UNIVERSITY OF GREENWICH

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ENERGY & EDUCATION CONNECTED

Case study: University of Greenwich turns up the heat on decarbonisation with air source heat pumps

The University of Greenwich is committed to achieving net zero carbon by 2030. The University's estate comprises of three campuses with a huge range of building types, styles and ages. Key to the institution's decarbonisation ambitions is the installation of air source heat pumps at its Avery Hill campus.

A decarbonisation journey in action

With ambitious carbon reduction targets the University of Greenwich has prioritised the challenging area of heat decarbonisation. The institution was successful in gaining £1.1 million funding from Salix for a low carbon heating project under the Public Sector Decarbonisation Scheme. The scheme involves replacing the existing gas-fired boiler with a new energy centre, housing air source heat pumps at its Avery Hill campus. Through a district heating network low temperature hot water is supplied directly to two buildings and through an ambient loop hot water is supplied to satellite plant rooms in three other buildings.

The project will cut the Avery Hill campus' gas consumption by two-thirds, significantly reducing fossil fuels consumption.

Energy and carbon savings

The University has optimised the savings made by the scheme in several ways. The technology has been linked to the University's Building Energy Management Systems (BEMS) and Automatic Meter Readings (AMR) to ensure maximum energy savings. The technical solution can make use of zero-carbon renewable and nuclear electricity purchased through the grid. Following an options appraisal the University decided to add in a cooling element which the institution is self-financing.
The heat decarbonisation project will decarbonise the Avery Hill campus by a further 60%.

Benefits

- Gaining experience of winning grant funding to tackle heat decarbonisation
- Significant contribution to net zero targets
- Ability to extend district heating network in the future
- Knowledge and familiarity with a key emerging technology developed
- Sharing success with other institutions and being a leading light in the higher education sector.

Challenges and lessons learnt

- Holding open days, community days and keeping internal stakeholders informed pays dividends.
- Testing early assumptions and managing changes are key when dealing with emerging technologies and criteria of a Salix grant
- Engaging early with the planning authority and the District Network Operator is crucial. Strict noise restrictions specified by planning conditions had to be overcome.
- Consider procurement route to market carefully
- Ensuring procurement price, quality, programme and social value are all inclusive of procurement agreements is key.

"Heat decarbonisation is a really challenging area so we were very fortunate to win grant funding for this key sustainability project. Implementing an emerging technology like air source heat pumps has been great experience and a big learning curve to all involved. The project is proving to be a very effective and successful way of both reducing our carbon emissions and supporting our net zero goals."

-Noel McSweeney, Building Services Manager at the University of Greenwich