

University of Sheffield invests in self-funded greener future

Energy conservation within the education environment

PROJECT AT A GLANCE

Project Type

Educational building

Location

University of Sheffield

Number of Buildings

38 buildings (125,137 m² floor area)

CUSTOMER BENEFITS

- Delivers £500,000 in annual savings
- Direct energy savings of 15-20%
- Cut CO₂ emissions by 1.68 million kg per year
- Reduced reactive maintenance costs by £250,000 per annum
- Eradicated over £1 million of backlog maintenance



With tough new sustainability targets on the horizon, UK Universities are getting serious about energy. From 2011 onwards, capital funding will be directly linked to a University's Carbon performance. Added to which, the introduction of the government's CRC Energy Efficiency Scheme means Universities will have to buy allowances from the government to cover the CO₂ they will emit.

While creating a sustainable campus has become an operational imperative, in the bid to 'go green' today's Universities have to surmount a number of challenges. Against a backdrop of budgetary constraints and spiralling energy costs, finding the funding and expertise to reduce carbon emissions is a significant task.

At the University of Sheffield, an innovative new approach to estate management has unlocked funding for a major £3.8 million investment programme that will deliver direct energy savings of 15-20% and cut CO₂ emissions across the campus by 1.68 million kg per annum. At the same time, the University is tapping into the expertise it needs to achieve long-term and quantifiable performance improvements.

“The strategic partnership with Schneider Electric has enabled us to self-fund energy conservation measures that also deliver against operational cost-avoidance objectives.”

Neil Cameron, director of estates

Self-funding investment

Under a unique performance-based agreement with Schneider Electric – the first of its kind in the UK education sector, the University is using guaranteed operational savings to fund an upfront investment programme to improve the building performance of its estate.

The combined facility improvement and 10-year support deal covers 38 buildings and over 120,000 m² of the University's estate and is on course to deliver up to £500,000 in annual savings - £360,000 of which is guaranteed. Additional operational and environmental performance gains are being achieved through a focused programme to reduce annual maintenance costs and a campus-wide human behaviour change programme.

“Entering into a strategic partnership has enabled us to investigate new and emerging technology – with Schneider Electric taking on the risk of its performance,” explains Neil Cameron, Director of Estates. “Funds that would have been spent on energy bills are being diverted to finance improvements in our older, less efficient buildings.”

First steps

Undertaking a facility improvement programme – incorporating mechanical, lighting and other electrical services – was the first crucial step. Over a 12-month period Schneider Electric worked alongside the Estates Management team to ensure disruption was minimised for staff and students while work was carried out.

“Closing buildings during this phase was not an option,” confirms Cameron.

“Schneider worked closely with staff leads and my team to manage day-to-day operational challenges. As a result the implementation went smoothly and it was ‘business as usual’ for the academic teams.”

To support a rigorous ‘measure, monitor, improve’ model, new metering and data collection services were created to provide a platform for measurable and sustainable improvement in energy use.

“With the first phase of system investment completed, Schneider Electric now works hand-in-hand with us to monitor energy usage on a building-by-building basis,” continues Cameron. “Together we can identify and proactively address any areas of under-performance.”

Alongside the refurbishment of existing heating, lighting and distribution systems and the implementation of new and efficient plant, Schneider Electric has introduced a more targeted and rigorous ongoing maintenance strategy that will reduce the University's annual maintenance bill and eradicate over £1 million of backlog maintenance. In just 12 months the University has already shaved £250,000 from its reactive maintenance costs.

New skills and capabilities

Achieving a long term reduction in Carbon emissions depends on more than investing in the latest technologies. To enable the University's green vision, Schneider Electric's personnel are working directly alongside the University's 100-strong Estates Management team.

"Targeted training and on-the-job knowledge transfer is building a long lasting legacy of in-house capability, backed by a knowledge portfolio we can build on for the future," explains Cameron.

From assessing the usage patterns of individual buildings to making sure heating and lighting controls are consistent with requirements, and undertaking the planned maintenance activities that eliminate wastage and the causes of reactive maintenance, Schneider Electric is helping to improve the long term operational capabilities of the Estates Management team.

Changing hearts and minds

To meet the Carbon reduction challenge, the new partnership is driving a campus-wide education programme to encourage energy responsible behaviours and a greater understanding and awareness of energy issues among staff and students. As Neil Cameron explains, changing human behaviours is a key part of the puzzle: "While we can directly control a percentage of campus emissions, we need to ensure everyone recognises how they can contribute to reducing our Carbon burden."

The results to date

In just 12 months the University has successfully reduced controllable emissions by one third – well ahead of the anticipated 20% target. Ageing installations have been replaced, and strategies to meet tough new energy targets are in place for buildings – with outcomes being accurately monitored and measured. Meanwhile, a new maintenance regime and knowledge transfer programme is building energy management "on the ground" and tackling reactive maintenance costs.

"The strategic partnership with Schneider Electric has enabled us to self-fund energy conservation measures that also deliver against operational cost-avoidance objectives," confirms Cameron. "Alongside implementing the appropriate technology to control our services, we're raising the competency of our Estates Team, are engaging in 'good housekeeping', and are working to achieve the active participation of the entire University population in our mission – all of which will help us build a greener campus."