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University

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Case Study: Reducing energy waste is low-cost and high-impact for Cardiff Met University

We chatted with Graham Lewis, Chief Officer University Environments and Property, about how Cardiff Metropolitan University is cutting wasteful out-of-hours energy use.

Cardiff Metropolitan University has made significant cost and carbon savings through addressing out-of-hours energy consumption. By interrogating half hourly billing and private metering across the campus, the estates team has revealed and, is addressing, the disconnect between occupancy and energy consumption. The energy reduction initiative is part of the University's ambitious sustainability and net zero plans.



A decarbonisation journey in action

Cardiff Metropolitan University's Net Zero Carbon Management Strategy plots the institution's journey to achieve net zero by 2030 across Scopes 1 and 2. They are also committed to reaching net zero from Scope 3 emissions by 2035. The University's analysis showed around half their energy was used at nights and weekends, so they set out to 'Halve the Half', targeting this consumption when no-one was around. Supported by TEC, who ran the same analysis across all member data, covering 70% of UK Universities, we found that over 55% of energy consumption in the sector occurs outside of Monday to Friday 7am-7pm.

Half hourly data from 250 sub meters at Cardiff Metropolitan showed where systems continued to operate out of hours. This helped identify where needless out-of-hours energy use could be cut. Common issues such as faulty sensors defaulting to negative temperatures were addressed to stop systems erroneously calling for heat 24/7 thinking frost protection was required. The strategy has proved a high-impact solution with no upfront investment costs. One of the keys to success was simplifying the governance arrangements, empowering the University's maintenance team to 'find and fix' faults without seeking multiple approvals.



Energy and carbon savings

The energy demand reduction strategy has achieved immediate and considerable energy and cost savings. It has cut electricity use by 8%, gas use by an impressive 22%, and water use by 11%. This has resulted in a saving of over £700,000 in energy spend over an eleven-month period after absorbing the impacts of the 30% uplift in water charges. This has equated to 2.25 GWh energy reduction and nearly 9,000m³ of water reduction.

"In common with many institutions, Cardiff Metropolitan faces significant financial challenges. Whilst there will always be some legitimate use, generally buildings don't need energy, people do; we have simply been tackling energy use when people are not around. This has delivered a rapid and impactful cost saving measure without any capital or grid cost. As we were over-heating and over ventilating many spaces, it has also helped create a better internal environment for teaching. Reducing energy demand in this way by interrogating your half-hourly data is a win-win for the higher education sector."

**- Graham Lewis,
Chief Officer University Environments and Property at
Cardiff Metropolitan University**

"Reducing energy demand is the starting point to reducing costs and carbon. Every institution hosts a range of energy use cases, each with its own unique energy profile and demands. At TEC we have a helicopter perspective of all our members' energy use, meaning we can help members identify when out-of-hours energy consumption is happening, and whether this could be a sign of energy being wasted."

Dr John Brenton, Head of Energy and Carbon Reduction Solutions at TEC