



Helping The University of Oxford Understand Energy Consumption

Case Study United Kingdom

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Oxford University's commitment to carbon reduction

The University of Oxford is one of the oldest and most prestigious universities in the world. Based in the centre of Oxford, the University is home to over 22,000 students and its infrastructure stretches over 600,000 m² and includes 220 departments distributed across more than 230 buildings.

The University has an Environmental Sustainability Policy in place designed to enhance the positive environmental impact of current and future operations. It also has a Carbon Management Strategy which targets reductions in the negative impact of legacy systems and processes.

Collecting the data

Schneider Electric has a long term relationship with the University and has been involved in an ongoing project for the past 20 years to install main meters and sub meters in all of its buildings. There has also been a movement to upgrade the old analogue meters within the buildings, to new digital ones, to help future-proof the system.

The project extends to new buildings and retrofits in older University properties. These meters are responsible for the collection of all electrical data from the various buildings across the city – including laboratories, libraries and office blocks – and providing accurate timestamped information about how the systems are all working. This data is typically used by the Energy Management and Environmental Sustainability teams for system operation and tracking energy use to make reductions in costs.

Goal

The University has made a commitment to reduce its carbon footprint by 33 per cent by 2020. One of the key ways in which it is planning to reach these sustainability targets is by encouraging energy efficient practices and investing in its estate to reduce carbon emissions.

Solution

A combination of ION meters were installed to help Oxford University in achieving their sustainability goals. These meters are responsible for the collection of all electrical data from the various buildings across the city – including laboratories, libraries and office blocks. This data is then collected by Power Monitoring Expert which is an Energy Management system used by the Energy Management and Environmental Sustainability teams for system operation and tracking energy use to make reductions in costs.

The meters and sub-meters installed by the University of Oxford are a combination of ION7650, ION7550, ION7550RTU's and ION6200 meters. There are over 1,000 meters in total, of which more than 200 are main meters. These meters are designed for key distribution points and sensitive loads, and offer advanced power quality analysis coupled with billing accuracy. They improve power reliability across the University's network by tracking real-time power quality, monitoring equipment status, trending loads, and logging events and alarms.

Once a full and upgraded system was implemented it was much easier for the Energy Management team to ensure that each individual department was being billed correctly for energy use. The upgraded metering system also allowed for the automation of this billing process, which was previously labour intensive.

Interpreting the information

Bringing all of the data together, the University of Oxford uses Schneider Electric's Power Monitoring Expert (PME) software to collect and organise meter data. Prior to the implementation of PME, the meters had to be manually read in every building five times a year, taking a total of two days each time – so there have been considerable time savings for the Energy Management team.

The information gleaned from the PME is used by Building and Facilities Managers across the University to help make savings and increase energy efficiency. It has not only helped the University to reduce energy costs, but also to increase power reliability and availability.

Acting on the results

"The upgraded metering and monitoring system, provided by Schneider Electric, has given us more information on the University's energy use than ever before, allowing us to make more informed decisions and save costs across the board. The University has over 300 buildings, so having all of the important information at our fingertips means we know what's going on anywhere, at any given time. I consider the system to be my 'fifth engineer'" said David Baker, Electrical Engineer in the Estates Services department at the University of Oxford.

The reason for the implementation of this university-wide metering system was to help improve operational efficiency and encourage further energy efficiency. The original metering system was 10-15 years old and was initially built on a single building basis. The new system has been implemented to help with sustainable energy management and carbon management. One of its key benefits is disturbance monitoring, so that potential problems can be spotted early and fixed before they cause any issues – especially with some of the more power-critical buildings like the laboratories.



Quote

"The success of the metering and monitoring system at the University of Oxford is testament to a long-term and ever improving partnership between Schneider Electric and the University's Energy Management team. Regular upgrades to the metering network at the University mean that the team there has all the information necessary to be able to draw actionable insights and make decisions to keep reducing energy costs" said Poonam Walid, Category Marketing Manager, EcoBuildings at Schneider Electric.

About Schneider Electric

Schneider Electric is the global specialist in energy management and automation. With revenues of €27 billion in FY2015, our 160,000+ employees serve customers in over 100 countries, helping them to manage their energy and process in ways that are safe, reliable, efficient and sustainable. From the simplest of switches to complex operational systems, our technology, software and services improve the way our customers manage and automate their operations. Our connected technologies reshape industries, transform cities and enrich lives.

At Schneider Electric, we call this Life Is On.

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