

The Midlands: powering the UK's clean energy revolution



University of Birmingham and Siemens energy efficiency

UNIVERSITY OF
BIRMINGHAM

CASE STUDY

The University of Birmingham and Siemens joined forces under a strategic partnership, focussed on collaboration in areas including smart infrastructure, mobility, energy and health. The partnership aims to make the University's Edgbaston campus one of the smartest, most intelligent and sustainable globally.

The team-up is an example of how the public sector and private sector can come together to deliver on decarbonisation goals, with the University of Birmingham having achieved a 2020 goal to reduce carbon emissions by 20% and now looking to go further still.

Since 2021, the University of Birmingham's Edgbaston campus has been a Living Lab where research, teaching and learning have all benefitted from access to new data and connectivity. The Living Lab combines digital sensor and analytics technologies, artificial intelligence, decentralised energy generation and storage, renewable energy and concepts that help change users behaviour. The Living Lab has sought to capture data from the University's building technologies, estates infrastructure and energy plants, before using it for innovation, R&D activities and teaching. By scrutinising energy demand and production with live data from across the sites, it has provided students with a unique opportunity for applied learning and created a platform for cutting-edge research.

As part of this partnership, the University of Birmingham became the first university in the world to rollout Internet of Things (IoT) technology at scale, with 23,000 sensors rolled out across the university estate in the first phase of a major energy efficiency project. Siemens is also delivering a 10-year bureau for energy and IoT services, all with the aim of ensuring that the

University is able to reap the full potential of both the technology and industry expertise.

At the time of writing, several technical solutions have already been implemented, including LED lighting with Enlighted. This helps to significantly reduce energy requirements for lighting by making use of Enlighted sensors that can measure ambient light along with motion, energy consumption and temperature, enabling comprehensive optimisation of space and energy utilisation.

The project has also developed building management. Siemens has identified obsolete management systems that had to be updated to take full advantage of the opportunities of digitalisation and IoT and improved energy management software to track the performance of energy-intensive equipment, bringing with it the potential to improve energy efficiency and lower maintenance costs. The project has also seen the introduction of heating upgrades to eliminate energy waste from heating.

Another key development has been the construction of an Energy Accelerator Building, linking the Edgbaston campus to Tyseley Energy Park. The building hosts the Birmingham Energy Institute, the control room for the campus living lab, a plug and play facility for the next generation energy technologies, and an energy system digital twin.

As the partnership continues over the coming years, the University of Birmingham is set to train up to 1,000 graduates and more than 200 people to doctoral level in energy sector disciplines, helping to build the workforce needed to drive the transition to net zero.

Credit: <https://www.birmingham.ac.uk/partners/business-engagement/industry-partnerships/siemens>

<https://news.siemens.co.uk/news/the-university-of-birmingham-partners-with-siemens-to-create-the-smartest-university-campus-in-the-world>

<https://press.siemens.com/global/en/pressrelease/university-birmingham-partners-siemens-create-smartest-university-campus-world>

<https://xcelerator.siemens.com/global/en/industries/higher-education/references/university-of-birmingham.html>