



Energy modelling

Client's objectives

With more than 130 buildings in 28 cities, Unite Students is one of the UK's leading providers of student accommodation. The business places great importance on carbon management and this resulted in the firm embarking on an ambitious programme to achieve 80% carbon reduction from its buildings by 2050, against a 2014 baseline.

Having initially worked with Unite Students on compliance with the Energy Savings Opportunity Scheme (ESOS), we continued to provide portfolio-wide analysis in relation to the Energy Efficiency (Private Rented Property) (England and Wales) Regulations 2015, commonly known as the Minimum Energy Efficiency Standards (MEES).

The objective was to create a tool which allowed Unite Students to simulate a range of Energy Conservation Measures (ECMs) from simple to ambitious for each of their buildings.

The tool would then need to calculate single and multiple measures across single or multiple buildings using engineering calculations for 45 different ECMs. The tool would need to manage asset and energy data and combine them with survey data to help Unite Students build programmes of ECMs and the associated business cases.

The project

Using data provided by Unite Students, we built an energy profile which estimated the lighting, domestic hot water, space heating and small power loads for the metered consumption.

We next incorporated a cost model which combined fixed and variable costs, sourced directly from contractors. We then built an access database and linked it to the platform with queries to import and export asset data, survey data and HH energy data. Finally we built the business case section which creates ROI and MACC outputs for programmes of ECMs.

Key services delivered

- » Energy data analysis
- » ECM calculation

- » Business case development
- » Training and advice
- » EPC delivery, QA and MEES management
- » Energy and building modelling
- » Analysis and reduction of the 'performance gap'.

Project impacts

The simulations supported the findings from Unite Students ESOS assessment that air source heat pumps have the potential for cost effective and large scale carbon savings, with an average ROI of 132%.

Unite Students can also employ their understanding of the performance gap to mitigate risks when procuring and constructing new buildings.

We are now completing a project to provide a bespoke business case modelling platform which automates energy savings calculations, business case calculations and reduces the gap between the design and the actual energy profile of their buildings.

What our client said

"We commissioned Anthesis to build a tool to manage and analyze data across the portfolio and build the business case for programmes of ECMs.

What we received was a detailed and comprehensive carbon management tool. The commitment to delivering this project has been nothing short of remarkable and the tool will, I'm sure, be used by Unite for years to come in pursuit of our carbon reduction targets."

Gareth Chaplin, Energy Efficiency Technical Solutions Manager, Unite Students

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