of methods, agreed with occupiers in each building:

- Through the service charge – with occupiers benefiting from energy cost savings
- Through third-party funding – paying this back through energy cost savings
- Through British Land forward-funding – with investment recovered through energy cost savings.

British Land is also including the system as part of the specification process in new buildings.

Total building energy use at York House (kWh)

